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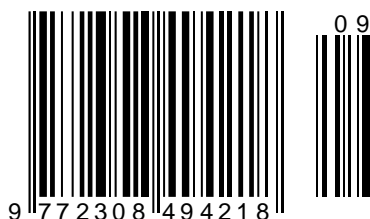
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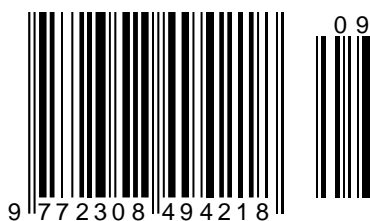
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ABOUT SOME FEATURES OF THE COMBINATION OF CONSENSUS MANAGEMENT OF THE PRODUCTION QUALITY OF DEMANDED PRODUCTS IN THE EYES OF MANUFACTURERS AND CONSUMERS

Abstract: *the authors recommend to the market to revise the concept of forming it with demanded and import-substituting goods, taking into account their attractiveness. Such a concept will fully correspond to the consumer's desire to satisfy his desire and desire to make a purchase, taking into account his social status, providing manufacturers with the sale of their products in full and guaranteeing enterprises stable TPP of their activities.*

Key words: *assortment, assortment policy, competence, preference, standardization, production management, product quality, demand, competitiveness, stable financial position, stable TPP, demand, profit.*

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Introduction

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The domestic light industry is going through hard times, and the consumer is offered products of dubious quality that have entered our markets by counterfeit and other illegal means, that is, they have no guarantees for buyers to exercise their rights to protect themselves from unscrupulous manufacturers and suppliers. It is necessary to reanimate the role and importance of a quality-oriented strategy, since only

in this case the heads of enterprises will subjectively and objectively be forced to improve their production, using nanotechnology and innovative processes, so that competitive and demanded materials and products fully satisfy the needs of domestic consumers. At the same time, the statement is justified that the consumption of domestic materials and products is regulated by the market. In this case, the market requirements should be dictated to manufacturers for the need to increase the role of the state and consumers - to create a stable demand for domestic materials and

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products, namely: to maintain a range of goods, regulating it by federal, regional and municipal orders; stimulate price stability; increase consumer ability and gradually improve their quality. The implementation of these tasks will create the basis for the consumer to realize the need to pay for the advantages of high-quality materials and products, and the manufacturer understands that improving the quality of materials and products cannot be associated only with rising prices, but also due to technical innovations aimed at using new technological and engineering solutions.

Today, and even more so tomorrow, the implementation of one of the defining principles of production efficiency is important - the manufacturer produces exactly what the consumer needs in an assortment that creates the basis for meeting demand.

It is equally important to understand the role and significance of high-quality activities, that is, to what extent managers have penetrated into the essence of things, learned to manage things, change their properties (assortment), form, forcing them to serve a person without significant damage to nature, for the good and in the name of man, that is, in accordance with the requirements of the Federal Law "On Technical Regulation".

Both political leaders and the government have recently been talking about the need for a competent industrial policy. A world-renowned quality specialist E. Deming, who at one time was a scientific advisor to the Japanese government and led Japan out of the economic crisis, writes in his book "Overcoming the Crisis": "managing paper money, not a long-term production strategy, is the way to abyss." Whether the state needs to pursue an industrial policy, one can quote the statement of the outstanding economist of the past, Adam Smith, who laid the foundations of the scientific analysis of the market economy 200 years ago. About the role of the state, he said: "only it can, in the interests of the nation, limit the greed of monopolists, the adventurism of bankers and the selfishness of merchants." You can't say more precisely.

What are the results of economic activity today, what are the achievements in this area? Growth of gold and foreign exchange reserves, decrease in inflation, budget surplus and other financial and economic achievements. And what, is this the end result of public administration, and not the quantity and quality of goods and services sold in the domestic and foreign markets and the population's ability to pay to purchase these goods and services? And, ultimately, not the quality of life of the country's population?

Therefore, it is quite natural that today the task is posed for all levels of the executive and legislative authorities - to improve the quality of life of Russian citizens.

Let's carry out an enlarged factor analysis of the quality of life problem. The quality of life of citizens depends on the quality of consumed goods and

services in the full range - from birth to ritual services, as well as on the ability to pay of citizens, which allows them to purchase quality goods and services. These two factors (quality and solvency) depend on the state of the country's economy, which, in turn, depends on the efficiency of enterprises in various sectors of the economy, including light industry. The efficiency of enterprises' work depends on the state of management, on the level of application of modern management methods, on the implementation of production quality requirements.

The problems of improving the quality, competitiveness of materials and products at the present stage of development of the Russian economy are becoming increasingly important. As the experience of advanced countries that at one time emerged from similar crises (the United States in the 30s, Japan, Germany in the post-war period, and later South Korea and some other countries) shows, in all cases, the basis of industrial policy and the rise economy, a strategy was put in place to improve the quality and competitiveness of products, which would be able to conquer both domestic and foreign sales markets. All the other components of the reform - economic, financial-credit, administrative - were subordinated to this main goal.

Positive changes in the quality of goods imply qualitative changes in technology, technology, organization and production management. Manufacturing must improve, which does not mean becoming more costly. It was absolutely right that attention was drawn to one phenomenon that usually escapes in the troubled bustle - the historicity of the economy. The economy has not always been the way it is perceived now and will never remain. Economic life changes over time, which forces one to tune in to its changing being. The modern economy is built on a market foundation and the laws of the market dictate their own rules to it. In the foreground are profit, competition, efficiency, unity of command. How long will this continue? Symptoms of the new economic order are already mounting, analysts say. The next round of the economic spiral will also revolve around the market core, but the value of the market will not remain total. The priority of market competition, which aggressively squeezes the social sphere to the sidelines, is incompatible with the prospect of economic development, as evidenced by the steady desire of social democracy in the West to deploy the economy as a front for social security and fair distribution of profits. The new economy is called temporarily "lean". It requires humanization not only in the distribution of national wealth. The production itself is also humanized, including the management system. The current principle: "the strongest, the fittest survives", will replace the "social-industrial partnership - the manager and the manufacturer will become members of one team. Mass production will give way to an organization corresponding to the

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implementation of the principle - "the manufacturer produces exactly what the consumer needs." The "lean" economy will be focused on resource-saving technologies and environmental friendliness of production. It demanded a new look at the fundamental concepts. And therefore the philosophy of quality must also change. We must be prepared for the coming events.

The problem of ensuring the quality of activities is not just universally relevant, it is strategic. The dilemma in relation to quality is reasonable only within the limits of opposing the ratio of actions "direct" and "mediated". The saying "it's all about him" owes its origin to quality. It is possible to "forget" about the problem of quality only because any fruitful and luminous activity is ultimately aimed at improving quality. Quality is either "in mind" or "implied." From the relationship in the dynamics of these projections, quality problems in creative thinking are built into an appropriate schedule, reflecting the relevance and profitability of activities aimed at the development of production.

The most significant and global are international quality management standards. The use of modern methods in them makes it possible to solve not only the problem of improving quality, but also the problem of efficiency and the problem of productivity. That is, today the concept of "quality management" is being transformed into the concept of "quality management".

Thus, solving the problem of increasing the efficiency and competitiveness of the economy, and ultimately the quality of life, is impossible without the implementation of a well-thought-out and competent industrial policy, in which innovation and quality should become a priority.

The results of studies carried out under the UN Development Program have made it possible to measure the share of the "human factor" in national and global wealth: 65% of the wealth of the world community is the contribution of human potential, and only a third of the world's wealth is accounted for by natural resources and production structure. A quality-oriented strategy undoubtedly contributes to an increase in the very role of the subjective factor in the development of production, and to a more complete all-round satisfaction of human needs themselves. The desire to "live according to reasonable needs", as well as the need to "work according to one's capabilities," no one openly and officially dared to cancel, realizing the absurdity of denying the essential forces of man. In the "hot" state, the problem of quality is steadily supported by the inner forces of active consciousness and external life factors. The highest function of consciousness is cognitive.

It is believed that learning about nature reveals its quality, state of quality, quality levels, embodying new knowledge in production. Post-classical economic thought shifted quality towards

consumption, trying to give production a "human face" - a person alienates himself in the production process, but this measure is forced and in the systemic sense - temporary, conditional. And here it is absolutely justified that the main thing in production is the result, not the process. Consumption regulates the market. Consequently, market demands must dominate production. The task of society is to contribute to the development of demand in the market worldwide: to maintain the range of goods, stimulate price stability, increase purchasing power, and improve the quality of goods. E. Deming, calling the "network of deadly diseases" of modern production, puts in the first place "production planning, which is not focused on such goods and services for which the market is in demand." Try to argue with him. Production during the transition from industrial to post-industrial society of mass consumption is thought of as a function of the market.

And the authors fill these quality properties with criteria, namely:

- ideology of quality - the perspective of production development;
- quality management is an integrated approach to solving the quality problem;
- fashion and technical regulation - components of the quality of the manufactured footwear;
- quality systems "ORDERING / 5 S" and "THREE" NOT "- not only the basis for the stability and safety of production, but also a quality guarantee;
- quality in the market is a paradigm for the formation of production that meets the needs of the market;
- advertising is always at the service of quality;
- excursion into the past as a guarantee of quality in the future;
- the product quality assessment model is the production priorities;
- forecasting the cost of quality in the development of a new range of footwear - the guarantee of its relevance and its competitiveness;
- methodology of business visual assessment of a product - a means of assessing the effectiveness of quality;
- improving the quality and competitiveness of domestic special footwear;
- on indicators for assessing the quality of footwear - as a tool for the formation of popular products;
- quality and market: a marriage of convenience and this is indisputable;
- the stability of the enterprises - the guarantor of the quality of their footwear;
- all these aspects together and provide a quality revolution, guaranteeing the manufacturer stable success in the market with unstable demand.

The work presented to your attention is the fruit of joint reflections on topical problems of improving the activities of an important branch of the public

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economy of leading Russian and foreign experts. A collectively executed monograph always has an advantage over an individual form of creativity. A separate author, no matter how knowledgeable and authoritative he was, was forced by the nature of the circumstances to explain not only his point of view on the problem under study, but also to talk about how colleagues "see" this problem, to present someone else's view of the order of things, to transform in the process of the declared discussions in their opponents. Such a transformation, despite all its conventionality, is not so harmless for objectivity in understanding. Even such a wonderful thinker as G. Hegel sinned, willingly or unwillingly substituting opponents so that it would be more convenient to criticize them. This work presents an original author's approach and opens up the opportunity to learn the most significant first-hand, without intermediaries, which often darken creative relationships.

The dynamics of market development in the last decades of the last century and at the beginning of the third millennium invariably shows an increase in consumer demand for the quality of goods. For all the economic, social and political costs, humanity is getting richer and wealth is unevenly distributed. Finance, as before, is concentrated in certain regions, however, in the same way as the premieres of modern production. Analysts predict the course towards the quality of goods confidently and everywhere. The new economy is called temporarily "lean". It requires humanization not only in the distribution of national wealth. Production itself is also humanized, including the management system. The current principle: "the strongest, the fittest survives", will replace the "social - production - military partnership" - the manager and the manufacturer will become members of one team. Mass production will give way to an organization corresponding to the implementation of the principle - "the manufacturer produces exactly what the consumer needs." The "lean" economy will be focused on resource-saving technologies and environmental friendliness of production. It will require a new look at core concepts. The philosophy of quality will also change. We must be prepared for the coming events.

The main question is: what dominates in quality - advertising or manufacturer and will the revolution unite them in quality or will it be impossible to do it? But life will judge both.

Main part

The characteristic features of the modern world economy are unstable production and unstable demand. Traditionally, it is believed that the first is determined by the second. This formed the "cornerstone" in the foundation of economic theory, which replaced classical political economy. According to the dominant economic concepts of the 20th century, the locomotive of development is the demand for goods, i.e. not production, but the market

drives the economy. The famous formula of Karl Marx - one of the pillars of classical political economy - $T - D - T$ today is perceived locally, that is, as it looks in the final expression: the sale of goods depends on the amount of money circulating in the market, in other words, real purchasing power of consumers. From the proceeds received by the seller, in turn, the quantity and quality of the new batch of goods - the prospect of production - depends.

The market should strive to be self-sufficient. It requires maximum freedom to function properly. The idea of the founder of classical political economy, A. Smith, about the need for freedom of activity of the producer of goods in the newest non-classical economic theory was transformed into a provision on freedom of the market in accordance with the shift of ideological priorities from production to distribution.

A. Smith was, of course, right in the struggle for the freedom of the commodity producer, while the freedom of the market is far from identical with the freedom of the one who creates the real wealth of mankind. In conditions of complete freedom, the self-movement of the market, starting from the scale of the region, is doomed to instability. Unlike manufacturers who have the opportunity to enter into real cooperative relations and regulate the production of goods by assortment, quantity, price range and other parameters, sellers, most of whom are resellers, intermediaries, speculators, are not heavily burdened with production interests. They have long become professional sellers, resellers. They don't care what to sell, the main thing is to get good and quick money. They absolutely do not care about the future of a particular production.

The viciousness of the market we are dealing with in Russia is as follows: instead of providing normal opportunities for interaction between the buyer and the manufacturer (through the product and demonstration of the culture of its production), our market "divorces" the main market actors, making the figure of an intermediary absolute, usually uninterested in the fate of the manufacturer. One gets the impression that the market exists, so that the buyer is not "steamed" by the interests and real culture of a particular manufacturer, the existence of a merchant is quite enough, by the way, in essence, he has little responsibility for anything.

"Freedom of the producer" and "freedom of organizing commercial activities" (formal legal, financial and narrowly organizational control instruments of the latter have nothing to do with our problem, they do not significantly affect the achievement of production stability, stabilization of financial flows, mutual satisfaction of the producer and consumer) - freedom of a fundamentally different order. The state should not consider the market only as a source of tax revenues, a condition for a healthy lifestyle and safety of consumption.

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The market is a link in the normal development of regional and national production. It is this function of the market that should be recorded as the first line in all documents of state economic policy. The very same economic activity should be built in the form of a policy aimed at consistently protecting the interests of producers, and not so much from foreign competitors, but from fellow countrymen-officials and all kinds of officials who have adapted to the practice, legalized with the help of officials, criminal organizations.

The fantasy of the restless comrade Bender was limited to four hundred ways to get around the articles of the criminal code. How many such methods are now, hardly anyone will undertake to count. The saddest thing is that today Ostap Ibragimovich's extraordinary creative abilities are not needed, and therefore there are much more fraudsters than manufacturers of goods. The anti-hero Ilf and Petrov understood the futility of being a millionaire in his country, fled to Romania and lost a million at the border. For today's millionaires, the episode with the crossing of the border and the robbery of the enterprising "son" of Lieutenant Schmidt is the funniest passage in the novel.

Historical parallels are arbitrary, but instructive. It is senseless to repeat history, it is reasonable to draw lessons from history, to learn from historical experience, mainly national, without disdaining the past practice of other peoples. As never before, the experience of Peter I is relevant in the 21st century. Peter received the addition "Great", resolving the no less difficult situation that had developed in the country by the end of the 17th century.

The western borders of Russia, for the Europeans of that era, were the borderline where civilization ended and barbarism began. Something like this, two thousand years earlier, the Greeks and Romans considered their borders in the north, west and east. Almost everything was in decline: education, education, science, industry, agriculture, construction. The reasoning of the church leaders, who suggested that the fate of Russia to be the "third Rome", spoke to few people about something. And to be the "third Rome", having inherited the faded greatness of Byzantium, did not seem to be a very tempting prospect. Byzantium became an ordinary stronghold of Orthodoxy and, under the influence of the Church, was selective about the scientific and philosophical acquisitions of Antiquity. In the culture of Byzantium, the ideas of Aristotle, medieval patristism and scholasticism were mixed. The understanding of science, which was formed in Western Europe in the 16th - 17th centuries, was resolutely rejected by the Byzantine heirs.

Orientation towards Byzantium was reasonable in the 8th - 10th centuries. The adoption of Christianity and the alliance with a powerful patron contributed to the integration of the Slavs, the

formation of Russia as a single state. At that time, such an alliance was progressive in all aspects of cultural development.

Peter accepted Russia in a state of extreme backwardness, Europe was accelerating forward, leaving Russia with an Asian fate. The greatness of Peter, in contrast to contemporary politicians and spiritual leaders, manifested itself not in greater suffering and prayers, but in the ability to understand the intricacies of real life, to identify and take under personal control the nodal links of the socio-economic chain of events - past and present. He correctly assessed the situation, focusing his efforts on the economic revival of the country, and in essence began to build a new economy. Economic construction showed him a lack of education and education, a general cultural component. Peter launched a cultural "revolution".

The church did not like radical cultural innovations. Peter showed character here too. He did not try to persuade anyone or adapt to anyone. The tsar entrusted himself with the rank of patriarch.

Politics cannot be effective if it only adapts to the specifics of the economy and culture. Politics in everything should be a locomotive, act ahead, guide. It is deadly for politics to accompany a socio-economic movement.

Western ideologists are cunning, portraying the state as an intermediary between production and consumption. They argue that the task of politics is to ensure social justice in the distribution of national wealth, the state should not interfere in the economic movement - it is self-sufficient. The lies of such lobbying concepts become apparent in times of crisis. As soon as a recession begins, a decline in production, debts grow, a shortage of liquidity is formed, producers, especially financial intermediaries, go directly to the state for help and are the first to receive it.

Peter ruled the country with decrees. As a rule, he composed the text of the decrees himself, be sure to explain exactly what purpose this decree has, how it should be executed and what awaits those who do not. A.S. Pushkin, who studied the archive of Peter I, noticed that the decrees were often not fully thought out, the fruit of an impromptu. The great poet and thinker is right in his own way, with the proviso that Pushkin was not a great sovereign. Peter was forced to be operatively cruel. He was responsible for the fate of the Fatherland. The one who took upon himself such a fate should not constantly look back at the laws in force and be afraid not to fit into their letter.

The historical routes are not laid by God, they are not developed a priori, they have to be laid, mastering a new historical space. The professional traveler does not hide behind the laws of nature, exploring the unknown. And in politics it is necessary to show an innovative approach, to improve the legal order of things. Laws are not absolute, they reflect

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reality generalized in legal terms. Politics is the art of managing a historically concrete reality that changes over time. Situational, problem thinking is important here. Realizing that it was impossible to build a new industry, to activate agricultural production without free access to sea transportation, the first Russian emperor resorted to extreme measures. In our time, there is no such need - thanks to Peter I - that makes the fate of politicians easier, without reducing the level of responsibility of actions, their innovativeness.

The easiest way to write off the crisis in Russia's traditional industries is instability and a transitional economic process. The transitional period, which has clearly been prolonged due to vague politics, will come to an end sometime. As far as instability is concerned, politicians will be disappointed. In all likelihood, the cyclical nature of crises, discovered and explained by K. Marx, capitalism has left in the past. Modern crises testify not so much to the peculiarities of the dynamics of industrialized countries as to the crisis of the system of the bourgeois mode of production itself and the weakness of the social superstructure to take control of the growing negative trends.

The separation of finance from real production, the absolutization of the freedom of financial capital, the concentration of financial flows lead development to a dead end, cause anarchy provoked by stock market speculations. Instability becomes a stable, general sign, and at the time to talk about the nature of instability, which, like everything else, is changeable, to hope that instability will not gallop.

A significant part of traditional Russian crafts has developed in the Non-Black Earth Region, primarily around Moscow. The geography of the history of light industry is understandable. There was a stable sales market and there was no shortage of workers, and the Lord did not deprive the Russians of talent. Over the twenty years of the return to capitalism for centuries, the perfected industries have either already been lost, or they are surviving, having lost hope.

None of the politicians "rings the bells" that it is not factories, workshops, workshops that are dying, but a layer of national labor culture is crumbling. Kuznetsov porcelain, Ivanovo textiles, Kostroma lace, Palekh, Mstera, Kholui, Fedoskino, Zhostkovo, Gus-Khrustalny, Dymkovo, Khokhloma - all this made us Russians. Shoes can be sewn anywhere, for example, in China, clothes - in Kyrgyzstan and in the same China. But there are many household products that have grown into the culture of the people who invented them. Their originality is unique.

Talk about cheap labor in China is yet another myth. In non-capital Russia, they earn no more than ordinary citizens in China. The essence is in the organization of production, in economic policy. In the People's Republic of China, the interests of the people and the country really come first. Economic activity

in China has a clear and political landmark. In the Russian Federation, economic benefit is elevated to an absolute criterion, which is absurd, because the economy is not the goal of social development, it is just a means of this development. In China, the manufacturer is maximally protected from "assaults", the law serves as a "roof" for him; the procedure for communicating with the buyer (customer) is extremely simplified, which significantly reduces the time of the transaction and the execution of the order, minimizes non-production costs; relations in the market are close to the normal conditions of its functioning.

Russian laws regulate the market space. The market space is a legally formalized reality, conditionally built according to the formula "it should be so", and this does not mean at all that it is and will be so. The actual market reality is built as an environment for the interdependent coexistence of the producer, the seller (if the producer himself does not act as such) and the buyer - consumer (the inclusion of a reseller is highly undesirable).

Russia has always been strong in the spirit of its provinces. The capitals accumulate the spiritual forces of the outskirts. It is these forces, like springs and small rivers, that give birth to large ones. The current flourishing of Moscow and St. Petersburg should not be misleading. Real life continues in the vastness of the country. 130 million Russians still live and work where our real power of the people is concentrated. What is encouraging? Strength of character of people. J.I. Alferov's foreign colleagues-scientists asked: "Are you an optimist?" He replied: "Yes, and my optimism is invincible." "Why?" Was the next question. "Because, the famous physicist explained, there are more and more optimists around me. Pessimists have moved to your countries. With which I congratulate you."

The authorities do not want to see the specifics of the Russian model of unstable demand for consumer goods: footwear, clothing, food, furniture, and household items. In Europe, the USA, Canada, during the crisis, the purchasing power of the bulk of the population decreases and, accordingly, the prices of goods go down, compensating, at least in part, for the satisfaction of essential living needs. The dynamics of prices for consumer goods in our country is always directed in one direction - increasing. Oscillations, of course, are observed, they are only noticeable in the official statistics. A normal market cannot change regardless of the state of production and consumption.

The Russian market reacts to changes in the exchange rate, but again only in terms of price increases. The impression is that the market is run by "puppeteers". The version is not indisputable, nevertheless, it is logically quite admissible. The authorities do not show activity, explaining that the desire to use regulatory mechanisms will inevitably

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lead to the impoverishment of the market and a shortage of goods. The natural question is: where will they go? No answer. Indeed, try to explain where Chinese, Turkish, Latin American goods, products of Poland, Hungary, Ukraine, Moldova, Azerbaijan, Uzbekistan, the Baltic states will go from the Russian market? Who else needs them?

We need the protection of our own producers, who feed us, put on shoes, and dress us. Russians in the last decade of the last century understood the advantages of domestic food products. The next step is the quality of light industry goods. And the state can promote their sustainable appearance on store shelves. What needs to be done for this? Develop a specific program and strictly monitor its implementation by officials.

The program for the return of Russian manufacturers to the market should provide for reciprocal steps by the state and enterprises. Going back to what and how they sewed before is pointless. An internal restructuring of production is required, and the market begins to feel it. Shoe and garment enterprises have appeared in Russia, supplying products that are quite competitive. The buyer, however, is still more surprised to find such products. Nevertheless, the process has begun and it needs to be promoted.

Of course, we are not talking about additional financing of the industry. "Industry" is a collective concept that does not generalize not achievements in assortment, design art, quality, color. All manufacturers of certain products fall under the general concept. Both those who seek to modernize production and those who do not rely on their own strength are accustomed to asking for help from the state. Only innovators deserve additional financial assistance; it is effective in targeted implementation. We must help preserve traditional folk crafts. They are technically and technologically conservative, with limited innovation.

The government responded to the appeal for help from VAZ, St. Petersburg, Ural, Far Eastern enterprises, referring to their city-forming and national importance. Everything is correct, except for one thing - what kind of patriotism, what national pride can we talk about if a Russian is dressed and shod with foreign manufacturers, and foreigners will also feed and water him. A great power starts small - with the realization that we can do everyday things ourselves no worse than anyone else. We are surrounded by little things, they are in everything, and their meaning is not always fully visible, but it is they that create our mood.

Outdated VAZ products were exchanged for new cars, the state subsidized the exchange. An old suit cannot be handed over in exchange for a new one, and shoes that fail to meet the requirements cannot be taken back to the factory. There is another option - the state is able to compensate the buyer of domestic

clothing and footwear products, say, 15 - 20% of the price. This particular form of protectionism will turn the buyer towards domestic goods and help speed up the sale of products.

It is no secret that the Russian consumer of footwear, unlike the manufacturer, expects to carry the purchased goods for more than one or two seasons. Products will need updating, repair. Why not, following the example of branded service stations, organize a branded network to support the operation of footwear and clothing. The repair would be cheaper and better. Equally important, such service would enhance the reputation of the manufacturer. The average buyer, purchasing domestic shoes for 1500-2000 rubles, naturally thinks that he will wear them for a long time. His choice of repair addresses is small: to do it yourself, to go to a shoemaker-handicraftsman or to a company workshop. It is advisable to make workshops consolidated, so it will be less costly.

The state should take upon itself the lion's share of the costs of organizing the economic and industrial educational program. Branded foreign shoes are not worth the declared price, so sellers easily carry out various promotions and markdowns. The buyer, who is not privy to the intricacies of the market, naively believes that the difference in price is proportional to the difference in the quality of the goods and saves money, takes out a loan so as not to make a mistake with the choice, advertising constantly reminds him - "the miser pays twice!" Next to the branded shoes there are fashionable, made of genuine leather, tastefully finished Russian products, the price of which is one and a half to two times lower, but who would explain that they are of the same quality. On the contrary, the advertising policy paid by branded companies purposefully creates the idea that it is impossible to produce high-quality modern goods at Russian enterprises.

The program "Habitat" was launched on television, debunking myths about the usefulness of foreign products. We need a similar program dedicated to the quality of light industry products. Rospotrebnadzor regularly restricts the import of food products into the country due to exceeding the maximum permissible levels of ingredients that are harmful or hazardous to health. The dangers of shoes and clothing made in China are reported in Turkey sporadically in connection with any high-profile incidents. A suspicion about the strangeness of such a policy involuntarily arises. Someone benefits from shielding the main competitors of domestic manufacturers. Lobbying in Russia is legalized and has become a good business for officials hiding behind world practice.

Scattered and still weak enterprises find it difficult to resist a large-scale, well-developed policy that facilitates the occupation of the Russian market by foreign producers. This is also facilitated by the abolition of the mandatory certification of goods. The

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measure is probably suitable for Western Europe with its consumer culture, but not for Russia, which is littered with counterfeit products of the most problematic manufacturers. There is no need to wait for a decline in market tension in order to win a place in the market, to gain stability, you need to act assertively and comprehensively, to revive the former Soviet experience of organizing work with a potential consumer. Fortunately, the development of the economy opens up prospects for this kind of activity.

Practice is effective when theory sanctifies its path. At first glance, turning to theory in the conditions of anarchy in the market is not quite timely. On a fire, you need to extinguish, not reason. It depends on what the fire is. Sometimes it is important to think about how to act, develop a plan, and identify possible plots for the development of the process. As for the conquest of the market, there is no way to act without a systematic understanding of the situation. It will turn out to be too primitive and ineffective.

The economy of the 20th century developed as a mass production economy. The organization of mass production was an outstanding achievement that provided access to material benefits for a significant part of humanity - there were a lot of goods, they became cheap. But mass production made the problem of the quality of the manufactured goods actualized.

The growth of prosperity, the development of education, cultural progress, the increasing technical range of products naturally shifted the interest of consumers in the direction of the quality of products offered on the market. The problem of quality was transformed from a purely production problem into a socio-economic and political one. "The large-scale crises in Japan and Germany in the late 1940s were overcome with the help of government policies focused on improving quality. The crisis situations in the US and European markets that arose in the late 80s - early 90s forced not only individual corporations, but also entire countries - Sweden, Great Britain, the United States - to pay attention to quality improvement as the only means of helping national economy to resist the onslaught of competitors".

Quality is a systemic characteristic of a product, in which the product appears in its holistic expression. In its most general form, "quality" is "what Hegel wrote, losing that, the phenomenon ceases to be itself." It is reasonable to assume that the understanding of quality is due to the nature of the phenomenon. Phenomena of natural origin, that is, arising without human participation, are entirely objective, and the quality of such phenomena is the exclusive result of their self-movement.

The phenomena associated with the origin of human activity are also objectively qualitative, but the objectivity of the quality of these phenomena is dualistic. An objectified part is added to the natural basis of a commodity produced by a person, as a rule, a reified expression of the creative component of labor

- knowledge, considerations, feelings, skills, in a word, what in the aggregate appears in the concept of the qualifying contribution of the subject of labor to the process of creating a commodity from an object.

The quality of an object turned into a commodity is formed by the interaction of the natural, humanitarian and social. As a result, a person has a natural right to see the quality of a product in the system of his, human, values. From here we get the opportunity to draw a very important conclusion: the quality of natural phenomena is given, the quality of created goods (products) is built simultaneously with the formation of the ability to feel quality. The upbringing of high-quality ideas can be spontaneous, incidental, or directed, modulated. Once the famous French artist E. Delacroix was asked if he could paint a portrait of Madonna with mud? Yes, he replied, only I need an appropriate background. The upbringing of the consumer is not only a matter of the consumer himself. It is also an opportunity for a manufacturer to have a regular customer.

Investigating the problem of the characteristics of the quality of goods, we did not find works devoted to the system analysis of quality - considering it in a system that links production, market and consumption, namely, it contains the opportunity to find an answer to the fundamental question: how to achieve a stable position in an unstable environment of existence.

The literature mainly deals with the quality of production of goods. And in this direction, the theory has reached the state of development that is required for practical progress in quality management. But this is clearly not enough to manage the activities of enterprises, taking into account the volatility of market dynamics.

The demand for goods produced at enterprises of the light and food industries (and not only!) Is due not only to an expert assessment of the quality made by the production or at its request. The fate of a product is decided at the crossroads of interests and financial capabilities of three subjects: the producer, the consumer and the market that connects the first two. In concrete terms, it looks like this: everyone solves his own problem, but should not absolutize his status, remembering his systemic position, which obliges him to act with an eye to the potential of the "partners" - are they ready for the proposed solution to the problem. That is why it is so important today to stay ahead of practical steps with balanced assessments of the current situation.

In the last quarter of a century, the term "problem", pushing its "competitor" - "task" to the periphery, has firmly established itself in the verbal leaders of all discussions, regardless of their scale. The "problem" has become a kind of "brand", indicating the high professional rate of discussion. In such a rapid ascent of the "authority" of the problem, one can easily find political roots. The current, clearly

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inflated status of the problem is an ideological move that secures a certain political line. Deficiencies in qualifications can be hidden behind a problem, and politicians are led away from real matters by problems, which they are unable to solve.

There is indeed an element of mystery in the “problem” policy. In the interpretation of the term, domestic classics: V.I. Dahl, R. Brockhaus and I. Efron - point to this. Emphasizing the natural kinship of the “problem” and the “task”, they note the peculiarity of the problem, which manifests itself in its unusualness as a task: the task has a way of solving in existing existence, the problem is also solved as a task, but so far there is no way to solve it. It exists conditionally, potentially. Interpretation of the problem by reducing the concept to a more general concept of “task” contains a hint for those who are aimed not at discussion, but at a solution. The solution to the problem should be sought by considering the problem as a complex problem, composed of several coexisting in a complex or sequentially related problems. The important thing here is that the “problem” is not something inaccessible to ordinary thinking, it is the sum of tasks. Dealing with the problem is like decrypting this sum of solution problems, then the simpler, already known problems combined in the problem. The problem should be presented as a technical problem. The solution to a technical problem is carried out in two ways: empirical or theoretical. All five of the simplest technical devices were created before Archimedes, even the “Archimedes screw”, but they were all the product of an experimental search built on trial and error, so their use and modernization, integration presented considerable difficulties. The merit of Archimedes was that the great ancient thinker developed the theory of these mechanisms, thereby helping to solve practical problems of various scales. He “removed” the problem, presenting it as a sum of problems, and found their solution.

So, we must start by reducing the problem to a normal technical expression, i.e. try to represent it as a certain amount of tasks.

Why exactly tasks? The answer, in essence, has already been given: the problem has a quantitative (normative) expression, or it can be simplified to the possibility of quantitative expression. The main thing is not to hide behind the quality of the problem, but to look for its equivalent quantitative expression.

The history of science naturally begins with mathematics, and the qualitative level of development of scientific knowledge is due to the improvement of mathematics. Mathematics holds the keys to the secrets of any discovery. D.I. Mendeleev constantly emphasized: scientific knowledge begins with measurement. The normative form of scientific knowledge serves as a clear illustration of the value for science of a quantitative description of a phenomenon. Finding a way to quantitatively describe an event means fulfilling a necessary condition in unraveling its qualitative existence.

The problem is the allocation of a phenomenon in the theory of quality. The next stage is already technical - the definition of regulatory characteristics. Normativeness, represented by properties and quantitative parameters, allows thinking to be engaged in a working, professional and practical business.

When developing standards, they always feel the pressure of the need to match the set parameters to the qualitative characteristics of the product. Compliance with the norm and quality properties is objectively relative, their coincidence is achieved conditionally, i.e. it takes place because the manufacturer himself determines the quality parameters of the product, often this is entrusted to expert organizations. But all the same, some quality model is taken as quality. Someone, to put it simply, assigns quality. The real quality in such a perfectly acceptable version of the development of events remains a transcendental formation.

Why did subjective and transcendental idealism turn out to be so in demand in various spheres of non-philosophical professional activity? Because thinking professionals, including reflective engineers, scientists, teachers, have found in them a solution to their specific issues. Someone decided not to complicate professional reflections by recognizing the supersensible as reality, limiting themselves to the “quality model”, others thought that sensual reality would deprive us of a reliable intersubjective quality criterion and condemn us to eternal discussions on the topic “What is good and why is it not bad?” They accepted the idea of a transcendental substance, primary in relation to the individual consciousness, which can direct professional thought by its logic. Of course, the transcendental being will not expose the formula for the specific quality of the product, but it will communicate the logical premises of the definition. As a result, it will equip professional searches for qualitative definiteness with the technology of thinking.

Philosophy is not a set of master keys to understanding quality, however, like quality, it is not Aladdin's cave. The understanding of quality changes historically following a change in the state of real quality, and the real quality in the world of human life is far from the same as the quality of natural things.

A person learns from nature, imitates what he sees in it. If the “findings” of nature, formed over hundreds of millions of years of natural selection and inheritance of the emerging traits, help a person to solve his problems, he borrows them, remaking them for himself.

The “first shoes” and “first clothes” created by man differed little from the protection of the limbs and body of animals. The sole of the shoe is inspired by the protective layer of the skin of animals that lived next to humans, the heel is a stylized copy of the

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structure of the hooves. Our ancestors either did not wear clothes, or were made from ready-made skins.

Together with the establishment of relationships with nature, human ideas were formed, which later grew into an understanding of what was happening. The understanding of quality was originally formed under the influence of the objective properties of things. With the development of human activity, imitation gave way to creativity. Already the rock paintings of our ancestors show that consciousness was not content with copying. It was looking for its own paths of movement. A person could not only repeat the quality of things, he was obliged to supplement them with history, to adapt them to an active way of existence. The historical logic of human existence, built on the basis of its reasonably active nature, made it necessary to include in the understanding of the quality of things of anthropogenic production of elements of non-natural and non-material origin - the needs and interests of man. "Quality" is included in a system of relations that is different from the natural one, and its influence on the interpretation of quality only increases with time. This acceleration has become especially noticeable in the context of market liberalization of the economy.

Man is *Homo sapiens* for anthropologists and biologists. For himself, man is a creature conditioned by needs. And here nature cannot be deceived. F. Engels was not cunning when, at the grave of his comrade and idol, he said that before creating, a person must drink, eat, dress and have a roof over his head.

Human life as a biological phenomenon is essentially material, the possibilities of transforming human activity are determined by the state of production of the material foundations of life. A person measured and measures the quality of things not so much depending on their relationship with other things, but on their relationship to them. Even ancient thinkers noted: "Man is the measure of all things."

Modern man will not produce what he does not need. E. Deming always began listing the seven deadly diseases of the market that he established with a discrepancy between the product and the market demand. What has been said should not be absolutized, tearing it out of the general system of reasoning about quality, however, it is clear that in determining the quality of things created by man, it is necessary to proceed from the human attitude towards them, and not from their objective properties alone. A measure of professional labor is invested in the produced product, even when it is not intended for the market, it has absorbed the human principle: knowledge, will, skill, therefore it cannot be determined purely objectively through the presence or absence of natural properties.

The natural principle of the product of human activity represents only objective grounds that made it possible to build on them another part of the product,

which materialized the quality of the individual's labor. A person, as it were, shares a part of himself: he transfers the reproducible part of his professional quality to another material phenomenon. Moreover, this is another phenomenon - the product of the activity of the master.

In this respect, nature is only an accomplice, the raw material base of the master. Determining the objectivity of quality, they often simplify the interpretation of objectivity. It is inappropriate to reduce the concept of "objectivity" to material, natural existence.

It is broader and allows for such additions as "objective relations that have a nature different from matter" - they are not material, but only establish the way of their coexistence, for example, production relations: property, distribution, exchange.

When characterizing the quality of the product of activity, it is advisable to rely not so much on its natural nature as on the concreteness of the product's existence - its spatio-temporal functions and design. The portfolio is purchased not for the season, therefore the buyer is guided, first of all, by stable trends in fashion, preferences of his own taste and high-quality, natural properties of the thing. He is ready to exchange "good" money for a rather expensive product.

Moving to the shoe department, the same customer of the store will change his view of the product. Limited in funds, and most importantly, not accustomed to "throwing money down the drain", he will be guided by a different approach.

They try to buy shoes for a season, for a maximum of two, therefore, it is also possible to invest "good money", however, in the concept of "good money" it will be necessary to modify the relationship of priorities.

In the new expression, the concept of "good money" will be correlated with the concept of "price". Everything, ultimately, will be simplified to a specific quantitative proportion - money per unit of time. A portfolio bought for ten thousand rubles for five years will cost three rubles a day, and shoes for five thousand rubles (for two seasons) will cost about thirty rubles a day. The quantitative equivalent of quality is the most important sign, ignoring which the manufacturer risks losing consumer interest.

To find the optimal proportion of the ratio of quality to quantity - to measure quality, one must take into account two requirements: first, try to comprehensively determine the quality, remembering that quality is a set of essential features of a product, built in a certain way; secondly, relying on the decoding of quality, in the most serious way to highlight the levels of quality being - the degree of quality of the product.

In Soviet times, it was no coincidence that there was a deep differentiation of the quality status of products. Only after studying the state of purchasing power, the mood of your buyer, the trends of

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macroeconomics, it is advisable to move to a pricing policy.

A manufacturer who has forgotten that the consumer, to whom he has oriented his assortment, perceives the quality of the offered products through the price combined with a clever consumption pattern, will not last long. The reason for the difficult position of the Russian manufacturer is not a change in the form of ownership, but the dictatorship of the market.

Marketing research is a new and unusual business for us. For twenty years of incomprehensible economic policy, it is impossible to integrate into the philosophy of market relations, which are several hundred years old. The absence of a civilized market in the country also hinders. In a word, the manufacturer should look for salvation not from the state, but in his own head, adjusting his consciousness to the market waves clogged with numerous "noises". To steer, you need to know the market conditions and not "stuff" thinking with memories of the objectivity of quality properties.

A quarter of a century ago, the director of a large leather and footwear enterprise bitterly explained: "Technologically, we are ready to sew the most high-quality product. No quality leather. The incoming raw materials do not allow us to expand on the market". He equated quality with the raw material base. The variety of quality was reduced to one of its features. He clearly lacked the scope of thinking. And today's thinking has remained similar to that formed forty years before 2000, when the position of classical political economy, developed by K. Marx, seemed unshakable.

A. Smith, D. Ricardo, J. Mill, K. Marx developed an economic theory based on the dominance of labor. Classical political economy is the doctrine of the production of a commodity, the contradictions between production and the nature of the commodity, alienation of the producer in the commodity and overcoming the opposites that arise. Despite significant disagreements, the classics of labor economic theory were unanimous on the main thing: the wealth of a nation grows with productive labor.

Market speculation already in the nineteenth century. actively invaded economic life. Naturally, the classics knew a lot about the market. Karl Marx, the interest in which, more precisely, in Karl Marx's analysis of cyclical crises, surpassed all expectations today, even experienced certain difficulties, moving from the logic of the development of production to the study of the fate of a product on the market.

The market, contemporary to K. Marx and J. Mill, has already demonstrated a certain independence of being, but it was not yet capable of competing with production for a master's position in the economy. He acquired this ability by the middle of the twentieth century.

In the 50s. XX century the paradigm of economic theory is changing. If earlier economic thought revolved around production, now consumption - purchasing power, market development - becomes its epicenter. The understanding of labor and the worker is changing. Market figures become the main actors in the economy. Market management pushes production managers to the fringes of life. The market is acquiring an independent power that dominates society. Politicians are legally separated from the market, adding to the illusion of its complete freedom. The new philosophy of economics seems to be this: the flourishing of the market should lead to an increase in production. The rise in production should saturate the state treasury. The state will receive a real opportunity for a strong social policy. Everything, as we can see, was painted according to notes.

There was only one question: where to get the initial capital, which would allow to ensure high consumer demand and launch the economic mechanism? The United States profited from World War II, Western Europe used cheap labor and property in numerous colonies. With Japan and South Korea, the Americans defended themselves against us and a resurgent China. The economic mechanism seemed to work. Control over it is entrusted to transnational corporations. Today there are about 3400 of them. Of these, there are more than 400 interstate, 7.5 times more nongovernmental, and the number of the latter is increasing. Between 300 and 600 companies control the world market.

The globalization of business forces us to seek adequate quality management. Total quality management is defined as a customer-centered system of continuous, sustainable quality improvement, based on the coordinated involvement of all departments and employees of organizations to maximize customer satisfaction with a minimum investment of time and resources.

Let us note the emphasis of the policy aimed at ensuring quality, on the needs of the buyer, which implies a comprehensive study of his tastes, calculations, ideas. On the merits of the case, the consumer is considered an accomplice in the definition of quality. Quality requires a new scale of understanding, objectification of consumer interest and a clear orientation in the trends of macroeconomic processes on a national and global scale. The technical regulation of product quality also needs to be systematically modified in order to be in resonance with the micro and macro movements of the economy, changes in consumer real demand.

In particular, there are reasons to predict an increase in the presence of sellers from Western Europe in the consumer market with offers within the middle range of prices for goods of "non-Chinese" quality. In 2008, there were 350 million people in industrialized developed countries. received an

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average of \$ 18 per hour. The labor force available to European and individual Asian countries is estimated at 1 billion 200 million people, earning only \$ 2 per hour so far. They cannot fail to attract attention to themselves.

Crisis 2008 - 2010 led to a decline in production, stagnation. Russian manufacturers have a chance to make themselves known. With the overcoming of the crisis, production will begin to grow and a new wave of commodity expansion will come.

The waves are unlikely to be avoided. The country's leaders are accelerating Russia's accession to the World Trade Organization (WTO), which automatically opens the borders for trade. There is only one way out - to prepare for tougher competition, and the preparation should begin with the realization that the quality of the product is and how to ensure the production of a real - not ideally built by professional imagination - quality product, the quality of which would be understandable to the buyer and aroused the desire to purchase this product.

"One of the most significant paradoxes revealed by the ongoing scientific and technological revolution," rightly believes B.S. Alyoshin et al, - it became that the most effective means of achieving a positive result is improving quality in the broadest sense of the word. " And they explain: "We are talking about the quality not only of the products themselves, but also of the organization as a whole, ie. about the quality of its interaction with the outside world, about the quality of its functioning and management, the life of its employees. "

More and more researchers are approaching the idea of the broadest context for determining quality. Quality should characterize a non-isolated phenomenon. In quality, the relation of the phenomenon to the environment of existence, the conditions of expression, and other phenomena is manifested. Confusion in the ranks of analysts is brought about by the definition of quality by Britannica, reprinted in the Great Universal Encyclopedia: "Quality in philosophy is a property that characterizes things taken separately, as opposed to an attitude that characterizes things taken in pairs, threes, etc. ". G. Hegel said that quality "is that, losing what, the phenomenon ceases to be itself," but the dialectically thinking German philosopher did not even think of isolating the phenomenon as a quality. For G. Hegel, it was a concept reflecting the relationship of a phenomenon. The advantage of Hegel's dialectical thinking was consistency. He thought of relations, phenomena as a system and logically meant a system-forming factor. The phenomenon does not dissolve in the system, it forms it by its relations, which, in turn, together with the phenomenon, form what we call quality. By the way, G. Hegel was not the discoverer of quality in the system of relations of a phenomenon. Similar ideas

were expressed, one way or another, by his predecessors. "Objective qualities (ie those inherent in natural things themselves) and subjective qualities (contained only in human perceptions) were already distinguished by Democritus, later by Galileo, then by Locke, who was the first to use the terms " primary "(ie, objective, material-physical) and "secondary" (ie subjective, formed due to the psyche) qualities ".

Subsequently, I. Kant called Locke's objective qualities a priori (ideal), and subjective qualities a posteriori (real). It is not difficult to see in philosophy the opposition not so much between the idealistic and materialistic interpretation of the concept of "quality" as the supporters of simplified materialistic views on quality and their opponents, who suggested including in the definition of quality signs of human activity.

While there was no human consciousness, everything that exists was represented by the existence of objects, things, their properties, relationships, movement. To define the world before human existence, two initial concepts are quite sufficient: "object" and "process".

The situation changes with the emergence of consciousness. All the main directions of the activity of consciousness: cognitive, communicative, regulatory, are manifested in the format of reflection of objects, and reflections of a fundamentally different one than all known in nature. Strictly speaking, consciousness reflects, in the most general sense - reproduces. In a concrete sense, it reconstructs objects, because it is not capable of reflecting an object in a physical representation. The expression "we look with our eyes, but we see with our mind" quite correctly reveals the essence of the "reflection" of an object in the forms of thinking. If the image is still somehow comparable with the object, then the ideas are very far from object-specific certainty. At the same time, one thing remains: to recognize the qualitative relationship of the object and the reconstruction of the object by consciousness, similar in essence, but not in the form of being.

For consciousness, an object acquires a specific way of existence - it becomes an object. An object is a product of the interaction of an object and consciousness. Along with the object, the quality of the object also appears, which may or may not coincide with the objective quality of the object - in the case when the subject enters into systemic relations with the object, it forms a system of the "subject - object" type.

Specifically, such a system manifests itself in the form of production, manufactured product, relations in production. "The quality of processes, organization, life is a motivator of a higher level in comparison, for example, with profit," says B.S. Alyoshin.

In support of this, he gives an interesting table (Table 1).

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Table 1. The results of a sociological survey on ten factors of the successful operation of the enterprise

Success factors	Share of surveyed enterprises, highlighted the most important success factors, in%	
	1995	2000
Product quality	95	98
Customer service	93	96
Introduction of new technologies	88	90
Attracting highly qualified personnel	85	91
Development of new products	85	90
Shorter time to market with new products	80	89
Improving the organizational structure	75	84
Intellectual property protection	59	60
Cooperation with suppliers	55	63
Development of foreign markets	54	70

Correct definition of quality, consistency and systematic quality management gives the manufacturer a decisive advantage in the competition for the consumer. It would seem that everything is simple, but simplicity is equally brilliant and deceiving. The general plan for solving the problem determines the vector of movement, sets the factorial priorities of the activity - no more.

The program requires a detailed study of all components, starting with clarity in the definition. The definition of quality, as we have already seen from a digression into philosophical history, is not so obvious and unambiguous. Hence the confusion in the idea of quality.

The first reason explaining the weakness of the quality management policy is the vague distinction between "item quality" and "item quality", i.e. subject in the system of human interests. Over the two decades of perestroika, we have retained an orientation toward defining quality as an objectively given state of an object, a set of natural properties. The mechanistic transfer of the characteristics of natural phenomena to the definition of the phenomena of an artificially created world of things has nothing in common with dialectical materialism. This is a parody of the dialectical understanding of the world.

A product made by man is dual in nature, it combines the natural properties of raw materials and the characteristics brought into it by human labor. The product has a rental value and added value. In this context, it is not value that is important - it serves as a quantitative equivalent of the quality of a product in general, and the result of labor is presented in the form of a transformation of the natural state of an object. The product of human activity has a natural, basic, level and a superstructure, introduced. Hence the need for a dualistic perception of the quality of the product,

which should not be interpreted primitively as a double quality. The quality of the product is one, but the production duality of the product is associated with it.

Such two-sidedness of the quality of the goods misleads those who have not yet understood the art of dialectical thinking, strives to sort everything out "on the shelves", forgetting about the structure of which these shelves are parts. The quality of a product is determined only by a natural basis, but it is built artificially.

The quality of the product has several creators. Some of them - fashion designer, constructor, technologist, manager - are always in sight, their qualifications and experience are measured without problems. Others are also within reach, only their measurement is difficult, especially when it comes to the consumer.

The economic situation affects both producers and consumers, shakes the market on the waves of its uneven movement, and together with purchasing power and perceptions of quality.

Our emphasis on market research should not be seen as a call to market the clues to quality. Thus, we want to emphasize the importance of the market factor in the development of the theory of product quality.

The market attracts attention as a concentration of opposing interests, this is the "frontal" place where some "execute" others, then "execute" these others. Americans rightfully consider the market to be a "sacred" affair for society, carefully protect market tournaments from monopoly "raids".

In the United States, a lot of money is spent on the study of market trajectories, unlike our capitalists, of whom every second is an "illegal" in the economy, and the third is a representative of a "gray" economy. In such a situation, try to obtain an objective result of

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research on the "spirit" of the market, to monitor the mood in the market with the expectation of getting closer to the true reflection of the existing attitude towards the product.

The difference in product quality and understanding of quality is becoming increasingly significant. In determining the quality of a product, such factors are taken into account that are irrelevant to consumer attitudes: environmental component, manufacturer's traditions, etc. Add to what has been said and views that do not coincide in a number of positions, we get an interesting picture: no matter how hard the interacting subjects of relations try to develop a consensus of quality, the discrepancies will persist and will increase over time. If the natural properties, taken in the initial state of the product and taken into account in its quality, should not change significantly during the warranty period, then the perception of the product through quality changes under the influence of many reasons. That is why leading manufacturers are reviewing their product range, looking for new design ideas, trying not to be hostage to traditions, minimizing their presence and modifying them whenever possible.

The quality in terms of the expression of the spiritual component in it has been little studied. The prospect, on the contrary, strongly requires such knowledge, the development of methods for obtaining and evaluating it. One must come to terms with the fact that the era of workshop production, when the quality of the product and the image of the quality of the product coincided due to absence, the competition was forever gone, then the consciousness had nothing to choose from, and without choosing an image different from the object, it is difficult to form. The quality of the goods was dictated by the shopkeepers, no one could object to them.

In the XXI century, the situation is different. The image of quality is no less important for the market than the objective quality of the product itself. As soon as the object of production turns into an object, the human component is included in the quality of the object, and it is completed in an image, combined with the object, into the overall quality system.

The consumer who is able to unravel the tangle of subjective-objective relations that form the quality of the goods presented to the buyer to satisfy the market need in the state. In their student days, today's specialists most often did not understand why the philosophers were explaining the "objective" and

"subjective" to them. It seemed that they were engaged in irrelevant business.

The Soviet limited consumer market did not reveal the dialectic of the objective and the subjective. Often, teachers unprofessionally analyzed these concepts, there was no specific context. Surprisingly, even today not everyone has managed to realize the professional significance of the basic philosophical categories; they think like materialists-metaphysicians who divorced the ideal and the material, the subjective and objective into independent and incompatible sets.

Analysts describe the world surrounding the modern manufacturer rather harshly; "The consumer dictates what, when, at what price and in what form he wants to receive; competition in the market is intensifying due to its globalization: the needs of buyers and the situation on the market are changing at an ever-increasing speed. "

From the outside, what is happening looks very chaotic, raises doubts about the systemic organization of relations. Nevertheless, we are not facing chaos, but a complex system that obliges us to think systematically. Whatever fantasies the master who constructs the lock is guided by, he knows that there will be someone who can make a key to it and gain access, because all creativity begins with chaos and ends with the acquisition of order.

Outwardly, determining the quality of a product produced for sale on the market seems to be an impossible task, because for this it is necessary to combine not converging, but, in the main, diverging views.

The designer, technologist, manager develop their understanding of the quality of the goods (they can be combined), they are linked by the common interest of the manufacturer. The buyer has a special approach to quality. As a consumer, he is not sure about the integrity of the manufacturer. In addition, the buyer has his own tastes, conditioned by the real buying opportunity.

There are also the interests of the market, which has become an independent subject of the economy. Speculation is legalized and attracts with its potential. By controlling the market, an intermediary speculator is able to form an image of quality in his own interests, in particular, through advertising, giving priorities, etc. Finally, there is the quality of the product itself, expressed in the totality of properties of natural origin and added by the manufacturer; as a result, we came to the "quality square", combining the quality of the product and the image of quality (Fig. 1).

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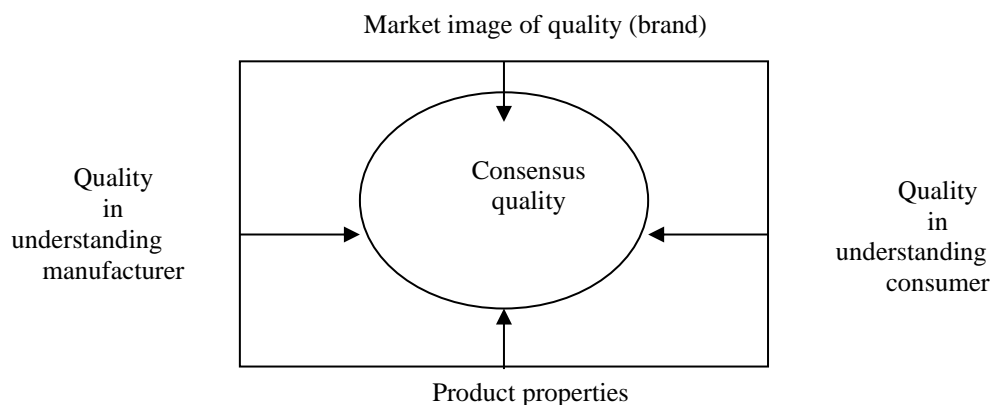


Fig. 1. Quality square

Consensus quality is not true quality, quality “agreement” is a virtual reality phantom. No documents, no procedures, everything is done “in the dark.” There are too many factors, their dynamics is great, and interests are conflicting. However, the spontaneous genesis of the consensus quality should not confuse anyone.

The evolution of nature without human intervention is an extremely spontaneous process, built on random intersections, from which the necessary connection arises, becoming stable, repeating, general, i.e. law. Chance and necessity are correlative dialectical relations, as well as chaos and order. Chaos is not opposed to order; it differs from concrete order. Chaos is disorder in the pure case in relation to some decency. In general terms, chaos is also order, not yet open to the observer.

Before analyzing the factors that ultimately determine the consensus quality, let us dwell on one more aspect of the quality problem that remains on the side of researchers - the heterogeneity of the content of the concept of “quality”.

It is advisable to structure the content of the concept “quality” in relation to a commercial product depending on the nature of the properties included in the content. The properties that form the content of the concept of product quality are divided into three groups: objective properties, intersubjective and individual (subjective).

Objective properties (signs) reflect the natural foundations of the concept, for example, natural or synthetic raw materials for shoes, clothing, and haberdashery products.

Intersubjective - are formed as products of the activity of the consciousness of participants in economic relations: a manufacturer, an intermediary, a consumer, supervisory organizations, national traditions, world trends. In a sense, intersubjective representations can be spoken of as conditionally objective, objectified in collective thinking. At the top of the pyramid of properties, united by the content of

the concept of quality, there are individual, subjective signs.

Every common thing exists objectively, but only through the individual, therefore at the end of the process there is always a separate, concrete buyer Pyotr Stepanovich Sidorov and boots, which Pyotr Stepanovich chose from dozens of different ones. They seemed to him the best in quality and price. The sales assistant professionally explained to Pyotr Stepanovich that there are better quality and also inexpensive boots, but, being an independent person, he did not change his mind. This is why pre-sale preparation of products is important. The last word belongs to the buyer, his perception of the quality of the product. Everything else only plays up to him.

Signs of the content of the concept of “product quality” are built in the form of a pyramid of properties (Fig. 2).

The most serious contradiction, apparently, remains the discrepancy in the images of the quality of the product of the manufacturer and the consumer. The special importance of a different approach to the quality of the manufacturer and the consumer is natural. They are the main subjects of the system of economic relations; they have a common goal - a product. The former make it, the latter consume it, but they have different motives due to their position in the system and the culture of target perception.

The manufacturer creates the product, but not the product - the ultimate goal of the manufacturer, but the sale of the product. The direct connection between the producer and the consumer is local because it has a negative effect on the producer. The seller blocks the consumer from the manufacturer, and the manufacturer is forced to focus not on the market, but on the market situation, which is most often artificially formed by a speculator and advertising.

The manufacturer, unlike the seller, is responsible for information both by law and by its professional reputation. The seller manipulates the information as he sees fit - the manufacturer is

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constrained by responsibility, besides, the market often dictates the rules of relations to him.

What is the way out for the manufacturer? There is only one way out - a direct presence in the market and significant investments in education and education of consumers. It is difficult to overcome such a program alone, while uniting is absolutely real. The domestic manufacturer has everything it needs to oust the speculator from the retail market. He has professional experience, qualified personnel, scientific and technical support, a certain trust of buyers returning to the old, pre-reform priorities, which are actively exploited by unscrupulous

manufacturers and to which the authorities shyly close their eyes, which cannot return to the Soviet experience. Confectioners, meat-makers, wine-makers shamelessly use Soviet brands, replacing them with surrogates. Brands of Vyatka, Orenburg, Ivanovo, some Moscow and Leningrad enterprises are returning to the market. The trend of returning interest is gaining stability. Of course, clothes and shoes are not sausages and vodka, or chocolate and confectionery products of natural origin. At the same time, all goods have something in common - the responsibility of the manufacturer.

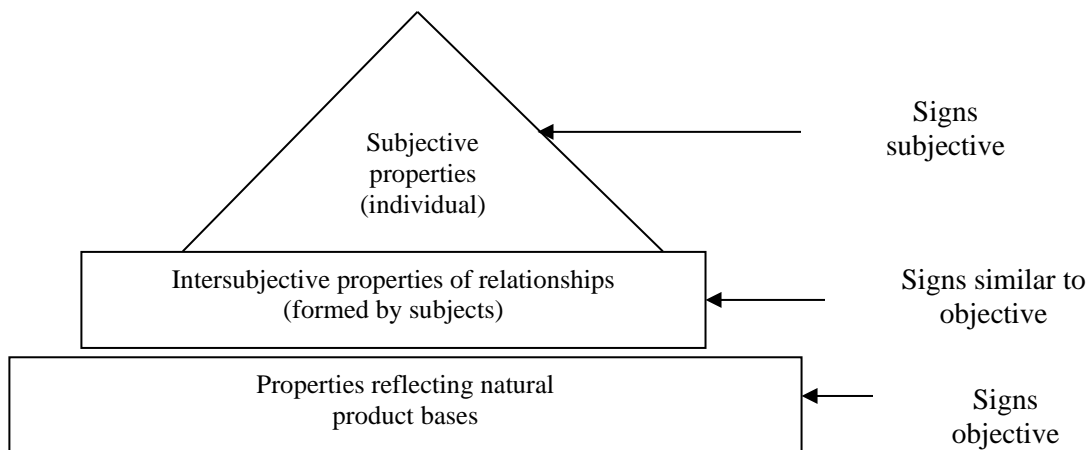


Fig. 2. Heterogeneity of the content of the concept of "quality"

The euphoria of the nineties has passed, democratic freedom, which turned into arbitrariness in production and on the market, sober up the souls of Russians intoxicated with will. Disappointed with democratic reforms, they are no longer so impressed by many others in the new way of life. Now is just that historical moment when light industry can regain its rightful place in the market. Only you need to act in a new way. Reconsider and remake yourself. To abandon the old one-dimensional view of the consumer as an "object" of relations.

In the old days, the consumer was completely dependent on the manufacturer. The market was closed, the choice was dictated, i.e. essentially, the buyer did not have it. Today the consumer has more options to choose while satisfying his own taste. The new configuration of relations in the market and the manufacturer needs to take advantage.

The modern Russian market only from the outside satisfies the tastes of the consumer, in fact, our market has rather awakened, roused the taste of the buyer with its diversity. The real choice for the mass buyer, for whom this market is designed, is still small.

Objectively high-quality, high-tech products are, as before, inaccessible to a Russian of average capabilities. He admires them, like models, or gets

annoyed, realizing that all this is not for him. Chinese consumer goods have lost their appeal. Turkey and Eastern European producers are forced to adjust to WTO requirements. The product they offer increases in price, but not in quality. The disproportionately increasing costs of carriers also help the price rise.

In the new market conditions that have awakened the taste of the consumer, it is important to try to take control of it. This is not about changing the economic strategy based on quality management. We pay attention to the component of this strategy. In the West, a version is gaining strength, the essence of which is that the economy is becoming "smart", the stage of systemic quality management is moving into a new stage - the quality of education. If this is the case, then the focus on nurturing consumer taste fits fully into the strategy of economic policy.

The consumer lives in a specific environment, forming a certain symbiosis with it. Access to consumer creation is efficient both in the immediate application and through the living environment. The manufacturer is still sluggish, and the market is vigorously fighting for the buyer, presenting him in their marketing research as a kind of ready-made, statistical subject who needs to be lured with an offer. The real battle for the buyer lies ahead when the

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manufacturer realizes the benefits of a full-fledged consumer education and training program. The consumer needs to be prepared, then he will follow the market labyrinths by the given route.

Belief in the miraculous power of advertising is a dangerous companion for a manufacturer. The advertising engine was presented by the advertisers themselves and the market, which is not responsible for anything in principle. An exclusive product is rarely advertised - it has a regular consumer with a mature taste and exclusive purchasing potential. Such a buyer is simply notified, he is satisfied with the presentation of the collection, especially not sparing money.

Advertising is a call to an ill-mannered and unenlightened buyer, whose credulity towards advertising is inversely proportional to the state of knowledge and taste. The mass consumer is given over to the slaughter of advertising and market arbitrariness. Responsible producers, instead of complaining about fate, it's time to turn their face and get into spiritual contact with the consumer. It is naive to hope that he will independently get out of the fake decorations of the market and advertising. But even if the consumer manages to overcome the ingenious inventions of the market, by that time domestic producers will become relic phenomena and the revival of the activities of national producers will lose public relevance.

There is no doubt that the business of educating your customer is costly, troublesome, unexplored, difficult, requiring a lot of patience, the ability to appreciate the slow, uneven progress towards the goal, to fight against all who declared themselves and their occupation a supranational, democratic phenomenon and makes a name for themselves on speculation in the area of human values.

Nobody disputes the priority of universal human interests, and the need for comprehensive protection of national security is indisputable. And without modern production of essential goods for a person, national security cannot be ensured. So, domestic producers will have to solve a dilemma: either simultaneously with the development of production, produce their own consumer, or continue to groan about the outrage and push themselves to the market periphery closer to the edge of the market and its end.

The revival of the domestic light industry will force the market situation to change as well, the market will have to react, because its interests are determined by the dynamics of consumer demand. Then it will become easier for many to breathe: producers, consumers - will feel the national taste and intermediaries.

Work with a customer should be structured systematically in the format of a target program. Its main sections, presumably, will be, along with the improvement of production and assortment, educational and interactive communication with a potential buyer.

Having closely engaged in the education of the consumer's taste, manufacturers themselves will have to improve their qualifications. No wonder they say that the best way to educate yourself is to try to teach others. It can be argued that the manufacturer has considerable reserves for improvement in all areas of activity. The first steps must be taken towards the consumer. You cannot trust the consumer to the "cares" of the intermediary and it is unreasonable to leave the consumer alone with himself - he should be taken as comrades-in-arms, accomplices and seriously prepared for the perception of the product.

Fashion and quality are like symphonic music. They are polyphonic. Just as the ear must be prepared for the perception of a complex piece of music, so is the mind for the evaluation of the product. Shoes, clothes are not a simple commodity. They accumulate the high professional status of the manufacturer, his skill, the experience of generations. The buyer must be connected to the joint process not at the final moment "money is a commodity", but somewhere in the technological process.

When a wave of protest against the construction and operation of nuclear power plants spread across Europe, the French opened access to those wishing to get acquainted with the operation of the nuclear power plant. They realized in time that it is difficult to convince with a word, it is necessary to give an opportunity to a person from the outside to see and decide. Schoolchildren went on excursions to the nuclear power plant, they were given meetings with experts, showing videos, and a specially developed program. And the work done was crowned with success. Doubters overcame the critical attitude, re-educated. Especially after they calculated with a calculator how much it would cost to shut down a nuclear power plant, who would benefit from re-profiling electricity production in a country that does not have hydrocarbons. The French have lived in a market economy for several centuries and have learned to value both personal wealth and national security.

Russian democrats of the late twentieth century, took care of the human rights of the abstract, taken outside the homeland, and caused significant damage to patriotic feelings. In the 90s of the XX and the beginning of the XXI centuries, the Russian authorities condescendingly looked at the destruction of the image of the Soviet past, the active revival of pre-Soviet antiquity. Few people understood that any stone thrown into national history ends up in the national present and future. Who needed to "break the bond of times"? Those who wanted to change the situation on the market and make their own business on this. The buyer was convinced that everything that was domestic was no good, that it was necessary to buy something from abroad.

The formula "everything is bad!" has been known for a long time, and in times of trouble it works

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well. It would be pseudo-patriotic to say: "Everything is fine with us!" However, the domestic manufacturer did not sew their products with a bast. The approach should be differentiated. By replacing Russian products with Chinese ones with the help of advertising and a pricing policy, sellers not so much deceived the buyer, but undermined the position of the national manufacturer in the crisis, instead of rebuilding production in alliance with him and forming their own market.

The market is synonymous with competition. Competition is vital, but competition is always politics, and not only economic. The state has no right to be free from the market. First, the state is called upon to ensure national security and to express in everything that is done on the territory of the country, the interests of its people. Secondly, the Constitution of the Russian Federation says: "The Russian Federation is a social state." And the Russian government in the 1990s. she was not afraid of the market, she built the market just like that, because she herself was a part of this market. The authorities created the market for themselves, knowing about the fragility of their own and the market.

The change of leaders in Russian politics took place when the market fulfilled its political function: it illegally enriched the reformers and made the national producer an appendage of foreign production.

Changes in economic policy after 2000 are important steps, but after what has been done, it will take a long time to wait for positive changes. Economic science testifies that annual destructive actions are compensated by three years of creative activity. Apparently, it is no coincidence that promising programs have recently been built up to 2030.

1990s - time of missed opportunities. The reasons here are primarily political. Twenty years later, a prospect appeared for the domestic manufacturer to form a market, which was absent in those dashing years. The trip to the existing market will be successful if it is taken "in the ticks" by the national manufacturer and the consumer prepared by the manufacturer. Routine advertising work, even under the professional supervision of the product manufacturer, will not solve the problem. The time is new and, albeit spontaneously, unskilled, slowly, with deviations, a consumer who was kept without advertising in half-empty counters with a very meager choice, and then deceived by advertising, looks critically at what is happening.

The consumer is ripe for a serious relationship with the manufacturer. The last word. Producers have a responsibility to take the first steps towards a smart economy and lead consumers. It is not always clear what an "innovative solution", "intellectual capital" is? This is in our reflections - a new policy of the manufacturer in relations with the consumer, aimed at achieving mutual trust. The consumer must trust the

producer, the producer - the sustainable choice of the consumer whom he has brought up.

The formation of a civilized market is one of the main tasks of the plan of measures for the development of light industry for 2015 - 2025. Despite the well-known positive dynamics, the situation cannot be reversed. The market for domestic goods remains below 25%. More than 50% are counterfeit and contraband products. More than half of the sold garments, fur, outerwear and footwear are concentrated in the clothing markets.

The image of goods, their quality, as before, builds the clothing market. The clothing market is associated with gross violations, product substitution in stores. The lion's share of 1.5 trillion rubles is "spinning" in the clothing market. The market is "covered" by the authorities.

It will not be possible to overcome the hypertrophiedness of the market overnight, and how long the process of strengthening the status of the official domestic manufacturer in the market will take depends on a number of factors: political will, ensuring the consistency and vigor of the struggle (here it is possible to transfer the American practice of suppressing mafia structures without discussion); the size of investments - the state traditionally transfers them to non-budgetary organizations; development of the raw material base - back in 2006, the Ministry of Agriculture ordered to reflect in the departmental program urgent measures to combat the subcutaneous gadfly, prevent and rehabilitate cattle from hypodermatitis for 2015–2025, but how all this happens in our country is known: sheep breeding remains in a protracted crisis, the hunting industry has declined sharply, the cultivation of cage furs has been minimized and continues to decline; stimulation of expert production remains on stamp paper; development of innovative activities and training of qualified personnel. Innovation activity in our time is due to investments in R&D - they are scanty. In such a difficult situation, an extraordinary solution can help, and it is, however, it was bypassed in state circulars.

Counterfeit and contraband products, which are often the same, have always been on the market and in assortment. The difference is that in Soviet times, the amount of illegal product depended on the rigidity of state control over illegal activities, and such rigidity did not irritate the West. Nobody tried to hinder us, on the contrary, they showed understanding. In 2016, like all the past 20 years, illegal immigrants in the clothing market openly establish their own rules. The preventive measures have been established so democratic that they can be neglected without prejudice to business.

The reason for the flourishing of illegal relations in the legal market is not the existence of criminal groups - they are in the consumers of counterfeit goods. And the current market will not allow the

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domestic manufacturer to develop. They will not share their customers voluntarily, and the power of the customer cannot be taken, it needs to be converted, having become interested in domestic products. And here many questions arise: firstly, it is useless to enter a corrupt market with your competitive products. They will set their own price, they need to launder money received in other areas of business, also illegal, but more profitable. The enterprise is interested in working capital, i.e. is to quickly sell a product at a profitable, but not overpriced. State intervention is required.

Secondly, "there is no dispute about tastes, but tastes are brought up." Having changed the position of their products with the help of competent authorities on the market or by cooperating and opening their own sales market, domestic manufacturers have the opportunity to separate part of the buyer from the market masses and make this part their own, with a good prospect, without deceiving the consumer, to significantly increase the number of fans of Russian goods.

Specialists need to go to school, universities, technical schools, colleges, schools, organize meetings with interesting people, demonstrate products, production, open joint creative circles, hold contests, quizzes, disputes. It is necessary to disclose production. You will have to endure for some time, apparently, the diversion of funds will cause some decrease in economic indicators. Everyone knows: to jump further or higher, you need to retreat.

Surprisingly, there is no section in the industry development program aimed at the formation of their own consumer sector. The program is tailored to the patterns of the Soviet era, without taking into account modern realities, with the exception of an indication of the need to more actively involve private investment in the process, which is very difficult to implement in the current economic environment. The shadow economy is based on counterfeit goods, "gray" producers prefer to invest in customs in order to import smuggled goods. The most realistic is the formation of the stability of consumer interest in the manufactured products by attuning the tastes of the buyer to it.

Orientation in long-term plans for the export of products is, in principle, the right task. The goal setting, pushing the national boundaries of the market, contributes to the involvement of reserves, primarily intellectual ones. The authorities are trying to repeat the Japanese way of reviving industrial production.

Significantly lagging behind technologically from the United States and Western Europe in the mid-1950s, Japan in the 1990s. pushed the Europeans out of the world market, having gone through four stages of production growth in 40 years. The revival began with the copying of world samples, in which the Japanese were helped by the United States and Canada, right up to the provision of access to nuclear

technology. Then there was the stage of independent development of products identical to world models in quality. In the mid-1970s. independent developments were already, in essence, at the level of the best goods, the Japanese learned to make products of higher quality. By the 1990s. Japanese goods have become global brands, and they have become equal to both the United States and Western Europe.

Japanese progress is quite specific, it is unlikely that this will be repeated anywhere on the scale of the "Japanese miracle". Japan was ideally in the right place at the right time, helped by world politics. Now, neither the Europeans nor the United States are organizing the most-favored-nation regime for anyone, not even Israel. Nevertheless, this scheme, at least in part, must be adopted, in particular, by manufacturers of consumer goods.

In Russia, there are good traditions, exclusive technologies that attract the custom-made consumer striving for originality and economy. For example, craftsmen from one of the regions of the Central Region brought products made from nettle fiber, which have a confirmed healing effect, to the 2016 folk craft fair in Novosibirsk. Cedar fibers are used in the production of linen. In Western Europe, a cooling cycle has begun, snow, which was exotic for residents, is entering everyday life. Russia has a wealth of experience in the manufacture of ecological clothing and footwear for snowy winters; it is enough to give them a design familiar to Europeans in order to interest a Western buyer, or maybe hold back something modern, Russian. In a normal European market, the main thing is to register, then gain a foothold, including by setting up joint ventures.

At the same time, one should not follow in the footsteps of the Japanese. In Russia, everyone has enough of their own buyer. The interests of the domestic consumer should be prioritized. All of us, not without reason, hope that a better time lies ahead of us. Accordingly, changes in consumer ability will affect the status of the manufacturer.

The revival of interest in domestic goods will add optimism to domestic producers. It is only important that confidence does not develop into overconfidence. The recommendation of the classic of modern economic theory E. Deming, known as "E. Deming's chain reaction" (Fig. 3), will help to avoid a fatal disease.

E. Deming initially tried to implement his approach to creating a quality economy in the United States, but failed. The reformer himself explained the reason for the failure as follows: "My initiatives were welcomed by engineers, heads of individual departments, but they were ignored by top management, who did not want to think and act in a new way."

E. Deming relied on the triumph of professional thinking, his natural striving for the new, coincided with the progressive movement. Developing the

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intellectual approach of his predecessor V. Shuhart, E. Deming linked four creative acts of thinking with a logical knot: observation, development of actions, implementation and analysis.

The listed operations, which made up the "Deming cycle", unite the commonality of the

personality's status, its innovative interest in the case. In fact, half a century before the first works on innovative economics, an American specialist presented the very concept of "innovativeness" as applied to the management of economic activity.

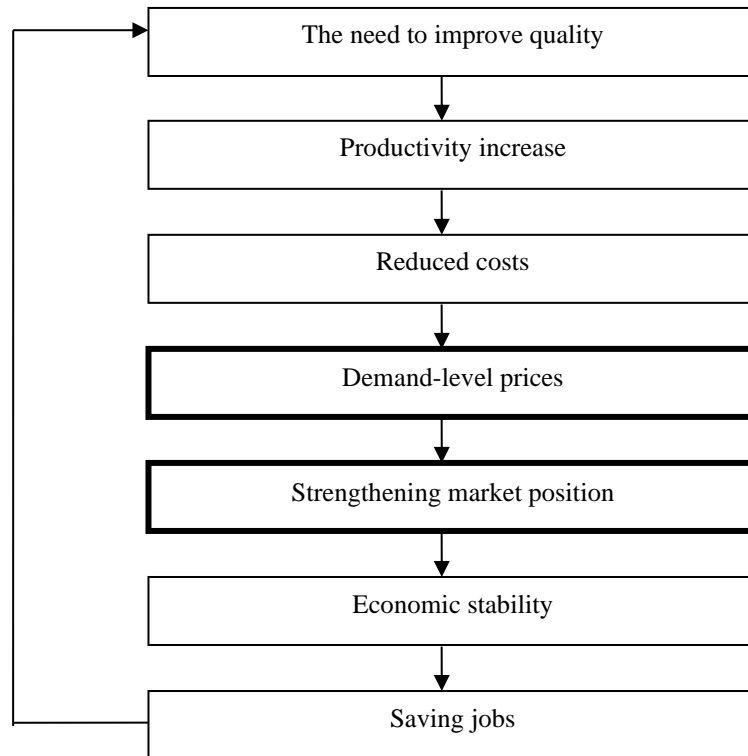


Fig 3. "Chain reaction" E. Deming

The basis of the content of this concept is formed by four sequential actions: professionally built observation of the situation, its monitoring - the beginning of the path of innovation, a very crucial moment of scientific knowledge - the description of the object; development of measures for improvement - a positive change in the situation, the main thing here is to organize the process in a new way, so that a motive appears that stimulates the performer; the next step is implementation and the final act is analysis, the purpose of which is to evaluate the results of implementation and gain experience to start the next round of the spiral of creativity.

Inviting E. Deming to Japan in 1950, the initiators of industrial restructuring tried to prepare well for the reform. They even made adjustments to the curriculum of technical universities. The course "How to Use Experimental Data" was introduced to all students of the Industrial Department of the University of Tokyo.

In a new time, you have to go with new ideas and, moreover, with programs, but there is always continuity in the process. The wise E. Deming foresaw

what is always relevant - a reminder to the management of all ranks about "difficulties and false starts."

Its one-sidedness should have long been recognized as a serious mistake in the methodological training of domestic specialists-managers and engineers in universities. Our professional education is traditionally focused on progress and innovation.

We clearly underestimate the warnings of experienced, recognized professionals about the impossibility of knowing everything and the need to be prepared for the most difficult circumstances of the case. The well-known Russian doctor puzzled journalists and specialists a lot with his answer to the standard question: "What should be a good doctor? He said: "A good doctor differs from a bad one in that he knows well how not to heal."

Professional training presupposes a thorough, demanded analysis of mistakes, miscalculations, shortcomings, in a word, negativity in all its manifestations. A specialist is not insured against shortcomings with honors, experience, or systematic study. This is not about eliminating negative

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consequences, but about their "quality" side and frequency. It is possible and necessary to fight against this; it is in this direction that the lessons of E. Deming are especially significant.

The most dangerous is the desire to go the beaten path. This path will eventually lead to a dead end. You need to learn not in order to do like everyone else. Learning means developing independence.

The theory of quality management in our universities is taught outside the "production - consumption" system, the course is conveniently reduced to the history of the problem and the quality management system, isolating it by the area of production. The consumer, the exploitation process, was located outside the main subject, presenting it as an infrastructure, without thinking about the fact that production is not self-sufficient, it is conditioned by consumption by other production, but, ultimately, any production is put out for consumption. The very word "production" is just the beginning of phrases: "production of services", "production of a product." The former can be read as "relationship production."

If production is "production of relations (services)," then why do we argue about the quality of production in isolation from the subject of relations, opposing the manufacturer of the product or services? That other subject is the customer of services, products, therefore the quality of production is of no less interest to him than the manufacturer.

The advantage of the manufacturer over the consumer is in professionalism, therefore, it is necessary to spread one's professional knowledge, to involve in the circle of professional interests, problems, and the customer; seriously and for a long time to engage in his upbringing, leading away from "brainwashing" in market advertising.

For two decades now, the youth consciousness has been under the pressure of "glamorous" fashion, which reigns supreme in everything: in TV shows, youth programs, TV series, weather forecasts, in programs designed for home life, in the speeches of VIPs, "stars", officials and deputies. One gets the impression that it is shameful and indecent to live otherwise.

By the way, in the countries that we have to catch up with, life is not carried out in the style of "a la glamor". Popular in the USSR and in the Western world, Soviet international journalist, historian V. Zorin recalled the details of an exclusive reception hosted by the mayor of New York, billionaire G. Rockefeller. The mayor rarely met with journalists at work. For our compatriots, an exception was made for political reasons - to support the course of easing tensions in the relations of world leaders.

"Having learned about G. Rockefeller's consent," V. Zorin said, "we were more confused than happy. It seemed uncomfortable to go to the richest man in the United States in our suits and purchased shoes. Our American colleagues advised us not to

fuss, recommended to focus on the content side of the dialogue. But we thought differently, we were afraid to look unworthy, so we decided to rent costumes from fashionable couturiers for a day. Came to the meeting in advance, were received by the mayor at the appointed time.

Once again, we entered the office with the feeling that our equipment corresponded to the circumstances. We experienced a real inconvenience when the mayor came out to greet us in a simple work suit and ordinary shoes. And smiled at our sight. "

Where is the anti-adware perversion? Educational institutions, instead of turning into centers of aesthetic, business, and everyday education, themselves contribute to misinformation of the mass consumer.

Universities by their status should actively cooperate with production and, together with production, carry out systematic, widespread work to educate consumer consciousness. Without such creative activity, the future of the domestic manufacturer of clothing and footwear looks similar to the present of the Russian car industry - we will become an application of Europe, we will lose the creative component, we will lose traditions and national characteristics. We should strive to sheathe not the whole world, like the Chinese, but our own, Russian, consumer. He is still able to appreciate the dignity of his fellow countrymen, but he must not be left to his own devices.

E. Deming paid special attention to the socio-psychological support of the organization of production. Our today's experts are looking for the keys to success only in technology and statistics.

E. Deming's concept of "difficulty" and "false starts" are psychologically loaded. The talented economist E. Deming was experienced in spheres related to economic activity - psychological and social. He presented production management in a broad, complex context. Most of today's managers are one-dimensional. Hence the constant failures in management.

E. Deming attributed to the "difficulties":

- expectation of results from work in the field of quality improvement in the shortest possible time, which is typical for highly specialized training - a surrogate for professionalism. Quality is the state of the essence of the process, product, management. The essence differs from the phenomenon precisely by its stability. Quality is not a quantity that can be reduced at once, and sometimes even increased. Quality loses and gains itself in the process. It takes time and, of course, equivalent tasks to train specialists;

- the opinion that mechanization, automation and computerization will help make a breakthrough in the field of product quality. This opinion is again a defect in the training of a specialist, a limited professional culture. The quality of the product, and in the general sense - "boots are clothes for the feet", and in the particular sense - the quality of shoes as a set of certain

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properties of boots, is a matter of human creativity. Boots are not harvested on a tree - in the workshop, boots are sewn by specialists according to models developed by related specialists from leather that was made by other specialists. Only at the beginning of the product's production chain are we able to detect the presence of a natural phenomenon of nature - the skin of an animal. Technology in any form (outdated, modern, future) was, is and will forever remain a means of labor created by man and launched (or not launched) by him into production. Technique allows you to make products of a certain quality, gives stability to the quality of the product - and that's it! Let's repeat: the quality of a product is created by a specialist, it is a product of his activity. It is not technology that creates quality. Hence, E. Deming's warning follows: do not expect a breakthrough in the field of quality from a technique;

- neglect of the actions necessary for the successful implementation of the quality improvement program. Another confirmation of the importance of the humanitarian development of a specialist's personality, which top managers in the vocational education system do not want to hear about. S.P. Tymoshenko wrote that in US universities the humanitarian component is at the level of 20-25%. In England, it is approaching a third. Savings on liberal arts education result in large losses in specialized training. The place of dialectical thinking is taken not even by the formal-logical, but by the defective-everyday, based on the "kondovaya" phrase "maybe it will work out, it will carry". Why was the historical thought "We wanted the best, it turned out as always" by the former Prime Minister of the Russian Federation? Because they managed as they could, and not as they should, unprofessionally. Since then, the situation has changed little, if the Prime Minister is forced to go to all major incidents, and the President strictly warns the Government and officials.

In dialectical logic, there are some wise and simple rules that reflect the actual order of things. First, you need to carefully study what was and how it was, so as not to step on the old rake again. Second, to thoroughly, comprehensively understand the essence of the matter, its infrastructure and relations, including the analysis of macroeconomic dynamics. Thirdly, the starting point should be the practical expression of the concept, but the very concept of "practical value" is important to interpret not narrowly pragmatically. And finally, the last thing: the truth is always specific and unambiguous.

In a big business, unimportant little things happen only to those who approach it unprofessionally. Everything matters here. The concept of "quality of raw materials" includes organoleptic characteristics, age, storage and transportation conditions on equal terms. One has only to try to rank them, as a succession of non-persistent "little things" will go and the quality will pass into

unconditioned. Involuntarily forced to return to the beginning and highlight the relevance of technical regulation of the quality of goods and services, as well as their production.

Quality management began more than a century ago with primitive actions and taking into account the little things. G. Ford Jr., A. Sloan, F. Taylor and A. Foyle - different people were united by a common attitude to the details of production. They, like everyone else, naturally recognized them, however, unlike everyone else, they did not disdain them. Spontaneously, they understood that the essential does not arise by itself, it arises in the insignificant, the big grows out of the small, the necessary arises at the crossroads of the accidental. Quality cannot be carved out of quantity, but in order to obtain the desired quality, you need the required quantity. A measure is formed from the quantity - "quality quantity".

In the presence of "quality quantity", i.e. measures, we can already make the appropriate quality. The Bible states: "In the beginning was the word, and the word was with God, and the word was - God." In the theory of quality, the beginning seems to be different: "First, quantity is required: funds, specialists, ideas, etc." Therefore, Ford's quest for quality began with economy, and with Taylor and Foyle, at the organizational level. And the main problem at that time, perhaps not yet so obvious, was the "scissors" in the relationship between quality and quantity.

Let us explain: the economic effect is manifested not in an abstract, pure quantity, although it is potentially embedded in it, but in a realized quantity, similar to demand.

Abstractly taken demand is a more psychological and less economic category. From the economic point of view, demand takes on the importance of a factor when it is provided either by purchasing power or by calculating ability to obtain a loan.

The manufacturer must strive not to create quality. Its goal is production efficiency. The quality is just simply a means of achieving efficiency, a spoon, a bait in the understanding of a fisherman. You can get a product that is modern in quality and go bankrupt, because you will not be able to sell the product at a profit. The market will not accept him.

Quality in an economic application is a concept that is correlated with efficiency and does not coincide with it, as many people think. Quality management, including the development of technical standards, regulation with their help, involves modeling the filtration of ideas, plans through the "gateway" of quality goods to the vastness of the market. Will open or slightly open the market to innovations access to mass demand.

K. Ishikawa invented a "circle of quality", suggested diagrams "cause - effect". The idea of the Japanese specialist is extremely simple: it is necessary to involve the entire team of the enterprise in quality

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management. The totality of participation is a guarantee of the quality of production. K. Ishikawa's concept was embodied in the history of Toyota. B.S. Alyoshin argued that "it was at this phase of quality assurance that quality management in its modern sense was formed".

K. Ishikawa, thanks to the involvement of all those involved in production in the process of creating high-quality products, managed to remove "the contradiction between improving quality and increasing production efficiency in its previous forms." Practically in all countries with a high average income of the population, the consumer began to receive goods and services of high quality at an affordable price, bringing a number of European countries, Canada, the United States, and some Arab states closer to the "consumer society". The "miracle" that was born in Japan, like all the previous miracles of the economy, turned out to be short-lived, which once again confirmed the position of skeptics: "Miracles do not happen! There are ups and downs. "

Any "miracle" is a success acquired by a concrete historical situation, and flourishing within the boundaries of its time. Features of historical time contribute to the birth of "miracles", they also determine the wonderful limits.

Let us turn again to B.S. Alyoshin: "The concept of standardized quality, according to which a quality product is understood as a product, the requirements for which were defined and fixed in the standards by the manufacturer, and the consumer has the right to either buy the proposed product or reject it, has led to an aggravation of the contradiction between quality and efficiency in a new form, with an error in determining the needs of consumers when products that are suitable, from the point of view of manufacturers, enter the market, the costs are extremely high. "

K. Ishikawa closed the concept of "quality" to those who produce it. Those for whom the product was designed were left out of business. They were not interested in their opinion. The isolation argument is impressive: consumers are not aware, they are not specialists. K. Ishikawa did not systematically consider the main relationship in the economy "producer - consumer". Once they were in one person, they were opposed by commodity production. It arose as an alienation of the personality's abilities, bifurcating it not conditionally, but physically, but at the same time the personality remained in both hypostases: producer and consumer. The proportions of the hypostases have changed and continue to change. However, their essence is a dialectical opposition, which does not allow to exist without each other, and this must be reckoned with.

The consumer is a partner in the quality of the product. The division of labor separated the consumer from professional knowledge, the skill of the manufacturer, opposed them, but did not divide them

so that they could not depend on each other. They are still a unified socio-economic entity.

Modern economics shows that the manufacturer, opposing himself to the consumer, has turned the arrow of his movement to a dead end. It is necessary to come to grips with the return of the consumer to mutual understanding, for which, first of all, it is necessary to reduce the distance in the professional aspect of relations - to educate and educate in the consumer the subject, not a passive, outside, casual one, but a partner in a common cause.

In the latest economic policy, technical regulation is one of the main conditions for achieving quality standards. It allows balancing the relationship of centrifugal and centripetal forces in the development of production, democratizing production management and, at the same time, preventing it from slipping into production itself, i.e. autonomous self-sufficient production. The system will disintegrate if its constituents decide that they are the system themselves. Democracy and arbitrariness are incompatible phenomena. Freedom in a democratic interpretation is reasonable only when it is freedom to act both in one's own interests and in the interests of the system. Control can be in the form of self-control, and in the form of centralized activity, but it must take place in the interests of democracy, which in our context means the interests of the consumer.

The essence of our position lies in a new perspective of perception in managing the quality of consumer goods - consumer interest, more precisely, in the transformation of a consumer from a buyer into a producer. As long as the consumer is left to himself, he forms himself in the market environment perverted by an unscrupulous manufacturer and advertising unregulated responsibility, he is a statistical value for a responsible producer.

All plans of the manufacturer are based on statistical models, more or less indicative of the national economy, but not on the average capabilities of the enterprise. In order to replace virtual, speculative landmarks in planning with real, much more viable ones, it is necessary to lead the consumer out of the zone of unlikely certainty into the space of cooperation, which gives a much more probabilistic forecast. From a spontaneous, opposing, divided by a "counter" subject, it is necessary to turn him into an accomplice through education and enlightenment of consciousness.

The trouble with our current state is not in the Chinese commodity expansion (the Chinese have filled both the United States and half of the world with their specific goods), but that we have left the consumer at the mercy of intermediaries.

Formally, this alienation looked quite logical and attractive: "To each his own!" The shoemaker gets on as he should - boots, shoes, sneakers, etc .; the merchant is busy with his business - the sale of goods; advertising has its profit by helping the merchant.

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In reality, the manufacturer found himself in isolation, submitting not to the market, but to market speculators and those who serve them. The market is a relationship within the "producer - consumer" system. Anything built in between them breaks their natural relationship. Leading European manufacturers do not allow themselves to supply products to our market. They enter the market themselves, with their own network of specialized stores, which are under strict control and carry out independent advertising work with the consumer. By replacing "consumer" with "buyer", enterprises form an uncertain perspective. The producer has a consumer, not a buyer, by his dialectical opposite. The consumer also needs to be connected to the problem of technical regulation: to teach him industrial literacy, educate, educate. We need to revive knowledge universities for the consumer in a new form.

The work presented to your attention is the fruit of joint reflections on topical problems of improving the activities of an important branch of the public economy of leading Russian and foreign experts. A collectively executed monograph always has an advantage over an individual form of creativity. An individual author, no matter how knowledgeable and authoritative he may be, is forced by the nature of the circumstances to explain not only his point of view on the problem under study, but also to talk about how colleagues "see" this problem, to present someone else's view of the order of things, to transform in the process of the declared discussions in their opponents. Such a transformation, despite all its conventionality, is not so harmless for objectivity in understanding. Even such a wonderful thinker as G. Hegel sinned, willingly or unwillingly substituting opponents so that it would be more convenient to criticize them. This work presents an original author's approach and opens up the opportunity to learn the most significant first-hand, without intermediaries, which often darken creative relationships.

The quality is "written by nature" to be at all times in the epicenter of both scientific and amateurish reflections. The problem of ensuring the quality of activities is not just universally relevant, it is strategic. The dilemma in relation to quality is reasonable only within the limits of opposing the ratio of actions "direct" and "mediated". The saying "it's all about him" owes its origin to quality. It is possible to "forget" about the problem of quality only because any fruitful and luminous activity is ultimately aimed at improving quality. Quality is either "in mind" or "implied." From the relationship in the dynamics of these projections of the quality problem in creative thinking, an appropriate schedule is built, reflecting the relevance and profitability of activities aimed at the development of production.

The quality of an activity is the final criterion of its individual, collective and national status. It is in the quality that the energy of creation is accumulated. The

quality of activity indicates how much we have penetrated into the essence of things, learned to manage things, change their properties, form, forcing us to serve a person without significant damage to nature. Quality allows us to see the person himself from new perspectives, to pay tribute to his talent, will, and professionalism. Research carried out under the UN Development Program has made it possible to measure the share of the "human factor" in national and global wealth: 65% of the wealth of the world community is the contribution of human potential, and only a third of the world's wealth is accounted for by natural resources and production structure. A quality-oriented strategy undoubtedly contributes to the growth of the very role of the subjective factor in the development of production, and to a more complete all-round satisfaction of human needs themselves. The desire to "live according to reasonable needs", as well as the need to "work according to one's capabilities", together with the communist ideal, no one openly and officially dared to cancel, realizing the absurdity of denying the essential forces of man. In the "hot" state, the problem of quality is steadily supported by both the internal forces of active consciousness and external life factors. The highest function of consciousness is cognitive. Learning about nature, we discover its qualities, state of quality, quality levels, embodying new knowledge in production. Classical political economy (A. Smith, D. Riccardo, K. Marx, J. Mill) concentrated quality problems in production. Post-classical economic thought shifted quality towards consumption, trying to give production a "human face" - a person alienates himself in the production process, but this measure is forced and in the systemic sense - temporary, conditional. The main thing in production is the result, not the process. Consumption regulates the market. Consequently, market demands must dominate production. The task of society is to contribute to the development of demand in the market worldwide: to maintain the range of goods, stimulate price stability, increase purchasing power, and improve the quality of goods. E. Deming, calling the "network of deadly diseases" of modern production, puts in the first place "production planning, which is not focused on such goods and services for which the market is in demand." Try to argue with him. Production during the transition from industrial to post-industrial society of mass consumption is thought of as a function of the market.

The dynamics of market development in the last decades of the last century and at the beginning of the third millennium invariably shows an increase in consumer demand for the quality of goods. For all the economic, social and political costs, humanity is getting richer and wealth is unevenly distributed. Finance, as before, is concentrated in certain regions, however, just like the premieres of modern production. Analysts predict the course towards the

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quality of goods confidently and everywhere. The consumer realized the need to pay for the advantage of quality services and products. Prominent economists unequivocally declare that the improvement in the quality of goods is not causally related to the rise in prices. Positive changes in the quality of goods imply qualitative changes in technology, technology, organization and production management. Production should improve, but not become more costly.

And I would also like to draw your attention to one phenomenon that usually escapes in the troubled bustle of the economy - the historicity of the economy. The economy has not always been the way we perceive it now and will not remain forever. Economic life changes in time, which forces us to tune in not its changing being. The modern economy is built on a market foundation, and the laws of the market dictate their own rules to it. In the foreground are profit, competition, efficiency, unity of command. How long will this continue? Symptoms of the new economic order are already mounting, analysts say. The next round of the economic spiral will also revolve around the market core, but the value of the market will not remain total. The priority of market competition, which aggressively squeezes the social sphere to the sidelines, is incompatible with the prospect of economic development, as evidenced by the steady desire of social democracy in the West to deploy the economy as a front for social security and fair distribution of profits. The new economy is called temporarily "lean". It requires humanization not only in the distribution of national wealth. The production itself is also humanized, including the management system. The current principle: "the fittest survives," will replace the "social-production partnership" - the manager and the manufacturer will become members of the same team. Mass production will give way to an organization corresponding to the implementation of the principle - "the manufacturer produces exactly what the consumer needs. The "lean" economy will be focused on resource-saving technologies and environmental friendliness of production. It will require a new look at core concepts. The philosophy of quality will also change. We must be prepared for the coming events. To the best of their competence and interests, the authors tried to share with you, dear readers, their thoughts, entrusted you with their judgments about the past, present and future of the case to which they have dedicated their lives.

Conclusion

The manufacturer is traditionally preoccupied with thinking about how to ensure the maximum possible conformity of commercial products to model samples. In the conditions of mass production, such a problem is quite costly, since it requires the organization of a special expanded service, and most importantly, where to find a significant number of

qualified workers. The Japanese, faced with the problem of providing production with qualified performers, were forced to solve it in a very peculiar way - to their enterprises located in neighboring states: Malaysia, Thailand, Singapore, Indonesia, they supplied the most advanced equipment in order to minimize manual labor. Not everyone is ready to follow Japan's example.

The linear development of the economy would surely lead to a dead end - mass production would become extremely costly over time. No amount of complex mechanization and automation helped. Firstly, the reduction in personnel would cause an increase in unemployment with all the ensuing social negatives, and secondly, qualified workers would still be needed in large numbers.

Salvation came from the nonlinearity inherent in the dialectic of progress. The economy of mass production has exhausted its resource and, like the next stage of a rocket, has lost the need for existence. The economic paradigm has changed. Irrational in various aspects - environmental, humanitarian, economic, mass production gave way to "lean economy" (lean production). Manufacturing fundamentally changes its purpose. The traditional task of manufacturing a large number of similar products that meet the requirements of regulatory documents, from which the consumer is invited to choose the most suitable ones, is replaced by the task of manufacturing exactly such a product that is needed by this consumer and exactly in the required volume and at a certain time.

The "lean" (sparing) economy focuses the attention of the producer on the state of consumer sentiment. A manufacturer needs to study demand, look for a niche in consumer demand, "educate" through advertising, educational work, and the organization of customer service.

The new economic philosophy brings the producer and the consumer closer together, emphasizes the dialectic nature of their relationship - they are opposites, but such that exist only in unity. Initially, the manufacturer and the consumer were generally in one person. The division of labor and the increase in its productivity have physically separated one from the other, but the essence of the relationship has not changed. The market opposed them, complicating the system of spatial relations with intermediary, transport and other tools. The task that unites the producer and the consumer is not to lose sight of each other, to clean up market superstructures, to make ourselves direct financial partners, reducing the financial burden on production.

At the same time, the manufacturer and the consumer in the system of market relations generated by the commodity economy are opposed to each other, therefore their understanding of the quality of production, goods partially coincide, which is also important to take into account when setting up a

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presence on the market, hoping to gain a foothold there for the rest of their lives.

Common signs of the quality of a product for a manufacturer and a consumer will be its usefulness, convenience, hygiene, ergonomics, resistance to deformation, ease of handling, and fashion compliance. The consumer, in contrast to the manufacturer, is of little interest in the quality of the production of the goods, although the "promoted", that is, the enlightened consumer should not, according to the logic of changing things, completely ignore the technology and organization of production. The connection between the quality of the product and the quality of production is of a causal nature, and this is quite accessible to the amateurish understanding.

For its part, the manufacturer runs the risk of being out of work if he underestimates the specifics of consumers' ideas about the quality of goods. E. Deming - the author of the classification of "fatal diseases" for the manufacturer - among the seven deaths named under No. 1 "orientation of production to such goods that are not in demand in the market", that is, are not in demand by the consumer; # 2 - "focus on short-term profits and short-term benefits." In both cases, the producer makes the same methodological error - he removes his activity from the system of relationships, makes "his area" universal, for which he pays in full measure.

The consumer's idea of the quality of the consumer goods is less objective, in comparison with the producer's understanding. A conscientious manufacturer, assuming professional obligations, attracts scientific knowledge, independent expertise, etc. The consumer, in contrast to the professional producer, is, in general, an "amateur". His views on the quality of goods, to put it simply, philistine, are based not on scientific knowledge, but on common sense. They are dominated by a pragmatic approach, a subjective assessment. In theory, the manufacturer should always be right; practically - then there would be no normal market, so everyone knows the opposite statement: the buyer is always right.

The dominance of a pragmatic approach to the quality of a product from a consumer is a kind of cost in relations between the main market actors. We have to put up with this, otherwise, apparently, it is impossible to build a system-forming link in market practice. The consumer, as a buyer, is limited by his ability to pay. The manufacturer has certain theoretical resources, for example, to increase sales, working capital, cut costs, etc. The consumer-buyer has no real reserves - loans will only increase his expenses, and in the Russian Federation it is very significant. Based on his situation, the consumer looks at the quality of the goods through the sight of the amount of rubles set by the seller as the equivalent of quality. To the above we add the skepticism that awakens in the mind of the buyer the annoying repetition: "the price corresponds to the quality." The

price can be equivalent to the quality only in a special case. A pack of middlemen feeds on the market.

"Quality" and "price" are basic concepts for both the producer and the consumer, but they are woven into systemic considerations in different ways - depending on the opposite of the market situation. Each of the subjects measures the quality of the goods based on their own status.

The third subject of relations between the producer and the consumer, and one more "evaluator" of the quality of the goods is the market, which is a tool for regulating the relations between the producer and the consumer. The role of the market has historically strengthened with the development of national economies and the creation of transnational companies. The market from an episodic limited in time instrument, has become a completely independent economic phenomenon. The growth of the market was accompanied by its structural evolution; it eventually built up into a complex pyramid of direct, indirect participation; retail trade completed wholesale; transactions from the present have gone into the future. A leader has emerged on the market - the financial transactions market, which should be considered as a symptom, because the financial market, by definition, is remote from the subject and quality is presented here in a generalized, conditional way.

"Product quality", from the market point of view, is a sign of the liquidity of a product. The product is not stale, therefore, the desired quality has been achieved. The market does not care if the quality of the product really satisfies the consumer. In the market, the "king" is not the buyer, but the seller, and the quality criterion is the time of sale of the goods. What will happen next? - the seller does not really care. That is why such a "deadly disease" as striving for immediate results is common. Nevertheless, the "market theory" of quality takes place and must be reckoned with when determining economic policy.

Production, consumption and the market, which turned out to be the subject of their relations, are cultural phenomena, their historical concreteness is determined by time, national and regional characteristics of development. The word combinations "culture of production" and "culture of consumption" have long and firmly entered the professional vocabulary, which cannot be said about the "culture of the market". The difference is not difficult to explain. Production and modern consumption are based on scientific knowledge that reflects the objective order of things; it is easy to trace the influence of cultural traditions in them.

The history of the market is not so great and the attitude to the market is somewhat different in culture. The market of the 20th and the new century undoubtedly absorbed elements of culture, but it turned out to be the very activity that does not have fundamental cultural values. The motto of Russian

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merchants: "Our goal is profit, but honor is higher!" took root thanks to the inherent and culturally designed guile. Honest and conscientious sellers in the market have never lingered - not their place. If the art of deceiving is counted among the totality of cultural phenomena, then the market is a form of reality of mass culturally shaped deception. They deceive everyone, always and in every way. And deception in the art market is no less than in the theater, where, in its own way, deception too.

Subjective, with unstable, multidirectional dynamics of movement, the market is poorly predictable. The attempts that are made in predicting the behavior of the market are unproductive precisely because of the lack of objective indicators of the systemic type. So the market reserves, as an area of real quality management, are small, especially in the absence of the state's desire to actively intervene in the architectonics of market relations.

For a specific enterprise (better than an association, a group of enterprises), the prospects for promoting marketable products to the market are associated with the development of resources for understanding quality in the coordinates of production - looking for a quality compromise, and educating its consumer.

It is easier for European and North American manufacturers to settle in the market with their products. The experience of communicating with the consumer has been accumulated over the course of two or three centuries, the consumer has dealt with the producers, found "his own" according to his interests and pocket; the market has balanced, adjusted to the requirements of the legislation; the state does not put pressure on the market, the manufacturer and the buyer, but where it is present, it does it toughly. Corruption, arrivals, monopoly claims are not over, but the struggle is real, not decorative, fake, which greatly facilitates the availability of the market, unifies the conditions of competition.

Satisfaction with the quality of consumer goods is among the main problems of European theorists and practitioners. The problem, in schematic terms, is simple - it is necessary to qualitatively satisfy the end customer's need for a product. On closer analysis,

simplicity turns out to be conditional - composite, in order to obtain the desired result, it will be necessary to build an ensemble on the market of the value of the product (1), price (2) and the consumer's purchasing power. In this sense, the market really acquires a key importance for economic development. This emphasis of the economic policy of producers can explain the concentration of interests on the consumer. It is not important to wait for the consumer, he must be actively sought and "converted".

In foreign analytical reviews, information has appeared that avant-garde marketers representing large companies producing consumer goods are proposing to significantly expand the format of participation with product consumers up to discussing the recommended price for an economy-class product. The idea is quite reasonable and practically feasible at no extra cost. Buyer's conferences are not realistic here, but the detailed practice of holding promotions, advertising actions with the device for displaying goods, reporting the estimated price and asking for a consumer assessment of the plans are quite promising and can be effective. One should not underestimate the modern buyer, his financial readiness, just as one should not force him to pay for the unqualified policy of the manufacturer with overstating the price. The agreed prices are also not fatal for the enterprise. There are always unused resources: materials science, technological, organizational, activating which the manufacturer makes the process profitable. A stable market position in the face of increased competition and volatility comes at a price. Perhaps it makes sense to rationally modernize what is called "bargaining" in a "market" such as a bazaar.

The quality of a product, in practical consciousness, is determined through its ability to meet the needs and expectations of a particular consumer. The quality of a product consists of many useful properties. In fig.4 highlighted the main qualitative properties of the goods.

New for economic theory, the concept of "product value" is defined as "a set of quality parameters expected by the consumer for the product he needs." The "consumer satisfaction tree" was "grown" from the concept of "product value".

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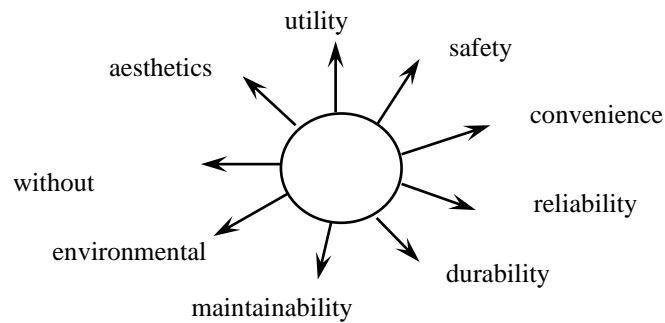


Fig. 4. Basic quality properties of the product

The value of a product is made up of the degree of necessity for its consumer and the level of quality (the presence of the required characteristics of the product). The buying decision is also influenced by:

- confidence of the buyer in the supplier;
- trust in the manufacturer;
- information from other consumers;

- accumulated experience of using a similar product.

The consumer makes a purchase decision by weighing the ratio of the proposed price of the product to the estimated cost. The higher the level of customer satisfaction, the more opportunities for business development, the more stable its market position.

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REQUIREMENTS FOR ADOPTED TERMS IN THE FIELD OF MEDICINE

Abstract: This article analyzes the role of the assimilation layer in medical terminology. The interest in the study of the terminological system of different branches of medicine, subject groups is natural, because the theory and practice of medical science is one of the developing sciences around the world. At the same time, the existence of many “interconnected” fields of other sciences related to medical science is constantly leading to hundreds of new concepts being added to medical terminology. Terms, term systems, terminological field - a universal means of acquiring, storing and expressing specialized knowledge, the analysis of which helps to understand medical evolution, which in turn leads to a deeper understanding of the diagnostic meaning of clinical terms, the development of clinical thinking, will definitely help.

Key words: term, lexical fund, medicine, adoption, Latin, terminology, system, medical terminology

Language: English

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Introduction

Being a layer of the lexical fund, medical terminology has its own specific features. Since «in every professional sublanguage there is a nomenclature vocabulary, correlated with certain realities and objects» [1]. The peculiarity of the vocabulary of medical terminology lies in the fact that in other lexical subsystems its nomens are presented.

It should be noted that the regulation of medical terminology in modern linguistics is one of the most pressing issues. The study of medical terms is important for professional communication between specialists, increasing their lexical resources in the training of medical staff, publishing professional scientific literature, developing scientific relations with foreign experts in the field of health, information exchange and creation of industry dictionaries.wider and more diverse.

As mentioned by Chernyavsky «the disorder of medical terminology both in Russian and in other languages continues to remain a serious obstacle to the exchange of scientific information, with its machine

processing, creates great difficulties in the adequate scientific translation of medical literature» [2, 59].

When describing the structural features of the formation of medical terms, one should proceed from the fact that the fund of term formation largely coincides with the fund of word-formation means of common vocabulary. So, Danilenko V.P. notes that in terminology the same methods are active and productive as in general vocabulary: semantic, syntactic, morphological [3, 78].

The term is defined as «a word or phrase denoting the concept of a special field of knowledge or activity» [4, 265]. According to the complexity of perception by the audience, the terms are divided into highly specialized, special and widely used.

Lotte D.L. developed special requirements such as structure, brevity, independence from context, absolute and relativity [5, 120].

According to Grinev S.V., the requirements for terms can be defined in the following aspects: syntactic, semantic and pragmatic. Each of them is related to a specific aspect [see Table 1].

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Table 1. Requirements for terms

a) syntactic aspect - requirements for the form of the term:	compliance with language standards; brevity; ability to produce; invariance of terms; motivation
б) semantic aspect - requirements to the content of the term:	the unambiguousness of the term in the term system; full meaning; inconsistency in semantics; the absence of synonyms
в) pragmatic aspect - requirements based on the specifics of the use of the term:	implementation; level of use; the demand for modernity; resonance; internationalization

Important requirements of the term include adequacy, accuracy, unambiguousness and uniformity:

1. Adequacy requirement: the content of the concept included in the term must correspond to modern scientific knowledge about the relevant object.

2. Clarity requirement: a) the content and scope of the concept included in the term must be clearly different from other concepts in this micro-terminology; b) there should be no misdirected elements of the sound content of the term in terms of the content and scope of the concept being terminated.

3. The requirement of one meaning and one form: any sound composition must be attached to only one concept; «The ambiguity of the term is unacceptable.»

It should be noted that medical terms have a special place in the language layer. It is understood that in the use of the term, clarity, adequacy and unambiguousness are considered to be the main features.

In the research, we consider the basic “term” that forms the concepts of terminology and medical terminology as a nominative word or phrase adopted to name general concepts. By «terminology» we mean a set of terms that mean concepts in any field of activity. Accordingly, “medical terminology” is a set of terms used in medicine.

Medical terms are special words and phrases used to describe phenomena and processes, their signs

and characteristics, such as medical work, pediatrics, clinic, medical prophylaxis, dentistry, surgery, neurology, pharmaceuticals, cardiology, oncology, ophthalmology, which are areas of medicine. Examples of medical terms in Uzbek and Russian are virus, allergy, coma, anemia, cyst, antiseptic, embryo, stress.

The number of new medical terms in the field is growing rapidly, and their understanding of the stage of development is available to a narrow circle of chitateley-specialists in the field of medicine.

One of the most difficult problems in the regulation of medical terminology is assimilation, which is determined by the interest in terminological lexicon as a means of expression, storage and transmission of specific scientific concepts and the need for continuous improvement and expansion of the conceptual apparatus. After all, one of the most important features of the term - to occupy a clearly defined place in the structure of relations within the system of terms - is fully manifested when the requirements are consistently met. However, due to a number of reasons, these requirements are not fully met within complex microterminations such as medical.

As Shansky N.M. points out, «there is no language on earth that is completely free from the influence of another language, because no nation, a particular language bearer and creator, lives in absolute solitude.»

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Saidkadirova D.S. said that “two main sources play an important role in the enrichment and development of the lexical structure of the language. These are the creation of new words based on the internal, laws and capabilities of the language, as well as the acquisition of words from other languages. He also said, “Both situations occur because of a certain need, necessity, and it is a complex process in which different linguistic and non-linguistic (extralinguistic) factors apply. That is why every aspect of word formation is a complex feature of the language system” [6, 50].

“Assimilation is the transfer of language elements from one language element to another as a result of language interactions; it is also called the assimilation of the elements themselves (word, morpheme, syntactic construction, etc.) from one language to another. Often words and syntactic constructions are less mastered. Assimilation of other language sounds and word-forming elements occurs through assimilated words, which occur by adapting the assimilated language to its properties. In the process of adaptation, foreign words are mastered to such an extent that their origin in a foreign language is not felt at all and can only be determined by etymologists” [7, 96].

Assimilation is a universal linguistic phenomenon, the phenomenon of accepting linguistic material from one language to another due to extralinguistic connections between different levels and forms [8, 99]. The main intralinguistic reasons for mastering have long been known, the need to name new concepts, the tendency to language economics, the need to identify the semantic content of lexical units, as well as details of communication strategies and tactics, including the pursuit of expressiveness,

expressiveness. The mastery of lexical units can also be explained by the pursuit of language economics.

Assimilation is a universal linguistic phenomenon associated with the acceptance of linguistic material from another language by one language due to extralinguistic connections between languages that differ in level and form.

It should be noted that the study of this process as a result of the relationship between peoples and their languages is important for solving a number of linguistic problems, as well as issues related to history, archeology, psychology and other sciences [9, 112].

According to the generally accepted definition, mastery is the process of translating elements of different appearances from one language to another.

According to Kalinin A.V., the term «mastered word» is the most appropriate, because words in foreign and foreign languages only «really belong to the lexicon of other languages and do not belong to the vocabulary of the Russian language» [10, 210].

The existing terminological «diversity» of the theory of assimilation is a multifaceted process, in which the acceptance of a foreign language unit into a recipient-language is multifaceted. In his time, L.P. Krysin addressed a number of important issues: the scope and content of the concept of «mastery»; reasons for mastering; types of units supplied; assimilation (assimilation) of lexemes in the acquired language, promoted signs of adaptation [11, 142].

As for the role of Latin in medical terminology, this language makes up the majority of assimilations in anatomical, histological, clinical, and pharmaceutical groups. For example, assimilation in anatomical terms:

Table 2.

№	Latin	Russian	Uzbek
1.	Abductor, oris, (muskulus) m	абдуктор (отводящая мышца)	абдуктор (узоклаштирувчи мушак)
2.	Adductor, oris, (muskulus) m	аддуктор (приводящая мышца)	абдуктор (яқинлаштирувчи мушак)
3.	Appendix, idis, f	аппендикс	аппендикс
4.	Acinus, I m (лот)	ацинус	ацинус
5.	Bronchioli (лот)	бронхиола	бронхиола
6.	Areola, ae, f	ареола	ареола
7.	Oliva, ae, f	олива	олива

Thus, it is also necessary to have in the language of learning systems of terms that serve a particular thematic area, professional environment and are somewhat identical in terms of the source of the acquisition of these terms. Terminological lexicon is an increasingly significant permeable layer for

assimilated words relative to the vocabulary richness of the common language. In addition, assimilations are directly related to the etymology of the lexical unit and its other features, i.e., the plan of expression (morphological structure) and the plan of content (degree of ambiguity).

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IR SPECTROSCOPIC AND THERMAL CHARACTERISTICS OF THE COVALENT IMMOBILIZED SULFUR-CONTAINING LIGAND AND ITS COORDINATION COMPOUNDS WITH COPPER (II)

Abstract: This article presents the IR spectroscopic and thermal characteristics of the resulting ligand, covalent in situ fixation of O, O-di- (2-aminoethyl) -dithiophosphate potassium on a polyester matrix, which has complexing properties with d-metal cations. Based on the results of IR spectroscopic and thermal studies, the structure of the immobilized ligand and its coordination compound with copper is proposed.

Key words: the structure of the immobilized ligand, IR spectroscopic and thermal characteristics, cations.

Language: Russian

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ИК СПЕКТРОСКОПИЧЕСКИЕ И ТЕРМИЧЕСКИЕ ХАРАКТЕРИСТИКИ КОВАЛЕНТНО ИММОБИЛИЗОВАННОГО СЕРОСОДЕРЖАЩЕГО ЛИГАНДА И ЕГО КООРДИНАЦИОННЫЕ СОЕДИНЕНИЯ С МЕДЬЮ (II)

Аннотация: В данной статье приведены ИК спектроскопические и термические характеристики полученного лиганда, ковалентно закрепленные способом *in situ* O,O-ди-(2-аминоэтил)-дитиофосфата калия на полиэфирной матрице, обладающей комплексобразующими свойствами с катионами d-металлов. На основе результатов ИК спектроскопических и термических исследований предложена структура иммобилизованного лиганда и его координационного соединения с медью.

Ключевые слова: структура иммобилизованного лиганда, ИК спектроскопические и термические характеристики, катионы.

Введение

Хелатообразующие иммобилизованные лиганды широко используются для концентрирования и разделения микроэлементов. Дальнейшее развитие их применения связано с высокой селективностью и эффективным эффектом концентрации ионов элементов из растворов сложного химического состава. Использование иммобилизованных лигандов, обладающих высокой селективностью по отношению к ионам цветных металлов, является одним из перспективных направлений в практике очистки сточных вод. Синтез новых ковалентно иммобилизованных лигандов, разделение с их помощью переходных металлов из растворов комплексобразующими сорбционными методами, изучение состава, строения, физико-химических свойств координационных соединений, образующихся в процессе сорбции, является одной из основных задач неорганической химии.

Ранее в литературе, синтезирован комплексобразующий полифункциональный полимерный сорбент на основе поликонденсации мочевины, формальдегида, фосфорной кислоты [1, 2], получен анионит на основе тиомочевины, эпихлоргидрина и меламина [3], также синтезирован и исследован хелатообразующий сорбент на основе карбамида, формальдегида и дитизона [4].

В последнее время активно развивается новое направление синтеза перспективных сорбентов путем модификации различных полимерных материалов и металлокомплексов на их основе. В результате модификации изменяется строение не только органической матрицы, но и состав функциональных групп, что позволяет получать сорбенты с повышенными селективными и избирательными свойствами и использовать их для концентрирования, разделения и определения металлов из разбавленных растворов и их металлокомплексов в качестве катализаторов гетерогенных каталитических процессов [5].

Получен сорбент поликонденсацией карбамида, формальдегида и 2-аминопентандиовой кислоты, а также изучены его

сорбционные свойства [6], функционализована поверхность целлюлозы тиосемикарбазидными группами [7, с.393], определены сорбционные характеристики по ионам Co (II), Cd (II), Ni (II), Cu (II) и Zn (II) на силикагеле с ковалентно-иммобилизованным 1-(2-пиридилазо)-2-нафтолом [8, с.57], сорбционно-фотометрически определены ионы кобальта с помощью иммобилизованного реагента 4-амил-2-нитрозо-1-нафтола [9]. Предложен сорбент для концентрирования лантана из проб воды большого объема. Сорбент устойчив в динамических условиях и основан на сверхсшитом полистироле, модифицированном 1-фенил-3-метил-4-бензоилпиразол-5-оном [10, с. 497]. Определены оптимальные условия для обнаружения иона тяжелого металла свинца (II) с использованием недавно синтезированного сорбента PPA 1, иммобилизованного с помощью сульфарсазенового реагента; в качестве сорбентов выбраны сорбенты ППА-1 и СМА-1 [11, с. 596].

Цель и методы исследования.

Целью исследования является синтез нового иммобилизованного лиганда, на основе ковалентно закрепленным способом *in situ* O,O-ди-(2-аминоэтил)-дитиофосфатом калия на карбамидоформальдегидной матрице, обладающей высокими комплексобразующими свойствами к катионам меди и серебра.

ИК- спектроскопические исследования проводили на инфракрасном ИК-Фурье спектрометре IRTracer-100 SHIMADZU (Япония) (диапазон 400-4000 см⁻¹, разрешение 4 см⁻¹), порошкообразным методом. Интерпретация спектров проводилась с использованием базового программного обеспечения, реализующего автоматическое измерение спектров, имеющего средства графического отображения спектров и их фрагментов и формирующего работу с библиотекой спектров пользователя.

Термоаналитические исследования проводились на приборе Netzsch Simultaneous Analyzer STA 409 PG (Германия), с термопарой К-типа (Low RG Silver) и алюминиевыми тиглями. Все измерения были проведены в инертной азотной атмосфере со скоростью потока азота 50 мл/мин. Температурный диапазон измерений

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составлял 25-370°C, скорость нагрева равнялась 5К/мин. Количество образца на одно измерение 5-10 мг. Измерительная система калибровалась стандартным набором веществ KNO₃, In, Bi, Sn, Zn.

ИК спектроскопические и термоаналитические исследования проводили в анализаторах в Ташкентском научно-исследовательском институте химической технологии.

Результаты и их обсуждение.

Как продолжение вышеуказанных исследований для синтеза иммобилизованного лиганда на основе ковалентного закрепления способом *in situ* O,O-ди-(2-аминоэтил)-дитиофосфатом калия на полиглицидильной полиэфирной матрице процессом ковалентной

иммобилизации O,O-ди-(2-аминоэтил)-дитиофосфата калия на эпоксидной смоле проводили в мольных соотношениях 2:1 исходных веществ при температуре 80°C и продолжительность реакции составляла 1,8 ч. Статическая ёмкость по иону меди (II) полученного сорбента равна 4,27 мг-экв/г. По результатам элементного анализа – найдено: С – 32,65%, Н – 5,1%, N – 7,83%, O – 17,61%, P – 8,27%, S – 17,72%; вычислено: С – 32,87%, Н – 5,2%, N – 7,67%, O – 17,53%, P – 8,49%, S – 17,53%. (C₁₀H₂₄N₂Cl₂O₄PS₂K)_n, n=45-47. ИК-спектр: ν(NH) 3324 см⁻¹, ν_s(CH₂) 2963 см⁻¹, δ(CH₂)+δ(CN) 1614 см⁻¹, δ_{as}(CH₂) 1454 см⁻¹, δ_s(CH₂) 1342 см⁻¹, ν(C-O) 1070 см⁻¹, ν(POC) 979 см⁻¹, ν(C-C) 830 см⁻¹, ν(P-O) 752 см⁻¹, ν(P=S) 665 см⁻¹, ν(P-S-) 516 см⁻¹. Строение иммобилизованного лиганда приведено на рис.1.

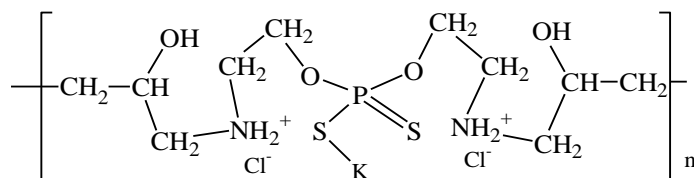


Рисунок 1. Строение ковалентно закрепленного лиганда.

Изучено комплексообразование ионов меди полученным макролигандом. Для этого было приготовлено 250 мл 0,1 н раствора хлорида меди, из которых 10 мл поместили в стеклянную ампулу, добавили 0,03 г макролиганда и оставили на 2 часа. Полученный комплекс меди имеет синий цвет.

В лиганде содержатся дитиофосфорные кислотные группы. Методом ИК-спектроскопии нами установлено образование координационных соединений ионов Cu (II) с amino- и депротонированной дитиофосфорной группами лиганда при значении среды раствора pH=4-6.

Положения полос поглощения валентных колебаний связей РОС в спектрах

координационных соединений сдвигаются в высокочастотную область 7-12 см⁻¹ по сравнению с их положением в спектре свободного лиганда. Также положения полос валентных колебаний ν(P=S) и ν(P-S-) сдвигаются в низкочастотную область на 23-36 и 15-29 см⁻¹. Из данных сдвигов следует, что дитиофосфорные группы лиганда координируются к ионами металлов и в результате образуется четырёхчленный хелатный цикл, что не противоречит данным квантово-химического расчета. Структура координационного соединения, полученная в результате сорбции, приведена на рис.2

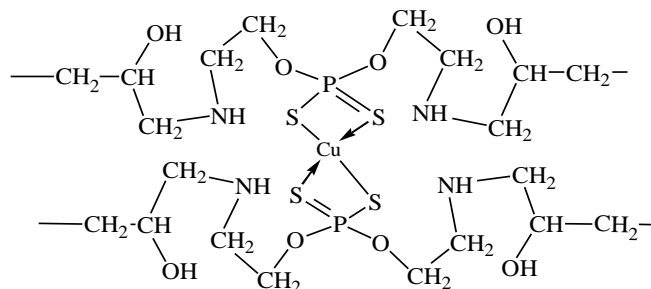


Рисунок 2. Строение координационного соединения меди с лигандом.

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По результатам анализа дифференциально сканирующей калориметрии проанализированы различные экзотермические и эндотермические

эффекты, наблюдаемые при изменении массы в результате разрушения структуры соединений при нагревании лиганда.

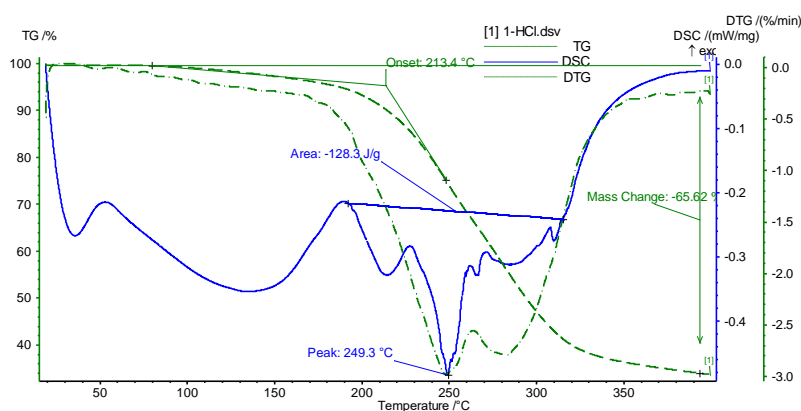


Рисунок 3. ДСК-ТГ-ДТГ график лиганда.

Изучение графиков DSK-TG-DTG лиганда (рис.3.) показывает три эндотермических пика в диапазоне температур 20-390 °С. На первом показано плавление лиганда при температуре 140 °С. Разложение началось при 213,4 °С. В

интервале температур 214–360 °С уменьшение массы образца происходило со скоростью 3% /мин и составило 65,6%. Этому процессу соответствуют два эндотермических пика. Полная энтальпия распада составляет $\Delta Q = -128,31$ Дж / г.

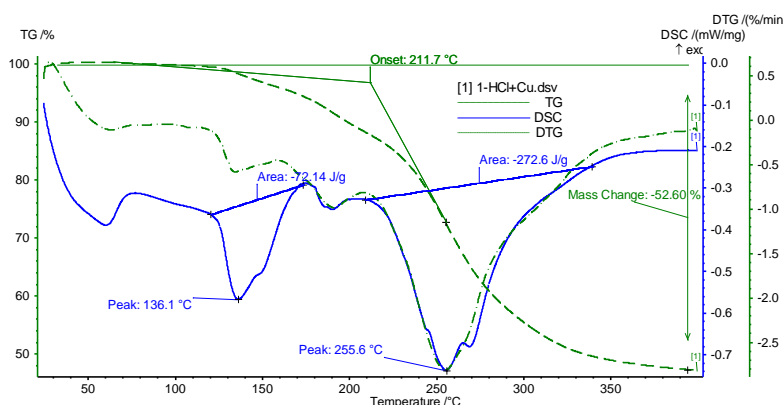


Рисунок 4. ДСК-ТГ-ДТГ график координационного соединения ионов Cu (II) с лигандом.

Исследование графиков ДСК-ТГ-ДТГ координационного соединения (рис.4.), образованного ионом Cu (II) с лигандом, показывает плавление лиганда при температуре 136,1 °С. Разложение началось при 211,7 °С. При 255,6 °С уменьшение массы образца происходило со скоростью 2,5% / мин и составило 52,6%. Полная энтальпия распада $\Delta Q = -272,6$ Дж / г.

Выводы.

Таким образом, получен ковалентно иммобилизованный лиганд, на основе

ковалентного закрепления способом *in situ* O,O-ди-(2-аминоэтил)-дитиофосфата калия на полиэфирной матрице, обладающей высокими комплексообразующими свойствами к катионами d-металлов. Предложена структура комплексного соединения меди полученного сорбционным способом. Термические характеристики синтезированного лиганда были также изучены с помощью дифференциально сканирующей калориметрии.

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SCOOPS (NOKTUIDAE) - AS TOMATO PESTS IN UZBEKISTAN

Abstract: This article presents the results of the study on the species composition of scoops and their harmfulness, as well as the results of the effectiveness of preparation against tomato scoops.

Key words: scoop, gnawing, pest, agriculture, tomato, efficiency, preparation.

Language: Russian

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СОВКИ (NOKTUIDAE) – КАК ВРЕДИТЕЛИ ТОМАТА В УСЛОВИЯХ УЗБЕКИСТАНА

Аннотация: В данной статье приводятся итоги исследования по изучению видового состава совков и их вредоносность а также результаты эффективности препаратов против совков на томатах.

Ключевые слова: Совка, подрывающие, сельской хозяйство, томат. эффективность, препарат.

Введение

Томаты являются одной из основных овощных культур, возделываемых в условиях Узбекистана. Среди вредных организмов, наносящих ощутимый вред этой культуре, отмечены совки, разнообразные как по видам, так и по способу питания. Так, условно принято подразделять вредных совков на подрывающих, т.е. связанных с почвой, и грызущих или наземных; гусеничная (вредящая) фаза у первых протекает под землей в сфере расположения корней [4, 5, 8].

Мы изучали видовой состав как подрывающих совков, наносящих вред томатам в основном в период их всходов (рассады), а также в фазе плодоношения. Всходам вредят гусеницы первого поколения подрывающих совков, запоздалым посевам томатов раннего сева-воскликательная совка, которая, как было отмечено нами по лёту бабочек на ферменные ловушки, вылетает на 6-10 дней позже озимой. А рассаду по раннему сроку сева повреждают

гусеницы II поколения озимой совки, а также ряд других сопутствующих видов.

В табл. I приведен список видов подрывающих совков, обнаруженных на посевах томата в условиях открытого грунта. Представленные материалы усреднены на основе данных за 5 лет исследований, из результатов следует, что основную массу подрывающих совков составляют озимая и воскликательная. Зачастую они составляют 90-95% от общего объема совков этой группы в биотопе. Небольшую часть популяции составляют совки С – черное и ипсилон. В отдельные годы в популяциях обнаруживаются спонтанно развивающиеся виды-дикая и светло-серия земляная совки. Таким образом, установлено, что для успешной борьбы с корня повреждающими видами совков достаточно своевременной контролировать их основной вид озимую совку [10].

Нами обнаружены 5 видов наземных совков: совка-гамма, карадрин, отличная и люцерновая. И здесь, как и у подрывающих, наблюдаются

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доминаты (хлопковая совка, совка-гамма) и второстепенные, обычно не имеющие большого экономического значения. Но, вместе с тем, среди них есть виды весьма потенциально опасные, способные молниеносно увеличить численность до катастрофических размеров (карадрина).

В особую группу входит сальниковая совка, иногда «внезапно» появляющаяся в теплицах и также быстро уничтожающая листовую-

поверхность томата. Иногда сальниковую совку путают с совкой-гамма, у которых есть много общего как в морфологическом плане, так и в биологии. Хотя гусеницы очень схожи по форме и цвету и даже отсутствием 2-х пар брюшных ног, их отличие проявляется уже в фазе куколок. Куколки сальниковой совки усыпаны мелкими темными пятнами.

Таблица 1. Виды совков, зарегистрированных на посевах томата

№	Латинское название	Русское название	встречаемость
Подгрызающие			
1.	<i>A. rotis segetum</i> Den.et Schiff	Озимая	+++
2.	<i>A. exclamationis</i> . L	Восклицательная	++
3.	<i>A. ipsilon</i> Hufn.	Совка ипсилон	+
4.	<i>Xestia c-ni</i> Turn. L	Совка с-черное	++
5.	<i>Euxoa agricola</i> B.	Дикая совка	++
Наземные			
1.	<i>Helicoverpa armigera</i> . Hbn	Хлопковая	+++
2.	<i>Autographa gamma</i> . L	Совка гамма	+
3.	<i>Laphigma exigua</i> Hb	Карадрина	++
4.	<i>Mamestra suase</i> Schiff	Отличная	+
5.	<i>Heliothis virescens</i> Hufn	Беда тунлами	++
6.	<i>Pusia chrysis</i> . L	Стальниковая	+

Примечание: Встречаемость (+++) высокая, (++) средняя, (+) низкая.

Параллельно мы изучали перспективные виды инсектицидов для химического уничтожения гусениц совков при появлении угрожающей их численности. В табл. 2 приведены сводные (усредненные) результаты испытаний инсектицидов против подгрызающих и наземных совков, проведенных в 2019-2020гг. Из результатов следует, что препараты обладают высокой инсектицидной активностью против обеих групп вредителей, но вместе с этим эффективность против наземных совков у всех препаратов выше, чем против подгрызающих. И это вполне объяснимо, учитывая образ жизни гусениц, и то, что пиретроиды очень быстро закрепляются почвенно-поглощающим комплексом почв и вертикальной их миграции не происходит [7, 9].

Поэтому мы использовали рекомендации Ш.Т.Ходжаева, К.Д.Дурдиева [1, 6]; Ш.Т.Ходжаева, Д.Торенизова [2]- проводить полив после обработки для восходящей миграции вредителя. Результаты исследования приведенные

в табл.2. Из таблицы видно что, Индоксикарб (0,4л/га), лямбда-цигалотрин (0,8л/га.), Дельтаметрин (0,45-0,5л/га.) а также лямбда-цигалотрин-+имдоклоприд в норме расхода 0,2 л. на гектар уничтожает вредителя от 87,7 до 93,9 % через 5 дней после обработки. Испытанный препараты в настоящее время включены в «Список» и рекомендованы для борьбы с различными вредителями томата, в том числе хлопковой совкой, а Дексидрин и Дефентокс 2,5% к.э. (0,25-0,5 л/га) рекомендованы и против подгрызающих совков почвы против озимой, растений-против хлопковой совки.

Своевременное определение потенциальной угрозы и проведение комплекса биологических (выпуск трихограммы по сигналам феромонных ловушек: бракона) и химических обработок в очагах сильно заселения позволит сохранить густоту стояния растений и сохранить урожай от повреждений, что в целом может дать прибавку урожая томата от 10 до 35 ц/га.

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Таблица 2. Биологическая эффективность препаратов против вредных совок на томатах (Ташкентская область Кибрайский р/н ф/х. "Sevara brend style" производственный опыт-2017-2018г).

Варианты	Норма расхода л/га	Действующие вещества	Эффективность на 3-5 сутки после обработки против совок:	
			подгрызающих	грызущих
Нокаут, 15% к.с.	0,4	Индоксакарб	65,9-87,7	80,1 - 91,8
Жайам, 5%эм.к	0,8	лямбда-цигалотрин	66,8-86,5	81,6 - 93,9
Дефентокс 2,5% к.э.	0,5	Дельтаметрин	66,8- 85,4	81,3 - 91,6
Сайвер, 5% в.р.г.	0,4	Эмаектин бензоат	64,3-86,1	82,7 - 90,8
Дексидрин 2,5% к.э.	0,45	Дельтаметрин	61,2-85,6	84,4 - 91,4
Эффектум-Дуо 40% к.с.	0,2	лямбда-цигалотрин+ имдоклоприд (100 г/л + 300 г/л.)	67,8- 87,8	85,2 - 93,6
Децис, 2,5% к.э. (эталон)	0,7	Дельтаметрин	72,0-85,8	78,3 - 91,2
Контроль (без обработки)	-	-	-	-

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THE INFLUENCE OF DIFFERENT THERAPY METHODS ON THE VOLUME OF POSTOCOVIDAL PULMONARY LOSS

Abstract: Predictors of 60-day mortality in patients in the early postcovid period were identified, the effectiveness of the use of various medications with theoretical antifibrotic effects was studied in the aspect of preventing the development of postcoid interstitial lung disease. The Fergana Valley model was used to determine the risk of 60-day mortality in the early rehabilitation period in patients who have had COVID-19 associated pneumonia with 50% or more of the pulmonary parenchyma, as well as the limit of the effectiveness of various medications in terms of risk reduction. An algorithm has been developed for the management of patients with COVID-19 associated pneumonia in the early post-infectious period, taking into account the risk of developing pulmonary fibrosis.

Key words: COVID-19, postcovid, pulmonary fibrosis, therapy methods.

Language: English

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Introduction

Noteworthy is a prospective, multicenter, observational study of 86 patients who survived severe SARS-CoV-2 already under close supervision in Austria to assess the degree of cardiopulmonary injury. Preliminary results of the preparation for publication presented at this year's meeting of the European Respiratory Society (EPO) [5,6] showed that the majority of patients remained short of breath (37%), decreased diffuse capacity (28%) and CT abnormalities (88%) through 6 weeks after discharge. While 24-week follow-up is still pending, CT abnormalities dropped to 56% after 12 weeks, from 8

at week 6 on CT scan to 4 at 12 weeks on CT scan. It is encouraging that the authors report that pulmonary fibrosis did not occur in any of their patients. There was also an improvement in lung function over the next 6 to 12 weeks.

Radiological imaging findings for COVID-19 pneumonia include ground-glass opacities with or without consolidation, thickening of interstitial tissue, and parenchymal linear indurations that are predominantly bilateral with a preference for the periphery of the lower lobes [12,11,2,3,4]. As with other inflammatory pneumonias, there are foci of edema organizing pneumonia and DAP. In a recent

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study comparing CT imaging, interstitial thickening, air bronchogram, uneven interface, coarse reticular pattern, parenchymal streaks, and pleural effusion were more common in the group with fibrosis than in the group in which fibrosis did not persist.

Thus, it has been suggested that interstitial thickening, uneven interface, coarse reticular pattern and parenchymal streaks appearing during the course of the disease may be predictors of pulmonary fibrosis in these patients [12,9,10]. Rapid progress to the "honeycomb", although it was a rarity, but also met [7,8,1].

Materials and methods

The second stage of the study included 217 patients after discharge from the infectious diseases hospital, where they were hospitalized with SARS-CoV2-associated interstitial pneumonia with a lesion volume of 50% or more of the pulmonary parenchyma. The second stage of the study included only patients with a point risk assessment according to the developed scale using MSCT of 2-3 points. According to a scale using USDP, a score of 2-3 points was recorded in 158 patients (72.81%). On average, at the time of admission to the infectious diseases hospital, the volume of the affected pulmonary parenchyma, according to MSCT, was $71.93 \pm 0.66\%$. The duration of the febrile period in patients was 21.73 ± 0.42 days, the duration of hospitalization in the infectious diseases hospital was 20.08 ± 0.28 days. The score for the quality of life on the PCFS scale is 2.64 ± 0.06 points.

Result and discussion

On average, at the time of hospitalization in an

infectious diseases hospital, the volume of the affected pulmonary parenchyma, according to MSCT, was $71.93 \pm 0.66\%$. By the end of the infectious period, the volume of the affected lung tissue according to serial MSCT decreased by $57.37 \pm 1.23\%$ (to $30.55 \pm 0.87\%$, $p < 0.001$ with the initial data). Over the next two months, the volume of the lesion of the pulmonary parenchyma decreased by another $17.78 \pm 5.92\%$ and amounted to $19.01 \pm 9.69\%$ ($p < 0.001$).

The score for the compaction of the lung tissue according to the ultrasound scan at the time of inclusion in the study was 17.06 ± 0.29 points. By the end of the 2nd month of rehabilitation, the score decreased to 8.40 ± 0.17 points ($p < 0.001$). The relative dynamics was $-122.06 \pm 6.06\%$.

Reflecting the positive dynamics of interstitial lung damage, the saturation value, initially at the time of inclusion in the study, averaged $80.72 \pm 0.55\%$, by the end of the 2nd month of observation increased to $90.99 \pm 0.31\%$ (relative dynamics - $+13.87 \pm 0.88\%$). Also, the score for the quality of life on the PCFS scale decreased by $51.65 \pm 3.00\%$ and by the end of the rehabilitation period reached an average of $1.15 \pm 0.07\%$ ($p < 0.001$ significance of the difference with the initial data).

Analyzing the dynamics of the studied clinical and instrumental parameters in the groups, depending on the method of medical rehabilitation used, it was found that the groups were comparable in terms of the age of patients, the volume of the affected lung tissue, the duration of the febrile period and the length of the hospitalization period in the infectious hospital, clinical characteristics (saturation and quality of life (Table 1)

Table 1. Comparative characteristics of study groups depending on the method of rehabilitation used

Indicators	S (n=74)	C (n=73)	W (n=70)	Significance of intergroup differences		
				S-C	S-W	C-W
Age, years	49,47±1,24	49,82±1,32	51,83±1,34	Nr	Nr	Nr
duration of fever, days	22,61±0,75	21,90±0,68	20,61±0,75	Nr	Nr	Nr
duration of hospital infectious disease, days	20,43±0,48	19,79±0,47	19,87±0,51	Nr	Nr	Nr
CT inf stat,%	71,81±1,08	72,94±1,14	70,97±1,23	Nr	Nr	Nr
USDP reab, score	17,30±0,47	17,10±0,52	16,65±0,52	Nr	Nr	Nr
saturation, %	79,69±0,95	81,42±1,00	81,07±0,93	Nr	Nr	Nr
PCFS, score	2,61±0,11	2,64±0,11	2,65±0,11	Nr	Nr	Nr

Dynamic observation showed that in all three groups, the decrease in the volume of the affected pulmonary parenchyma during the treatment of

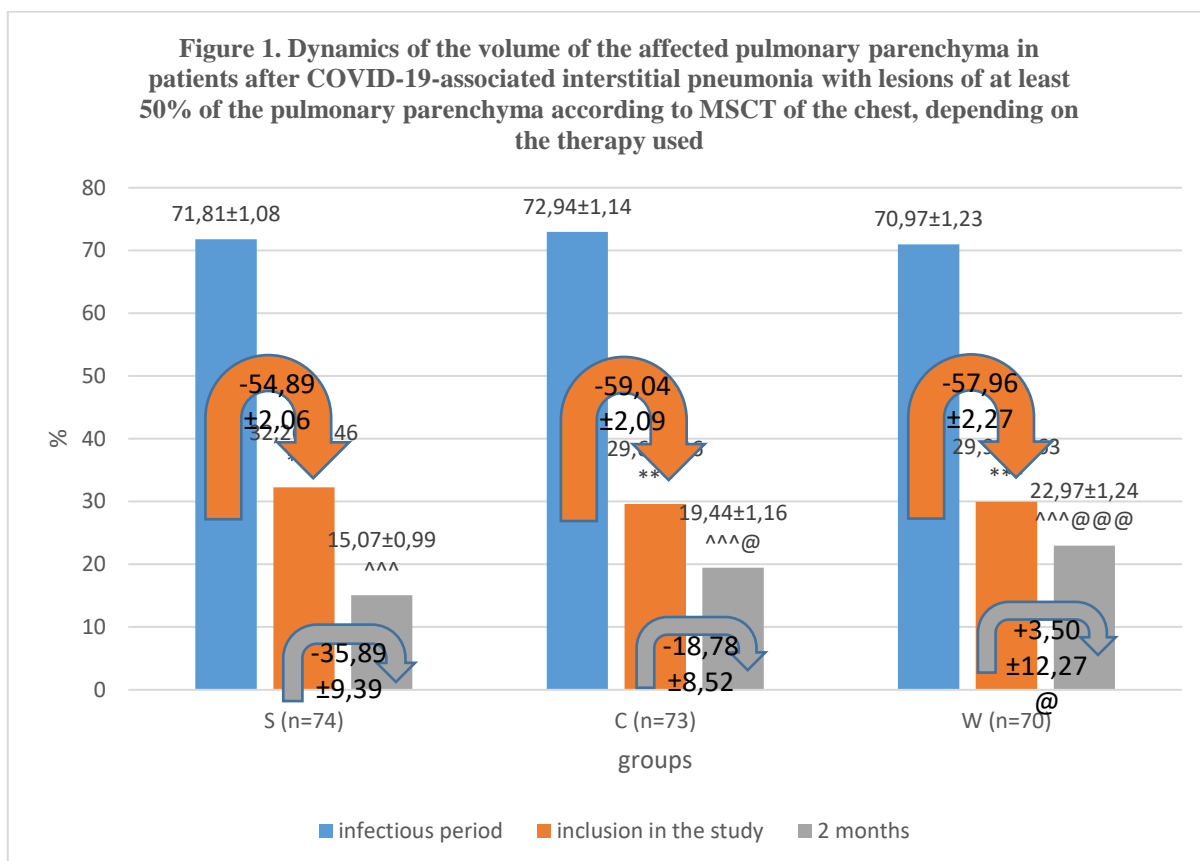
patients in the infectious diseases hospital was comparable (Figure 1). Thus, by the beginning of the study, the volume of the affected pulmonary

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parenchyma did not differ in all three groups of patients. Against the background of ongoing rehabilitation measures, by the end of the 2nd month of rehabilitation in all treatment groups, the volume of the affected pulmonary parenchyma continued to decrease significantly, while the most significant effect of rehabilitation measures was observed in group S, in which the volume of the affected pulmonary parenchyma decreased by 35.89% (p

<0.05 reliability of differences in relative dynamics with group W, differences in relative dynamics between groups S and C and groups W and C are unreliable). As a result, by the end of the observation period, a significantly lower volume of interstitial lung lesions was achieved in group S compared to the other two groups (p <0.05 - significant difference with group C, p <0.001 - significant difference with group W).



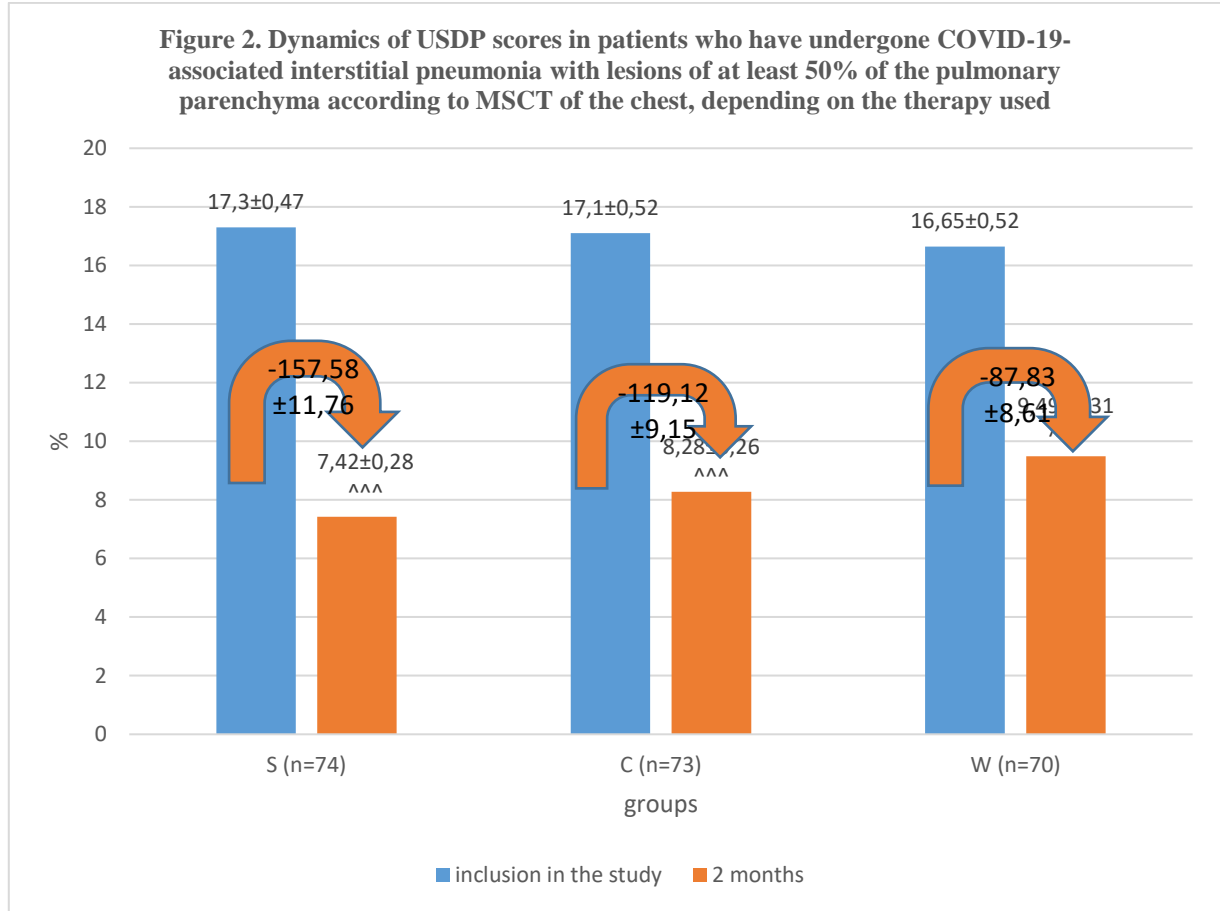
Note: * - reliability of differences with MSCT in the infectious period, ^ - reliability of differences with MSCT at the time of inclusion in the study, @ - reliability of differences with group S, differences between groups K and B are insignificant. One sign - p <0.05, two signs - p <0.01, three signs - p <0.001.

The scoring of lung tissue compaction according to the ultrasound scan data significantly decreased in all comparison groups (p <0.001 significance of the difference between the scoring of the ultrasound scan at the time of inclusion in the study and at the end of the observation period), the dynamics was maximum in group S (-157.58%), smaller in group C (-119.12%, p <0.05 reliability of the difference in relative dynamics with group S and minimal in group W (-87.83%, reliability of difference in relative dynamics with group S - p <0.001, with group C - p <0.05). As a result, by the end of the second month of rehabilitation, the treatment groups

achieved a significantly lower score for USDP compared with patients with a high risk of fibrosis included in the first stage of the study: group S achieved the minimum USDP score between the groups (p <0.001 significant difference with patients of the first stage research), slightly higher - in group C (reliability of differences with group S - nr, reliability of differences with patients of the first stage of the study - p <0.05) and maximum - in group W (reliability of differences with group S - p <0.001, with group C - p <0.01, with patients of the first stage of the study - nr). (Figure 2).

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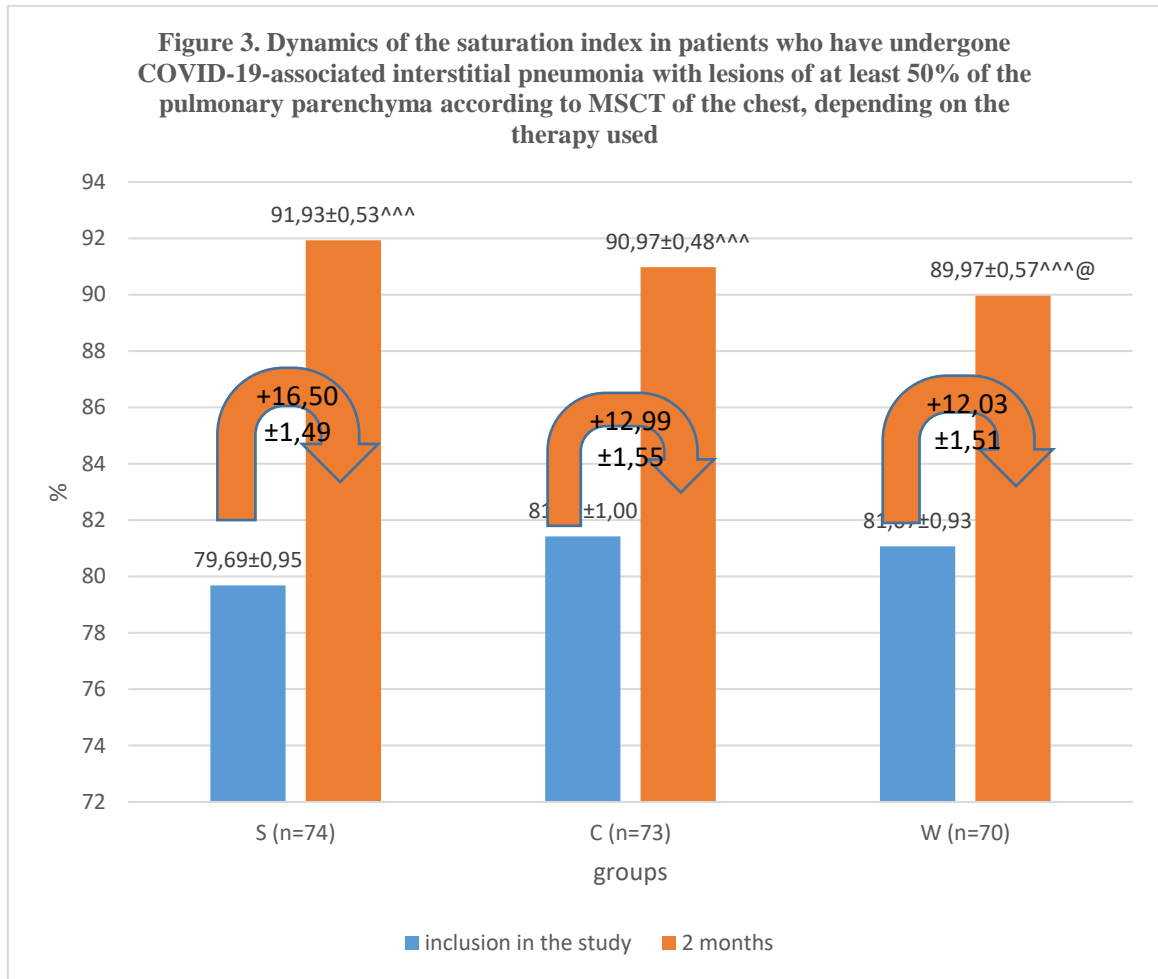
Note: ^ - reliability of differences from MSCT at the time of inclusion in the study, differences between groups are insignificant. One sign - $p < 0.05$, two signs - $p < 0.01$, three signs - $p < 0.001$.

Reflection of a decrease in interstitial damage to the pulmonary parenchyma is an increase in the functional status of the respiratory system. An indicator of the functional capacity of the lungs is the saturation of the peripheral blood. In the present study, saturation in all groups of patients significantly increased during rehabilitation ($p < 0.001$ significant difference between saturation at the time of inclusion in the study and at the end of the observation period,

Fig. 3). Although the differences in relative dynamics between the groups did not reach the level of statistical significance, the dynamics in group S was more pronounced; as a result, by the end of the observation period, peripheral blood saturation in group S was significantly higher than in group W ($p < 0.05$). Differences in achieved values between groups S and C and between groups C and W.

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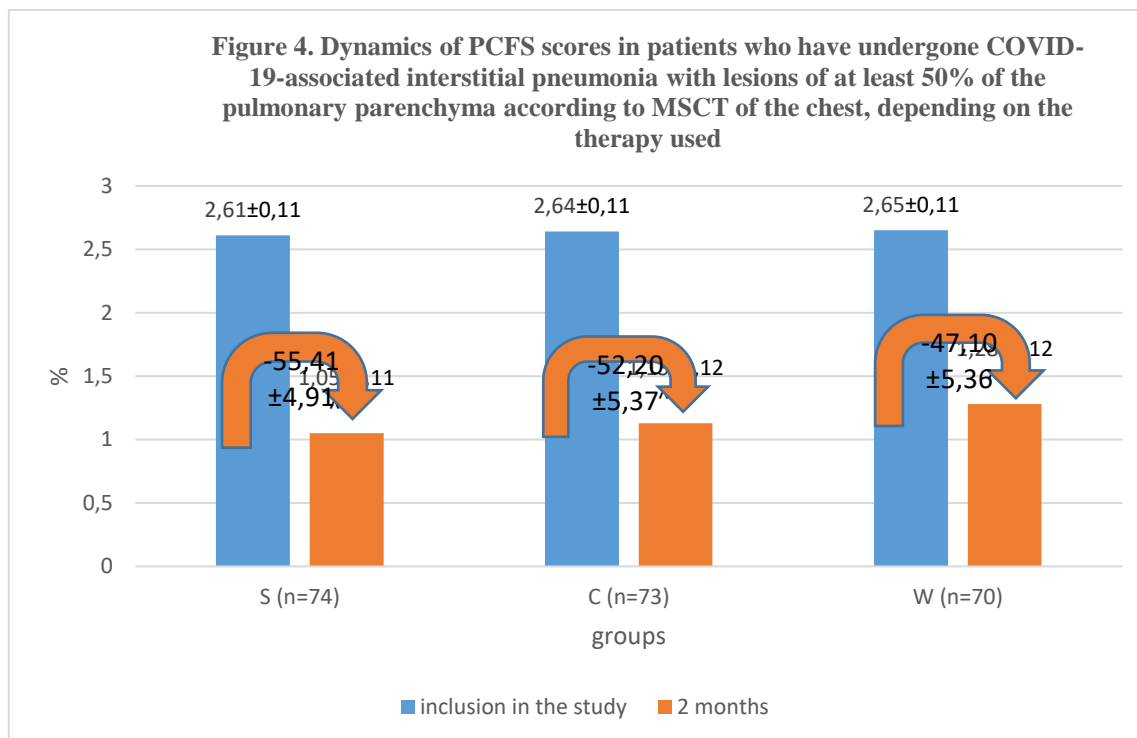
Note: ^ - significance of the difference with MSCT at the time of inclusion in the study, @ - significance of the difference with group C, differences between groups K and B are insignificant. One sign - $p < 0.05$, two signs - $p < 0.01$, three signs - $p < 0.001$.

Improvement in lung function was associated with an improvement in quality of life - a decrease in PCFS score ($p < 0.001$ significant difference between PCFS score at study entry and at the end of the follow-up period). The improvement in quality of life was

statistically comparable in all observation groups, although some advantage was noted in group C. As a result, a lower PCFS score was achieved in this group, although the difference between the groups also did not reach the level of significance.

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Note: ^ - reliability of differences from MSCT at the time of inclusion in the study, differences between groups are insignificant. One character - $p < 0.05$, two characters - $p < 0.01$, three characters - $p < 0.001$.

Conclusions

The most significant predictors of the formation of postcovid interstitial lung disease are: the residual volume of the affected pulmonary parenchyma (according to MSCT data) at the end of the infectious period is 20% or more (RR - 2.76), the concentration of CRP in the peripheral blood at the end of the infectious period is 45 mg / l and more (RR - 3.78) and preservation of the relative proportion of neutrophils in the population of peripheral blood leukocytes in the

early post-infectious period 78% or more (RR - 2.69).

Risk of total mortality within 60 days after the infectious period in of patients who have undergone COVID-19 associated pneumonia with damage to at least 50% of the pulmonary parenchyma is 8.82%. The most significant risk predictors were the volume of pulmonary parenchyma lesions according to MSCT data in the early post-infectious period 20% or more (RR - 7.39, $p < 0.01$) and the duration of the febrile period 21 days or more (RR - 7.40, $p < 0.05$).

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SOLAR TRACKER SYSTEM USING ARDUINO

Abstract: In this article, the small solar power plant currently being designed is a set of panels mounted in a static position, i.e. fixed axis, usually installed on both sides of the roof at home, which in turn causes the sun to move slowly. due to which sunlight affects the efficiency of the panels on this or that side of the roof, leading to a decrease in the available efficiency. In the first half of the day, the efficiency of the panels on one side of the roof is better, and in the second half, the efficiency of the panels on the other side is better. In practice, this process is inextricably linked to the movement of the sun, so we considered the optimal solution to maintain their current efficiency and efficiency by moving the solar panels. The device is a laboratory-made module that depends on the movement of the sun during the day and is perpendicular to the sun.

A single-axle taker changes its position relative to only one axle. Typically, such a tracker is equipped with a static actuator, which changes the angle of inclination of the device. The actuator, in turn, consists of a motor-reducer and a rod. The rod attaches to the table and moves it up or down. A single-axis tracker changes its angle to the sun several times a year. It is controlled by software that makes 2 to 20 changes per year.

Moving system - such a system is called in English (tracker), ie in Uzbek "monitoring device". Its operation is simple and is designed to monitor the sun as much as possible to increase the efficiency of the device.

Key words: Drive system, solar module, servomotor Arduino UNO, photoresistor.

Language: English

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Introduction

An important part of the mobile solar module system is the supporting structure for the solar panels. It provides the required strength for the entire system and the right angle of inclination for the solar panel. The combination of the solar panel and the supporting structure must be resistant to various wind speeds and other environmental influences.

This article uses an Arduino-based solar tracking system. Light-dependent resistors (LDR) are used to sense the intensity of sunlight, and the solar module is adjusted to maximize sunlight observation. A servo motor is used to control the solar module. The results

show that a moving solar module produces more energy than a static solar module.

Main part.

The following electromechanical and photoelectric devices were required to build a mobile solar module:

- Servomotor;
- Arduino UNO;
- Photoresistor;
- Solar panel;
- Similar for mounting.

Servomotor. Servo (also known as servomotor) has been used for a long time, the size is very small,

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but the role is large, mainly used to control the angle, usually used in aircraft model, smart car, robots, ships, roller movement such as industry, by steering wheel is performed. The servo circuit has a shaft mounted on the engine block and is usually equipped with gears

that drive the motor electrically, which determines the amount of movement of the shaft. It is usually advisable to use stepper or servo motors to move the solar panels, and these motors can be connected directly to the Arduino.

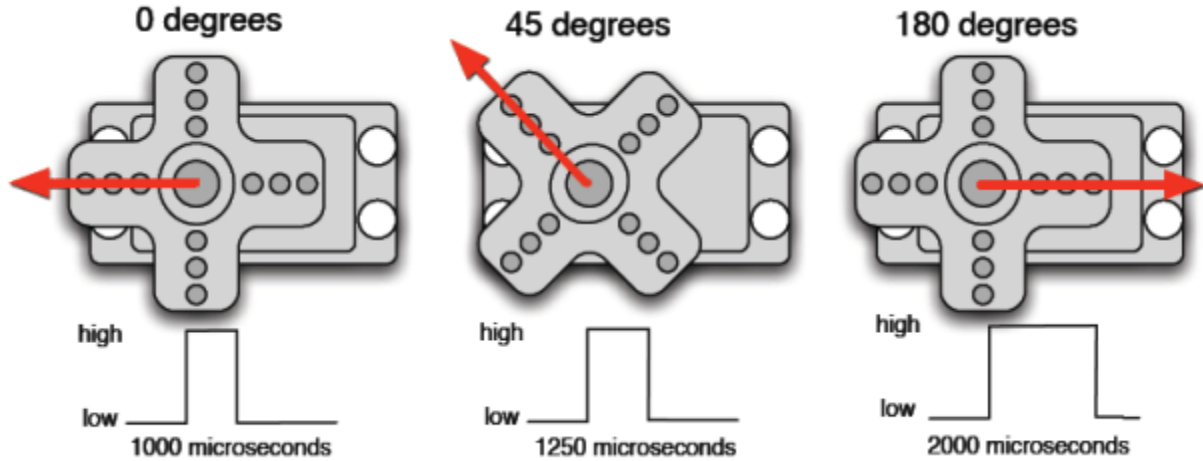


Figure 1. Pulse width and position.

MG996R Servo Motor Features

- Operating voltage is usually + 5V
- Current: 2.5A (6V)
- Stop torque: 9.4 kg / cm (at 4.8V)
- Maximum stopping torque: 11 kg / cm (6V)
- Operating speed 0.17 s / 60 °
- Gear type: metal
- Rotation: 0 ° -180 °
- Engine weight: 55 g
- The set includes gears and screws.



Figure 2. Servo motor structure

Arduino. It is a small board with a processor (microcontroller) and memory.

There are many types of Arduino, such as Arduino Yun, Arduino Uno, Arduino Duemilanove, Arduino Diecimila, Arduino Nano, Arduino Mega, Mega 2560, Mega ADK, Arduino Leonardo, Arduino Micro, etc. An Arduino is a device that combines software and hardware. As mentioned above, there are many types of Arduino, and beginners of Arduino will start using the Uno or Nano type of Arduino. Some robotics technicians, after getting acquainted with the

Arduino Uno and using its capabilities, try to make their own without buying an Arduino Mega. The Arduino Uno differs from other types in that it has more processors, microcontrollers, and more or less digital and analog outputs. The user of Arduino will be able to connect to it various electrical components and modules, for example: LED lights, sensors, relay modules network (Wi-fi, Bluetooth, Ethernet) modules, sensors, motors, magnetic door locks and powered by electricity all things. So you need to create a program! What program do we create? Through

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which programming language? Programs for Arduino are written in standard C ++, with simple and straightforward algorithms and programs for controlling I / O (Input-Input, Output-Output) in contacts. There is an Arduino IDE (Arduino program, compiler) running on Windows, Mac OS and Linux to study and write programs, and you can use it absolutely free of charge. Creating algorithms and programs in the Arduino IDE is very easy and easy to work with[6-13].

Arduino Uno specifications:

Microcontrollers: ATmega328;

Operating voltage: 5 V;

Input voltage (recommended): 7-12 V;

Input voltage (maximum): 6-20 V;

Digital input / output: 14 (6 of them can be used as KIM (Shirotno-Impulsnaya Modulation));

Analog input: 6;

Photoresistor. A photoresistor is a semiconductor photoelectric device that uses the phenomenon of photoconductivity, which means that the electrical conductivity of a semiconductor changes under the influence of optical radiation. [11]

Basic sizes:

$$S_i = \frac{I_\phi}{\phi}$$

Darkness resistance $R_k = 10^2 - 10^9 \Omega$ with the same value of the resistance of unlit photoresistors;

Operating voltage - the value of the operating voltage depends on the size of the photoresistor, ie the distance between the electrons is selected from 1 to 1000 V.

It should be noted that the size of photoresistors varies with the external environment. Advantages of photoresistors: high sensitivity, can be used in the infrared part of the radiation, small size and can be used in DC and AC circuits.

The sensors use two light-sensitive resistors called LDRs. They change their resistance level depending on how much light falls on them. The more light, the less resistance.

The program works by comparing the resistance of two sensors and moving the servo motors. The sensitivity of the sensors depends on the code written on the Arduino. The codes are set only in a certain area (so as not to disturb the rest of the project) and to move at a set speed. Both aspects of the code can be easily modified.

To prepare and launch a mobile solar module, we will need a number of devices, including:

- Arduino Uno
- Servo motor Servo motor type MG996R
- Photoresistor MLG4416 (90mW; 5-10kGh /1.0MΩ) - 2x
- Metal constructor
- Output resistance 10 kΩ; 0.25 W; 5% - 2x
- Printing cabinet, box, connection wires

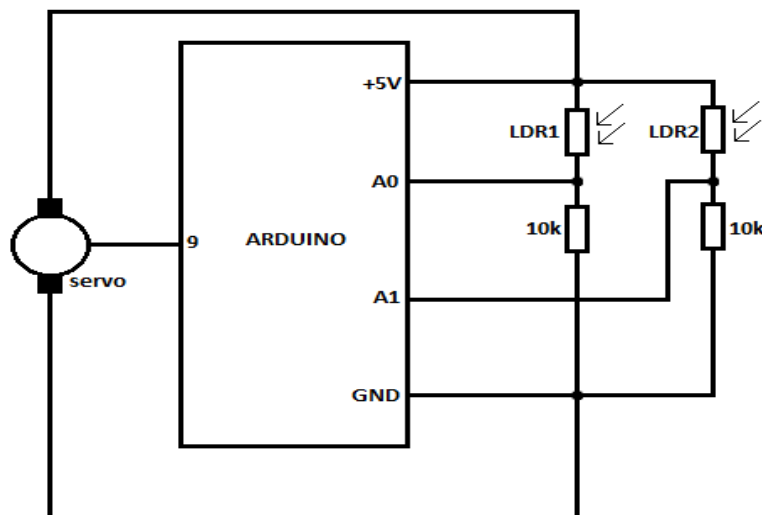


Figure 3. Schematic of the control of a moving solar module using an Arduino.

A solar panel that covers the sun using an Arduino and Servomotor.

There are a variety of trackers available in addition to solar tracking methods.

The pursuer is a horizontal axis that moves from east to west. Once the tracker is installed, you never have to change or adjust anything, because wherever

the sun is, the tracker will follow it. This method is the best result for power generation.

A dead tracker is made along the X and Y axes, which simply moves from left to right from east to west. Typically, these make the X axis (left to right) an observer and then set the panel to 450 on the Y axis.

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This system produces more energy than conventional solar modules.

This tracker is a tracker (via Arduino) controlled by a computer program. It uses a sensor to find the brightest source of light. The tracker starts at sunrise in the morning and moves perpendicular to the sunlight until sunset.

The system uses a computer program that changes the angle of the panel depending on the date, time and physical location. Each device on the tracker is much more efficient if it is set up correctly. In this system, the solar module is the most efficient, even on cloudy days, from a mathematical point of view.

In this case, the prototype of the solar tracker based on the Arduino is assembled. Servos are used to rotate the platform on the horizontal and vertical axes, the angle of rotation of which depends on the intensity of the light incident on the photoresistors [5-10].

To start the moving solar module, you need to type the following code on the Arduino Uno.

Solar panel code driven by Arduino

```
#include <Servo.h>
```

```
Servo myservo;  
int pos = 90;  
int sens1=A0;  
int sens2=A1;  
int tolerance=2;
```

```
void setup() {  
  myservo.attach(9);  
  pinMode(sens1,INPUT);  
  pinMode(sens2,INPUT);  
  myservo.write(pos);  
  delay(1000);  
}
```

```
void loop() {  
  int val1=analogRead(sens1);  
  int val2=analogRead(sens2);  
  
  if((abs(val1-val2)<=tolerance)||((abs(val1-  
  val2)<=tolerance))){  
    } else {  
      if(val1>val2)  
      {  
        pos--pos;  
      }  
      if(val1<val2)  
      {  
        pos++pos;  
      }  
    }  
    if(pos>180){pos=180;}  
    if(pos<0){pos=0;}  
    myservo.write(pos);  
    delay(50);  
  }  
}
```

Once all the necessary elements and equipment have been selected, the design of the projected mobile solar module is ready.

Conclusion

Nowadays, the importance of solar energy is growing day by day. It is also possible to increase the efficiency of solar devices several times, and by installing them on the roofs of houses and next to them, we provide home heating, water heating and household appliances, even if we do not remember the tropics. A moving solar module is 20-25% more efficient than a static solar module. It is better to use such a system [10-15].

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OPTIMIZATION OF THE VENTILATION SYSTEM AND GAS SUPPLY IN THE PROCESS OF BURNING

Abstract: The maximum ionization signal AI in the $C_2H_2-N_2O$ flame was measured. As a result of the experiment, photoionization and colliding mechanisms of ionization were developed. The results indicate that the collision mechanism of ionization is the dominant process. The diffusion burner with preliminary mixing of gas with air is applied in production conditions.

Key words: Flame, combustible gases, slit and diffusion burner, optogalvanic spectroscopy, photoelectrical method, method of ionization.

Language: Russian

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ОПТИМИЗАЦИЯ СИСТЕМЫ ВЕНТИЛЯЦИИ И ГАЗОСНАБЖЕНИЯ В ПРОЦЕССЕ ГОРЕНИЯ

Аннотация: Проводились измерения максимального ионизационного сигнала AI в пламени $C_2H_2-N_2O$. В результате эксперимента разработаны фотоионизационный и столкновительный механизмы ионизации. Полученные результаты показывают, что столкновительный механизм ионизации является доминирующим процессом. Диффузионная горелка с предварительным смешением газа с воздухом применена в производственных условиях.

Ключевые слова: Пламя, горючие газы, щелевая и диффузионная горелка, оптогальваническая спектроскопия, фотоэлектрический способ, метод ионизации.

Введение

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В современном мире развития энергетики и решения проблемы экологии играют важную роль

для многих направлений современной науки и техники. Известно, что Интернациональным энергетическим агентством (IEA) поставлена задача к 2050 году использовать в качестве энергоносителя до 80% возобновляемые

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источники энергии и вдвое сократить выброс в атмосферу углекислого газа CO₂ как показателя эмиссии вредных веществ. Поэтому совершенствование систем и устройств для сжигания различных горючих газов направлено на повышение КПД и как следствие на снижение эмиссии вредных веществ в атмосферу. Достигается это в том числе путём усовершенствования системы регистрации полезных сигналов и горелок для сжигания горючих газов и жидкое топливо, а во-вторых, за счёт интенсификации теплообмена в энергетических установках. Промышленность строительных материалов и изделий является одной из динамично развивающихся отраслей народного хозяйства Узбекистана, где производство керамического кирпича занимает одну из ведущих позиций. В настоящее время эффективное использование топливной энергии и снижение выбросов вредных веществ в окружающую среду является актуальной задачей [1-8].

Наращивание темпов строительства и конкуренция между производителями строительных материалов на рынке Узбекистана вызывает необходимость увеличения количества и улучшения качества строительного кирпича. Решению этой задачи можно достичь путём усовершенствования системы управления технологическими процессами сушки, обжига, производственного цикла получения кирпича

В годы независимости значительное внимание уделялось приоритетному развитию науки Республики Узбекистан, в частности особое внимание было уделено исследованию конструкции и технических характеристик приборов. В этой области достигнуты определённые результаты по исследованию системы подготовки газа и вентиляционной системы. В соответствии со «Стратегией действий по дальнейшему развитию Республики Узбекистан» особое внимание важно уделить созданию эффективных механизмов внедрения научных и инновационных достижений в практику, создание новых приборов на основе физических методов, механизмов проявления резонансных и нерезонансных процессов взаимодействия лазерного излучения с ультрамалыми концентрациями атомов и аэрозолей вещества в области фотоники лазерной спектроскопии [1-3].

На сегодняшний день наиболее часто применяется именно фотоэлектрический способ контроля. В таком случае приборы контроля пламени, в данном случае это фотодатчики, фиксируют степень видимого и невидимого излучения пламени. Другими словами, аппаратура фиксирует оптические свойства. Что касается самих приборов, то они реагируют на изменение

интенсивности поступающего потока света, которое выделяет пламя. Датчики контроля пламени, в данном случае фотодатчики, будут отличаться друг от друга по такому параметру, как длина волны, получаемой от пламени. Очень важно учитывать данное свойство при выборе прибора, так как характеристика спектрального типа пламени сильно отличается в зависимости от того, какой тип топлива сжигается в топке. Во время сгорания топлива существует три спектра, в котором формируется излучение – это инфракрасный, ультрафиолетовый и видимый. Длина волны может быть от 0,8 до 800 мкм, если говорить об инфракрасном излучении. Видимая же волна может быть от 0,4 до 0,8 мкм. Что касается ультрафиолетового излучения, то в данном случае волна может иметь длину 0,28 – 0,04 мкм. Естественно, что в зависимости от выбранного спектра, фотодатчики также бывают инфракрасными, ультрафиолетовыми или датчиками светимости. Вторым по популярности является метод ионизации. В данном случае основа метода – это наблюдение за электрическими свойствами пламени. Датчики контроля пламени в таком случае называют датчиками ионизации, а принцип их работы основан на том, что они фиксируют электрические характеристики пламени. Каждая из них имеет свою преимущественную область применения [9].

В настоящей работе исследованы спектры поглощения и ионизации атомов и коэффициент экстинкции света частицами аэрозоля в оптимальных условиях используемых горючих газов и вентиляционных систем. Объектом исследования являются горючие газы; ацетилен-воздух, закись азота-ацетилен, пропан-бутан-воздух, системы вентиляции атомизатора типа щелевой горелок и диффузионной горелок.

Экспериментальная часть.

В работе [3] описаны методики и высокочувствительные экспериментальные установки с различными атомизаторами пробы. Спектрометр сделан по модульному принципу и может работать в нескольких модификациях: с атомизаторами-ионизаторами «пламя», «стержень-пламя». В качестве атомизатора использовалась щелевая горелка длиной 11 см блок - подготовка газа от атомно-абсорбционного спектрофотометра «Сатурн». В зависимости от решаемой задачи использовались пламена ацетилен-воздух, пропан-бутан-воздух, ацетилен-закись азота. Излучение двух объёмного лазера на молекула азота 1 ($\lambda=337,1$ нм, $\tau=8$ нс, $E=10$ мДж), использовалось для накачки лазера на красителях. Для регистрации ионизационного сигнала были использованы выпрямитель стабилизированный BC-22, осциллограф C1-70, цифровой осциллограф TDS 2022B, генератор чистого

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воздуха и персональный компьютер.

Для дальнейшего улучшения процесса испарения, атомизации и уменьшения пределов обнаружения в методе оптогальванической спектроскопии нами был использован электротермический атомизатор «графитовая печь». Амплитуда сигнала двухступенчатого возбуждения превышала амплитуду сигнала при одноступенчатом возбуждении в 15-1030 раз в зависимости от определяемого элемента. В результате эксперимента разработаны фотоионизационный и столкновительный механизмы ионизации. Полученные результаты показывают, что столкновительный механизм ионизации является доминирующим процессом. Предварительные эксперименты были выполнены в пламени смеси ацетилен с воздухом для

эффективной атомизации и ионизации атомов Au, Pt, Fe, Co, Ni, Ag, Mn, Cr, Yb, In, Li, Na, Cs, Al. С целью установления максимальный эффективности атомизации нами исследованы зависимости величин ионизационных сигналов определяемых атомов от типа пламени. На рис.1. представлена зависимость величины ионизационного сигнала исследуемых атомов Al от расхода горючего газа и окислителя. Применяли обогащённые пламена C_2H_2 – воздух, C_2H_2 – N_2O . При этом ионизационный сигнал Al достигает максимального значения при соотношениях газ: окислитель – 1:6 и 1:3 соответственно. На рис.1. представлена зависимость ионизационного сигнала Al от расхода горючего газа и окислителя C_2H_2 - N_2O .

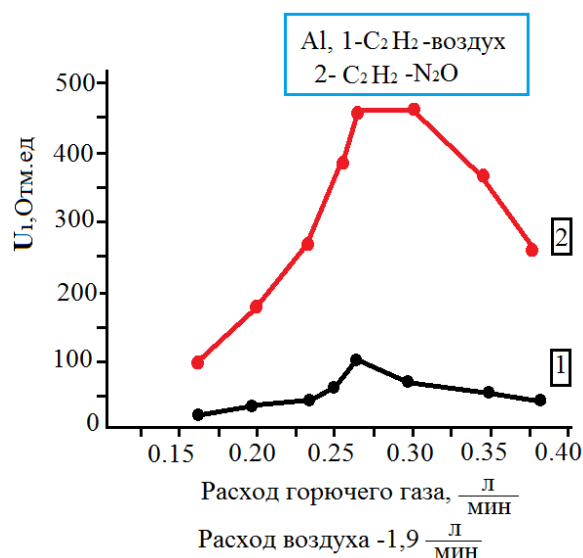


Рис.1. Зависимость величины ионизационного сигнала исследуемых атомов Al от расхода горючего газа и окислителя

Величина аналитического сигнала в пламени C_2H_2 – N_2O в 10 раз больше, чем в C_2H_2 – воздух, что, видимо, связано с различием коэффициента атомизации Al в этих пламенах.

На рис.2. представлена схема диффузионной горелки с предварительным смешением газа с воздухом. В случаях, когда потребитель располагает газом с низким давлением, то обычно применяют газовые диффузионные горелки. При более высоком давлении газа могут быть применены инжекционные горелки [5].

Параметры диффузионной горелки с предварительным смешением газа с воздухом выбрали следующими: труба с диаметром $d=15mm$ для входа газа, диаметр сопла $d=3mm$ и диаметр основания $d=50mm$. Диффузионная горелка использована в топочной камере (Рис.3.). Туннельные печи относятся к печам с подвижным составом, и работают по принципу противотока, т.е. обжигаемые изделия перемещаются на

вагонетках по сквозному туннелю навстречу теплоносителю (рис.3). При выборе типа садки учитывают конструкцию и размер обжигового канала, типа изделий, топлива и метода его сжигания, конструкцию горелочного оборудования. Процесс обжиг последний и самый ответственный в производстве кирпича, так как именно во время него окончательно формируются свойства изделий, определяющие понятие «качество». Оно включает как измеряемые механические и гидрофизические показатели (прочность, морозостойкость и фотопоглощение и т.п.), так и визуальные дефекты (трещины, оплавление, пережог и др.). Весь процесс обжига в наиболее общем случае делят на три периода: нагрев до конечной температуры обжига, выдержка при конечной температуре и остывание. Для каждого из этих периодов отдельно устанавливается режим. Цикл обжига состоит из периодов нагревания, выдерживания в области

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высокой температуры (спекания) и охлаждения. Каждый из этих периодов характеризуется определёнными физико-химическими

процессами, которые проходят в керамической массе.

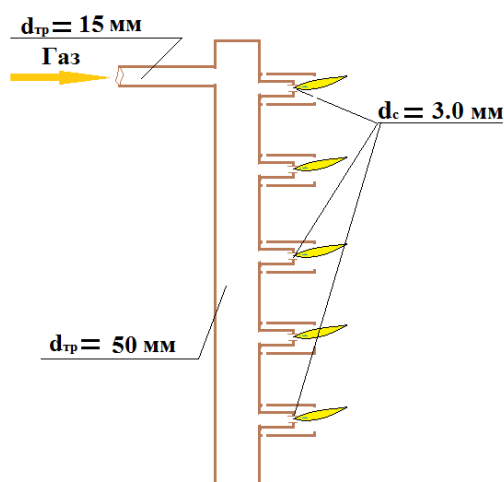


Рис.2. Схема диффузионной горелок с предварительным смешением газа с воздухом

Температурный режим является основной характеристикой обжига керамических изделий и графически изображается так называемой кривой обжига или температурной кривой, т.е. зависимостью между температурой обжига и его

длительностью. В определённых интервалах температур нагрева и охлаждения керамических масс протекают многочисленные физико-химические процессы, требующие определённого времени.

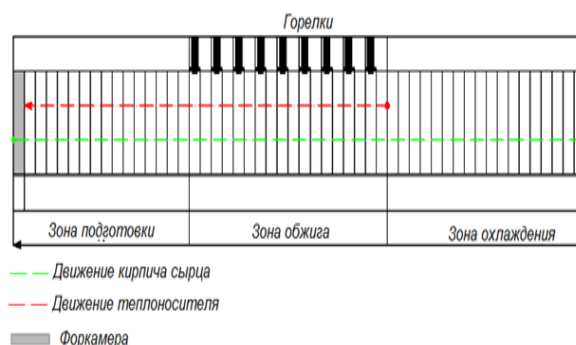


Рис.3. Схема обжигательного канала туннельной печи

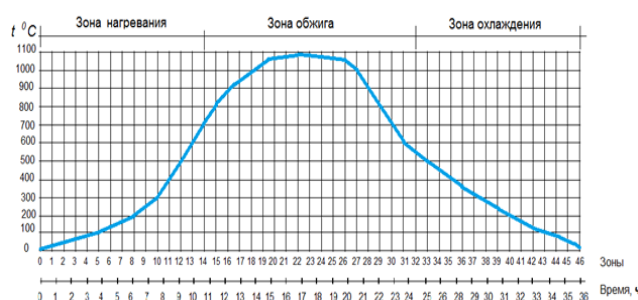


Рис.4. График процесса обжига

В самой зоне обжига под температурой печного пространства нужно понимать не температуру собственно пламени, а среднюю температуру продуктов сгорания видимого топлива. График процесса обжига приведён на рис.4. Проталкивание в печь производится

гидравлическим толкателем, которая установлена под рельсом.

Подача воздуха в печи регулируется вентилятором. Печь работает на газообразном топливе. Обжиг производится при температуре от 900 - 1100С. В качестве топлива используется

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природный газ. Время обжига кирпича в туннельной печи составляет до 36 часов. После обжига электролафетом платформа подаётся в склад или на площадку. Готовый кирпич остаётся от 3 до 7 суток, после чего возможна отгрузка готового кирпича. На выставочной площадке кирпич укладывается на поддоны (металлические площадки) и загружается автокраном на автотранспорт для отгрузки потребителю. Качество кирпича определяется маркой. Испытания производятся в лаборатории.

Выводы:

Проведённые исследования показали, что для всех изученных объектов - горючие газы; ацетилен-воздух, закись азота-ацетилен, пропан-

бутан-воздух, системы вентиляции атомизатора типа щелевой горелок и диффузионной горелок обеспечивает оптимизация процесса горения. Полученные результаты могут быть использованы в технологических процессах в производстве керамического кирпича. Анализ показал, что предпочтительным в плане производства и качества является способ пластического формования. Независимо от характера технологии, главным агрегатом для обжига кирпича является туннельная печь. Анализ процессов происходящих при обжиге кирпича показал, что от рациональной организации процесса обжига зависит качество кирпича.

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DISSYMMETRIC ANALYSIS OF PHASE TRANSITIONS IN THE AGGREGATE STATE OF A SUBSTANCE

Abstract: The article analyzes the mechanisms of phase transitions of aggregate states of matter based on the principles of symmetry, asymmetry and dissymmetry. The nature of the dissymmetry of internal and external physico-chemical factors that cause changes in aggregate states in the system, the formation of new structures, as well as the philosophical meanings of dissymmetry are revealed.

Key words: thermodynamics, motion, interaction, aggregate states, phase transition, solid, liquid, gas, potential well, symmetry, asymmetry, dissymmetry.

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ДИССИМЕТРИЧНЫЙ АНАЛИЗ ФАЗОВЫХ ПЕРЕХОДОВ В АГРЕГАТНОМ СОСТОЯНИИ ВЕЩЕСТВА

Аннотация: В статье анализируются механизмы фазовых переходов агрегатных состояний вещества на основе принципов симметрии, асимметрии и диссимметрии. Раскрыта природа диссимметрии внутренних и внешних физико-химических факторов, вызывающих изменение агрегатных состояний в системе, формирование новых структур, а также философские смыслы диссимметрии.

Ключевые слова: термодинамика, движение, взаимодействие, агрегатные состояния, фазовый переход, твердое тело, жидкость, газ, потенциальная яма, симметрия, асимметрия, диссимметрия.

Введение

В одной из своих публикаций М. Борн писал: “Чтобы ответить на ряд вопросов своей науки, физик должен оставить свой собственный предмет. Он должен проследить теоретико-познавательные и философские основания своего метода мышления и попытаться философски обосновать свой разорванный и не наглядный способ мышления, чтобы здравый человеческий ум мог быть удовлетворен” [1, с. 6 – 7].

По своей природе физика в самой основе – глубоко философская наука. Современная физика представляет собой систему теоретических моделей природы, пронизанных онтологическими, эпистемологическими и методологическими

смыслами, осознание которых реализуется в лоне философского знания. Физика – наука о свойствах, движущих силах и движениях материальных тел. Разделы физики: механика (о движении отдельных тел); статическая физика и статическая механика (о движении огромного числа отдельных частиц); термодинамика (о внешних свойствах и проявлениях совокупного действия огромного числа частиц) и др... Они отражает непрерывную борьбу человеческого разума с природой, полную самых неожиданных открытий с которыми люди под действием должны сообразовывать затем свою деятельность.

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Действие – это физическая величина, являющаяся одной из основных характеристик движения системы; понятия действие возникло в механике как мера изменения количества движения. Это понятие обобщается на немеханические формы движения, и тогда под действием понимают количественную меру процесса, связанного с преодолением каких-либо сил.

Сила – понятие, относящееся к двум и более объектам. Предметом физики являются материальные взаимодействия; в зависимости от природы сил выделяют механические, электрические, магнитные, химические, ядерные и другие взаимодействия.

Взаимодействия (или силы) являются фундаментальной сущностью и движущей силой развития материального мира, которая определяет всё разнообразие, его структур и проявлений. Взаимодействие любых частиц является собой пример диалектического единства противоположности – между частицами одновременно действует и сила притяжения, и сила отталкивания. Причем эти противоположно направленные силы, вообще говоря, не уравновешивают друг друга; они по-разному зависят от расстояния между частицами, причем так, что на сравнительно далеких расстояниях преобладает сила притяжения, на малых же расстояниях доминирует сила отталкивания.

Обычно говорят не о силах взаимодействия, а о потенциальной энергии взаимодействия частиц. При значительной интенсивности изучаемой системы с внешней средой глубина неравновесности, т. е. градиенты (пространственные и временные) переменных состоянии возрастают настолько, что гипотеза линейности термодинамического описания приводит к неточностям не только количественного, но и качественного характера [2, с.268; 3, с. 1095]. В теориях физических взаимодействий силы рассматриваются как способ установления тех или иных симметрии природы. Понятие симметрии означает неизменность (инвариантность) свойств некоторого объекта по отношению к преобразованиям, выполняемым над этим объектом. В современной физической науке и философии - симметрия приобретает еще большую содержательность при помощи таких принципов, как кооперативное сотрудничество, согласование (координирование), альтернативность, фрактальность. Асимметрия понимается как противоположное всем перечисленным выше свойствам симметрии. Между присутствием симметрии и отсутствием ее, т. е. асимметрии, наблюдается промежуточное явление – диссимметрия – это состояние системы, которую под действием возникающих факторов создаёт новые качественных необратимых изменений

упорядоченные или неупорядоченные структуры [4, с.123-126]. Иначе говоря, симметрия объекта понижается в определенном направлении, индивидуализируя объект, придавая особую геометрию его структуре. Именно в этом смысле по-кратко точку зрения П. Кюри на диссимметрию можно сформулировать так: “диссимметрия творит явление” [5, с.259]. Иными словами диссимметрия всегда связана с кооперативными процессами, с коллективным согласованным поведением частей системы, благодаря которому возникают новые структуры. Как указывает Пригожин, “образ устойчивого мира, избегающего процесса возникновения, вплоть до нашего времени остается идеалом теоретической физики” [6, с.23].

Основная часть

Применение принципа самоорганизации и диссимметризация позволяет построить термодинамическую модель самоорганизующихся систем, во многом лишенную недостатков сложных систем и позволяющих получить ряд довольно интересных результатов. Диссимметризация систем происходит под воздействием диссимметризирующих факторов, т. е. факторов, нарушающих симметрию [7, с.180-195]. Начальные условия теории очень просты – сложная система должна быть материальной (не идеальной), открытой и неравновесной, чтобы обладать возможностью обмениваться с другими системами ресурсами в виде энергии, информации, вещества. Все эти периоды в полной мере отражаются в процессах симметризации ↔ диссимметризации степенями диссимметрического развития и критической точкой – диссимметрическим равновесием, формирующим новое состояние системы [8]. Диссимметрия, таким образом, выступает в роли и процесса, и его причины, что указывает на универсальный характер данного явления и имеет важное мировоззренческое значение.

Если взять большое количество частиц, тогда попарно взаимодействующих частицы будут стремиться расположиться в устойчивых, симметрических положениях равновесия, на одинаковых расстояниях друг от друга. В пределе можно представить себе совокупность большого числа неподвижных одинаковых частиц, расположенных на одинаковых расстояниях друг от друга. Так представляет себе классическая физика идеальный кристалл при температуре, равной абсолютному нулю: частицы неподвижны. Скачкообразный переход количественных изменений в качественные может быть и кратковременным актом (сжижение газа), и длительным процессом (испарение). Поэтому неправильно считать, что действие этого закона ограничено лишь теми случаями, когда скачки

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происходят в течении коротких промежутков времени.

Прежде чем раскрывать сам закон перехода количественных изменений в качественные, следует показать, что между объектами (явлениями) имеются существенные (качественные) различия. Так, между различными инерциальными системами отсчета нет никакой принципиальной разницы, они отличаются друг от друга лишь в количественном отношении – у них различны относительные скорости движения. Отличая же инерциальных и неинерциальных систем отсчета (в отличии от инерциальных) не выполняются законы Ньютона.

А, квантовая теория изменила это представление: движение не прекращается и абсолютном нуле, только оно не является тепловым; и при абсолютном нуле частицы кристалла обладают энергией, она называется нулевой энергией. Наличие нулевой энергии вытекает из соотношений неопределенностей Гейзенберга: неопределенность координаты частицы обуславливает неопределенность ее импульса, а с импульсом связана энергия; это и есть нулевая энергия. Система обладает известным количеством энергии, которая при фиксированном нулевом состоянии полностью определяется мгновенным состоянием. Это количество остается постоянным, будет сохраняться, пока система не передает вовне и соответственно не получит извне никаких действие, внутренние же действие изменяют только ее форму, но не величину [9, с.56]. При температурах, отличных от абсолютного нуля, тепловое движение частиц стремится нарушить идеальный порядок, т. е. симметрии. Степень нарушения симметрии (асимметрия) зависит от энергии теплового движения, т. е. от температуры: чем выше температура, тем интенсивнее беспорядочное тепловое движение. При агрегатном превращении жидкость – газ (испарение - конденсация) некоторого вещества симметрия системы сохраняется. При других агрегатных превращениях (твёрдое вещество – жидкость, твёрдое вещество – газ) симметрия системы изменяется.

В сложных системах могут действовать разнообразные силы: массовые, электрические, химические, поверхностного натяжения, упругости и др. Наряду с переносами энергии и вещества могут происходить фазовые превращения [10, с.79]. Кроме этого, фазовые переходы связаны с качественными изменениями макроскопических свойств вещества: плотности, вязкости, теплоёмкости, электропроводности, магнитного момента и т. д. , а также типа кристаллической

структуры и других характеристик. С помощью фазового перехода в системах с сильным взаимодействием частиц реализуется возможность достижения большой или меньшей упорядоченности состояний [11, с. 35].

Наряду с ними глубокий и конструктивный смысл имеют так называемые термодинамические потенциалы взаимодействие – такие параметры, разница которых во внешней среде и системы является движущей силой взаимодействий (ими являются p, T, φ –электрический потенциал, μ –химический потенциал; вследствие изменения этих потенциалов разности давлений, плотностей и температур в среде, концентраций веществ и др.) система совершает соответствующий вид неупорядоченной работы. Каждой форме обмена энергией соответствует свой потенциальная кривая взаимодействие имеющий соответствующий расстоянию r_0 между частицами. Это кривая взаимодействия позволяет понять, каковы количественные условия существования различных агрегатных состояний, или, как говорят, различных фаз: твердой, жидкой и газовой. Таким образом, “выделяется скалярный характер переноса энергии в одной и той же форме. Полная совокупность термодинамический потенциалов позволяет определить все необходимые свойства неоднородной системы произвольного типа” [12, с.81].

Потенциальная энергия U_0 в положении равновесия, или глубина потенциальной ямы, характеризует прочность связи частиц: чтобы частицы освободить от взаимного плена и одну из них удалить бесконечность, необходимо совершить внешнюю работу, по крайней мере равную глубине потенциальной ямы. По этому, величина $|U_0|$ называется энергией связи частиц.

Итак, чем глубже потенциальная яма, тем сильнее упорядочивающий фактор в кристалле. Образуют ли данные частицы при данной температуре кристалл, жидкость или газ - это зависит от соотношения между энергией теплового движения, равной по порядку величины kT (k - постоянная Больцмана, T - абсолютная температура), и энергией связи : $kT \ll |U_0|$, т.е. частицы при достаточно низких температурах образуют твердое тело – кристалл; в другом предельном случае, когда $kT \gg |U_0|$, т. е. при достаточно высоких температурах , совокупность частиц представляет собой газ ; наконец , при условии, что энергия теплового движения примерно равна энергии связи, будучи несколько меньше ее ($kT \leq |U_0|$), частицы образуют жидкость.

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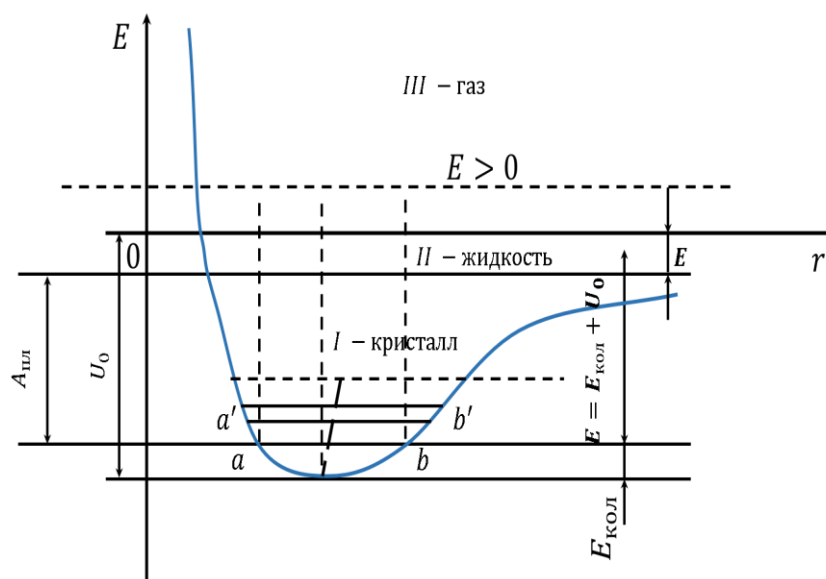


Рис. 1. Энергетические области существования трех фаз вещества.

На этом рисунке наглядно представлены энергетические области существования трех фаз вещества: твердой, т. е. кристаллической (область I), жидкой (область II) и газообразной (область III).

В случае кристалла энергия тепловых колебаний $E_{\text{кол}}$ лишь незначительно поднимает энергию частиц кристалла над дном потенциальной ямы. Частицы совершают колебания между точками a и b кривой, соответствующими постоянной полной энергии колебаний $E_{\text{кол}}$. Колебания – это порождение асимметрии. Этому правилу подчиняются космические, физические и вообще любые явления объективной реальности. Расстояние между частицами изменяется от r_1 до r_2 ; амплитуда колебаний каждой частицы равна $\frac{1}{2}(r_2 - r_1)$.

Для плавления кристалла нужно каждой его частице сообщить энергию $A_{\text{пл}}$, равную теплоте плавления, отнесенную к одной молекуле. Тем самым частицы кристалла будут подняты

энергетически в область существования жидкой фазы (область II на рисунке). Строго говоря, теплота плавления меньше глубины потенциальной ямы. Последняя определяет скорее теплоту испарения (возгонки) кристалла. Жидкое состояние в энергетическом отношении отличается от кристаллического состояния только меньшей величиной энергии связи. Это обуславливает, как уже говорилось, текучесть жидкости.

При агрегатным превращении жидкость – газ (испарение – конденсация) некоторого вещества симметрия системы сохраняется. При других агрегатных превращениях (твёрдое вещество – жидкость, твёрдое вещество – газ) симметрия системы изменяется. В каждой точки на всех пограничных линиях (рис. 2) выполняется условие равенства параметров соответствующих фаз: температур, давлений, химических потенциалов. Пограничные линии, на которых происходит фазовые переходы, заканчивается в точки равновесия всех трёх фаз T_p .

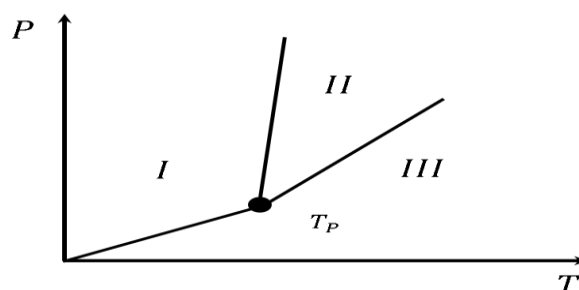


Рис.2. Линии фазовых равновесий:

I – твёрдое вещество, II – жидкость, III – газ, T_p – точка тройного равновесия.

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Общем у фазового перехода являются феномен аномального возрастания флуктуаций по мере приближения к точке перехода; скачкообразное изменение симметрии системы; ряд свойств вещества ведет себя качественно одинаково: скачок испытывает теплоёмкость и другие функции состояния, выражающиеся через вторые производные термодинамических потенциалов [13, с.63]. Взаимодействие в системе при фазового перехода носят кооперативный характер. Такие переходы не сопровождаются изменениями агрегатного состояния вещества; их механизм состоит в перегруппировке атомов и молекул в существующих структурах вещества.

Очевидно, симметрии можно рассматривать как сохранение данного качества в процессе количественных изменений, а асимметрии – как изменение качественного состояния в существовании вещи, процесса, явления. Действительность постольку асимметрична, поскольку она разнокачественна, и постольку симметрична, поскольку она однокачественна и характеризуется постепенностью количественных изменений.

Определение совокупности преобразований, сохраняющих без изменения все структурные соотношения объекта, является одним из главных принципов современной физики. В настоящее время теоретико-групповые методы точного выражения симметрии широко используются в математике и естествознании, демонстрируя

высокую эффективности и универсальность: “группы симметрии – это самое важное, что мы сегодня можем узнать о природе”. (С. Вайнберг, Нобелевская премия 1979 г.).

Заключение

В заключение можно сказать, что глубинная общность фазовых переходов состоит в явлении диссимметризации системы. Процесс диссимметризации может быть связано со скачкообразным изменением состояния термодинамической системы (например, переходы твёрдое тело – жидкость – газ), а может происходить при непрерывном изменении состоянии (переходы типа ферромагнетик – парамагнетик). Феноменологическое описание фазовых переходов основано на представлениях симметрии и концепции параметра порядка. И так, принцип симметрии, обобщающий важное свойство физических законов – их инвариантность, сам оказывается в состоянии предсказывать физические законы. Он, таким образом, выступает главенствующим принципом познания, идея симметрии проявляется в качестве метод теоретического группирования, и нарушение симметрии приобретает статус фундаментально-методологического принципа и становится метапринципом не только физики, но и теоретических парадигм всех естественнонаучных знаний.

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SOME QUESTIONS OF THE CORRELATION OF THE CONSTITUTIONAL FOUNDATIONS AND THE CONSTITUTIONAL PRINCIPLES OF EQUALITY

Abstract: In the article, the author attempts to analyze the correlation of the constitutional foundations and the constitutional principles of equality. At the same time, the author notes that the constitutional foundations should not be identified with the constitutional principles. In addition, it is noted that the norms-goals play an important role in the process of legal regulation.

Key words: constitutional foundations of equality, constitutional principles of equality, the concept and essence of the category of constitutional foundations, constitutional and legal regulation.

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Introduction

It seems that within the framework of this study, the problem of determining the concept and essence of the category of constitutional foundations is essential for clarifying the constitutional foundations of equality. Its solution is possible by referring to the essence of the constitutional law itself.

Thus, V. O. Luchin points out that the Constitution mainly fixes the provisions that are fundamental, the main ones, which then receive concretization and disclosure in other normative legal acts; meanwhile, as the researcher points out, there are cases of direct action of these constitutional provisions, since they regulate all the most important aspects of the life of society and the state, while such regulation is carried out not in detail, but generically, indicating only the most significant points. Thus, the constitutional and legal regulation aims to establish a general, universal regulation of the status of legal entities [1].

It seems that the most universal approach is that followed by such researchers as A. A. Belkin, M. N. Marchenko and I. A. Umnova, who define the constitutional foundations as an independent category of constitutional law. This approach is based on the emphasis on the legal and constitutional nature of the

means by which the consolidation and protection of public relations, which serve as the foundations, take place. From these positions, it should also be said about the special legal function of the constitutional foundations, which are both general and special—they are a kind of mediating link that regulates individual legal relations [2, 3, 4].

M. N. Marchenko rightly pointed out the inadmissibility of identifying the content of the constitutional and legal foundations with the constitutional and legal principles. "The establishment of the constitutional and legal bases presupposes, firstly, the consolidation of the constitutional goals of legal regulation, secondly, the definition of the fundamental principles of legal regulation, and thirdly, the establishment of the basic rights and obligations of participants in legal relations and guarantees of their implementation" [5].

From these positions, the constitutional and legal foundations of equality consist in the following: fixing the achievement of formal equality as the goal of legal regulation; defining the fundamental principles of legal regulation; establishing the basic rights and obligations of participants in the relevant legal relations and guarantees for their implementation.

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Thus, it should be recognized that the establishment of the constitutional and legal foundations of equality before the law and the court is a way of constitutional and legal regulation of this group of public relations and consists in mediating legal relations between the foundations of the constitutional system and the organization and activities of public administration bodies to establish, ensure the implementation, protection and protection of the principle of equality before the law and the court.

The constitutional and legal regulation of the principle of equality before the law and the court is based, inter alia, on the Constitution, which defines the protection of human and civil rights and freedoms as a subject of joint jurisdiction. With such a model of legal regulation, it is assumed that the constitutional and legal foundations of equality before the law and the court will be further developed by the norms of, firstly, sectoral legislation; secondly, the legislation of the republic.

As follows from the above, the constitutional foundations should not be identified with the constitutional principles. Constitutional principles are an integral part of the constitutional foundations, but they differ from other types of constitutional foundations in their legal significance and functional purpose - most researchers agree that "constitutional principles determine the general principles of legal regulation of the entire legal system of the state" [6].

It seems that the analysis of the constitutional and legal nature of the principle of equality of all before the law and the court is impossible without studying the concept of a legal principle. The term "principle" itself has Latin roots and means "the basis, the beginning, the foundation, the guiding idea, the basic rule of behavior" [7].

In legal science, the principles are traditionally understood as "the most fundamental ways of knowing the legal reality" [8], "the foundations and laws of the formation and development of law" [9], "guidelines for law-making and law-realization activities" [10].

A. M. Vasiliev notes that the principles of law reflect the results of economic relations and the political conditions for the development of society [11].

The principles of law can be represented as a kind of "supporting structure", which is the basis for the consolidation and implementation of not only specific legal norms, institutions or branches of law, but also the entire legal system. As Professor M. N. Marchenko notes, the principles of law play the role of the main reference point in the implementation of various types of state activities: law-making, law enforcement, and law enforcement. Therefore, it is possible to trace the relationship between how stable, coherent and effective the legal system is and the degree of compliance with the principles of law [12].

S. S. Alekseev defines the principles of law as the initial normative guiding principles expressed in law,

characterizing the content of legal regulation, defining its foundations, that is, in fact, the laws of public life, fixed in the norms of law, acting "as special legal phenomena". Their purpose in the mechanism of legal regulation is to ensure a direct connection between the content of law and the laws of social life that underlie the construction of this system of law, i.e. its foundations [13].

The fixation of a legal principle in a rule of law, as a consequence, extends its effect to a certain sphere of public relations. Consequently, the effectiveness of legal principles depends on their validity, on the legal tools with which they are fixed, and on the level of socio-cultural development of society and the state [14].

Of course, the highest normativity, the highest level of legal force has the principle of law, which is enshrined in the Constitution [15]. At the same time, the Constitution enshrines not only the principles of legal regulation, - this conclusion is based on an analysis of the content of its norms. Thus, the Constitution establishes not only the rights, freedoms and duties of a person and a citizen, but also the duties of the state related to the implementation of these rights and freedoms. At the same time, the successful implementation of a large number of fundamental human and civil rights and freedoms requires assistance from the state, including the adoption of regulatory legal acts specifying the procedure for the implementation of constitutional rights and freedoms.

Thus, they are implemented not only directly. The Constitution also contains a significant number of norms-goals that fix normative guidelines for both the development of legislation and the development of legal activity in general [16].

Norms-goals play an important role in the process of legal regulation. They orient the development of legislation and legal practice on the values that underlie the legal policy of the state, since they reveal the meaning and meaning of the very existence of legal means and reflect public needs and aspirations [17]. The constitutional norms-goals can include, for example, the norms of the preamble; the norms of the Constitution, which enshrines a person, his rights and freedoms as the highest values and defines the main directions of law-making and law-enforcement activities of state bodies and local self-government bodies.

Thus, the constitutional principles should include those fundamental ideas and principles that are either directly reflected in the norms of the constitution of the state, or directly follow from its provisions.

The latter are formulated by the Constitutional Body on the basis of the interpretation of traditional constitutional principles or general principles of law: "in fact, this is a right distinguished from principles - the principles of law and law from principles.

The Constitutional Body deduces the greatest number of commands addressed to the legislator from

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the principles of the rule of law and the rule of law, enriching the legal arsenal of lawyers with ideas about such principles as the principle of legal certainty (the principle of stability of business conditions is its component part), the principle of public reliability of legal norms and the principle of proportionality of restrictions. Even 10-15 years ago, these principles were *terra incognita* for Russian jurisprudence" [18]. Thus, most researchers agree that "constitutional principles determine the general principles of legal regulation of the entire legal system of the state" [19].

There is no doubt that, first of all, the modern development of states as a state governed by the rule of

law presupposes reliance on legal values that are the basis of the norms of the Constitution.

Fixed as the fundamental principles of the state structure, they, nevertheless, are not limited only to the establishment of the principles of constitutional federalism proper, but they determine the state of all areas of public relations.

Thus, it should be noted that one of the central places in the system of constitutional principles of the rule of law is occupied by the principle of equality before the law and the court, since it is with the help of this principle that justice and humanism as legal goals are achieved, there is a real guarantee of human and civil rights and freedoms.

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FEATURES OF THE IMPLEMENTATION OF THE CONSTITUTIONAL PRINCIPLE OF EQUALITY

Abstract: *In the article, the author reveals the constitutional provision on the equality of all before the law and the court. At the same time, the author notes that the constitutional principle of equality is considered by him as a constitutional criterion for evaluating the legislative regulation of any rights and freedoms, and the applicability of this principle to all fundamental rights and freedoms does not exclude the possibility of its various manifestations. In addition, it is noted that the analysis of the implementation of the principle of equality of all people before the law convincingly proves that it can be considered as one of the most important principles of legal statehood.*

Key words: *the constitutional provision on the equality of all before the law and the court, the constitutional principles of equality, the concept and essence of the category of constitutional foundations, constitutional and legal regulation, the social and legal regime of the constitutional category of equality.*

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Introduction

The constitutional provision on equality of all before the law and the court is one of the fundamental principles of the rule of law, which, in turn, brings its normative content closer to the requirement of the Constitution as one of the foundations of the constitutional system, providing for equality of the rights, freedoms and duties fixed in its text for every citizen, where every citizen has all rights and freedoms on its territory and bears equal duties provided for by the Constitution.

This provision fully complies with international legal norms, including article 7 of the Universal Declaration of Human Rights of 1948, article 7 of the International Covenant on Economic, Social and Cultural Rights of 1966, article 14 and part 2 of Article 20 of the International Covenant on Civil and Political Rights of 1966, article 14 of the Convention for the Protection of Human Rights and Fundamental Freedoms of 1950.

Modern researchers indicate that the category of equality is a valuable constitutional and legal value that can be considered both in a horizontal cross-section (an

equal measure of freedom for all spheres of social life) and in a vertical one (depending on the level of the social and legal status of an individual – from the family to the national level [1]).

This determines the presence of the category of equality both structural characteristics (related to the peculiarities of the socio-political and economic structure of society) and individual and personal indicators of equality, which are formed at the level of the individual status of a certain person (who initially realizes equal opportunities for all).

The Constitution, when establishing the principle of equality, does not stop only at recognizing the equality of the scope of rights and freedoms (formal legal equality), but also establishes the state's obligation to ensure rights and freedoms regardless of any circumstances.

In fact, the state is obliged to create equal guarantees of rights and freedoms, which is implemented through an active purposeful organizational process (based on a system of special measures of a legal, political, economic, ideological and organizational nature) to create such conditions in

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which everyone has a real opportunity not only to use the recognized right or freedom, but also to protect them if necessary, including with the help of justice.

According to the Constitution, the state is the obligated subject in this case, meanwhile, this circumstance does not exclude the obligation to ensure equality on the part of non-state actors. For example, in the process of forming corporate norms, business entities are obliged to take into account the constitutional principle of equality.

At the same time, as it follows from the Constitution, the socio-legal regime of the constitutional category of equality manifests itself, among other things, on the basis of the active use of special means of legal differentiation and legal incentives - this may be the establishment of special quotas for the representation of a disadvantaged (weak) social group in a particular area or obvious advantages for some categories based solely on objectified characteristics, such as gender or ethnic (racial) affiliation.

The logic of positive discrimination implies the adoption of measures aimed not at ensuring equal conditions for representatives of all groups, but at forcing the provision of advantages (benefits, quotas, etc.) for members of a weaker (vulnerable) group, aimed at ensuring equal opportunities and reducing the difficulties faced by representatives of these groups when participating in public life.

International law in a number of documents establishes the possibility of taking measures that fall under the signs of positive discrimination, under certain conditions. In particular, the Standard Rules for Ensuring Equal Opportunities for Persons with Disabilities, adopted by the UN General Assembly on December 20, 1993, establish in rule 15 "Legislation" (among other things) that "legislative measures may be necessary to eliminate factors that may have a negative impact on the lives of persons with disabilities, including infringement of the dignity of the individual and the vulnerability of persons with disabilities to become victims of violations of their rights. The possibility of adopting provisions on positive discrimination may be considered" [2].

Another example where international law explicitly allows measures of positive discrimination is the ILO Convention No. 169 on Indigenous and Tribal Peoples in Independent Countries, Article 4 of which provides for the adoption, if necessary, of special measures to protect persons belonging to the relevant peoples, their institutions, property, labor, culture and the environment; such special measures do not prejudice the non-discriminatory use of general civil rights [3].

This idea understands equality not only as a formal equalization of rights, but also as actual equality. The requirement of equality before the law and the court is of a comprehensive nature, it applies to the entire system of rights and freedoms. This implies

such connections and relations of the individual with the state and society that exclude any dependence of his position on the natural and social characteristics of the individual specified in this norm, as well as on any other circumstances.

Developing this thesis, it should be pointed out that the constitutional principle of equality is considered by him as a constitutional criterion for evaluating the legislative regulation of any rights and freedoms, and the applicability of this principle to all fundamental rights and freedoms does not exclude the possibility of its various manifestations: in relation to personal rights, it means mainly formal equality, in relation to economic and social rights, formal equality can turn into material inequality. Thus, based on the constitutional freedom of contract, the legislator does not have the right to limit himself to the formal recognition of the legal equality of the parties and must provide certain advantages to an economically weak and dependent party in order to prevent unfair competition in the field of banking activities and really guarantee compliance with the principle of equality in the implementation of entrepreneurial and other economic activities not prohibited by law.

Meanwhile, it seems necessary to focus on understanding the constitutional and legal nature of the principle of equality before the law and the court.

The peculiarity of the constitutional principle of equality before the law and the court is that, on the one hand, it is relatively independent (which is confirmed by its regulation in a separate part of the constitutional norm), but at the same time, it is an integral element of a more voluminous constitutional principle of equality; and, on the other hand, the principle under study itself can be divided into two relatively independent ones: the principle of equality before the law and the principle of equality before the court, therefore it seems logical to consider each of them sequentially. Etymologically, the term "law" means "the limit imposed on the freedom of will and action" [4].

In the legal sense, the law is understood as "a normative legal act having the highest legal force, adopted in a strictly defined, special order, establishing the basic norms of all branches of law and regulating the most important social relations" [5].

However, in the question of understanding the constitutional principle of equality before the law in the context of the meaning put by the legislator in the concept of "law", there is no unity of points of view. Thus, G. N. Komkova points out that "it is possible to talk about the equality of different people not before different normative acts (decrees, resolutions, decisions), but only before the law" [6]. O. I. Kulenko shows solidarity with this approach: "equality is assumed not before any normative legal acts, but only before those that were adopted by the legislative authorities" [7].

It should be noted that for the effective implementation of the principle of equality of all before

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the law, the qualitative characteristics of the law itself as a normative legal act are essential. Thus, it is noted that this constitutional principle implies the need for a legal norm to meet the requirements of certainty, clarity and unambiguity, since "equality can be ensured only if all law enforcement officers understand and interpret the norm uniformly" [8].

And, on the contrary, the uncertainty of the content of a legal norm allows for the possibility of its extensive spontaneous interpretation in the process of law enforcement and can lead to arbitrariness, and therefore to a violation of the principle of equality.

The analysis of the implementation of the principle of equality of all people before the law convincingly proves that it can be considered as one of the most important principles of legal statehood. At the same time, its full, literal implementation in legal reality is impossible due to the fact that in developed democratic states, in order to protect constitutional and legal values, inequality of individual citizens before the law is legally allowed. It manifests itself in a special procedure for bringing to justice the President, deputies of representative authorities, judges, etc. This inequality before the law, the so-called "legal immunity", in fact, is a privilege that ensures the legal security and independence of these officials [9].

Thus, legal immunities as exceptions to the general rules are provided for either by the Constitution itself, have a public-legal character and serve public interests, are guarantees of the implementation of socially useful state functions, professional activities in the interests of all members of society [10], and therefore are the compromise measure, the establishment of which is necessary for the normal functioning of society and the state.

The immunity granted to judges, deputies of representative bodies of power, the President, and some other categories of State officials is certainly a certain exception to the constitutional principle of equality of all before the law and the court. However, such inequality allowed by the Constitution before the law is necessary from the point of view of protecting other constitutional and legal values [11].

The granting of immunities is due to the fact that the company, making increased demands on these persons and their professional activities, is obliged to provide them with additional legal remedies for the effective performance of the tasks assigned to them, and to ensure the legal security and independence of these officials [12].

The legal immunities of these persons are of a public-legal nature, which distinguishes them from personal privileges and are designed to serve the public interests.

Thus, at present, in the modern state, formal equality and equal rights of all citizens are proclaimed. However, it should be noted that formal legal equality exists at the level of the general (constitutional) status of the individual, which is formed mainly by general

norms. In addition to the general status, there are many special (generic) legal statuses that reflect the legal status of certain categories of citizens (pensioners, military personnel, officials, etc.).

Special statuses differ among themselves in terms of the scope of rights and obligations that make up their content. In addition, the hierarchy of legal norms forms a hierarchy of special statuses. It follows from this that a lot of special legal statuses, their hierarchy indicates the impossibility of the existence of actual equality in a modern state, despite the fact that formal equality exists and is fixed at the level of the general status of a person and a citizen.

Meanwhile, the analysis of the historical experience of the formation of the principle of equality before the court allows us to conclude that the principles of the organization and activity of the judiciary, which in European countries received the right to exist as a result of revolutions, were proclaimed at the initiative of the government and for the first time were legislatively fixed not at the constitutional level, but by the judicial charters of 1864 – legislative acts that reformed the judicial system and judicial proceedings.

Summing up the consideration of the constitutional and legal nature of the principle of equality before the law and the court, it is possible to draw the following conclusions.

The constitutional principle of equality before the law and the court is derived from the constitutional and legal category of equality and is a fundamental idea expressed in the state-power decree, clothed in the normative and legal shell of the Constitution, which is based on the position of the legislator on the need to ensure equality of all before the law and the court in the state and society.

The establishment of the constitutional and legal foundations of equality before the law and the court consists in mediating legal relations between the foundations of the constitutional system and the organization and activities of public administration bodies to establish, ensure the implementation, protection and protection of the principle of equality before the law and the court.

Being a general constitutional principle, the principle of equality before the law and the court is one of the main legal guidelines of the state as a modern democratic state and at the same time has a complex triune essence characterized by a combination of constitutional-value, status and human rights elements.

Being based on the specific concepts of equality – equality before the law and equality before the court, this principle applies only to public relations arising between persons, i.e. subjects of public relations regulated by this principle can be individuals: citizens of the country, stateless persons, foreign citizens, as well as legal entities, regardless of the form of ownership, including public associations and religious organizations.

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The constitutional principle of equality before the law and the court is relatively independent (which is confirmed by the regulation in a separate part of the constitutional norm), but at the same time, it is an integral element of a more voluminous constitutional principle of equality and, on the other hand, the principle under study can itself be divided into two components: the principle of equality before the law and the principle of equality before the court, which within the framework of constitutional and legal research should be considered inseparably from each other.

The main components of equality before the court are equal access to judicial protection and equal scope of judicial protection of the rights and legitimate interests of all participants in the judicial process. Equal access to judicial protection is ensured by an equal opportunity to initiate this form of protection (in this case, the parties have equal procedural rights); equal status of subjects when applying to the court; equal opportunity to receive qualified judicial assistance; equal access to judicial protection regardless of the location of the subject of the process.

The analysis of the implementation of the principle of equality of all people before the law convincingly proves that it can be considered as one of the most important principles of a legal democratic state. Meanwhile, it should be noted that its literal embodiment in legal reality is impossible due to the existence of such a category as "special legal statuses", the bearers of which have special rights and obligations that underlie the granting of legal immunities.

The granting of legal immunity, as a rule, is due to the presence of special powers of a subject, which he must perform properly-it is on this basis that the legislator, with the help of legal immunity, increases the degree of legal protection of these persons, and therefore the impartiality of their decisions.

Comparing the principle of equality before the law and the principle of equality before the court as two constituent elements of a single constitutional principle, it should be noted that the principle of equality before the law has a primary basis, since it assumes, among other things, the existence of such a law that would regulate and develop the provisions on equality before the court.

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CURRENT TRENDS IN TRADE AND INTERMEDIARY ACTIVITIES ON WORLD MARKETS

Abstract: *The development of the processes of globalization of the world economy is a direct consequence of the expansion of the scale of international trade, which in turn determines the increase in the role of intermediary operations. Effective trade and investment cooperation between the countries is a fundamental factor for their stable economic development and increasing competitiveness in the global economy. Improving the international competitiveness of the Republic of Uzbekistan depends not only on the diversification of the sectoral structure of the economy and increasing the quality of products, but also on the use of modern management systems and marketing technologies, quantitative and qualitative development of operations of local intermediary companies in the field of international business. This justifies the relevance of the study. The paper considers the main directions of trade and intermediary activity on the world markets.*

Key words: export, import, international corporation, international trade, mediation, multinational trading companies, product, trade.

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Introduction

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Since the second half of the XX century, there has been an active development of the processes of globalization and regionalization, which determine the peculiarities of the growth of commodity markets. Trade mediation is a very important and integral part of the modern market economy. The objective economic necessity and high efficiency of the trade intermediary link in international trade in raw materials, semi-finished products, finished products, machinery and equipment, as well as services are proven by all the practice of work in the field of sales of foreign manufacturers, exporters and importers.

Many years of experience in the activities of both large and medium-sized and small industrial and commercial structures abroad has shown that the final effect of using intermediaries that connect the

manufacturer with the consumer of goods and services is much higher than the creation of a manufacturer's own sales network. (In the latter case, the manufacturer would have to significantly increase the price of the goods and services sold to cover the huge sales costs, which would sharply reduce their competitiveness on the world market). It is no accident that the sales structures of the largest international corporations such as General Motors, Nestlé, Westinghouse, Mitsubishi Heavy Industries, IBM, British Petroleum directly or indirectly rely on hundreds and thousands of different intermediary firms operating in various countries of the world.

The role of the intermediary link in the sale of mass-demand goods on the world market is especially great, where intermediary structures play a key role in the delivery of goods to the final consumer. Without such structures, the main goal of modern marketing could not be fulfilled - in the conditions of constantly

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changing market needs, to provide the consumer with the necessary goods in the necessary quantity and assortment, in the right place and at a convenient time for him.

The role of trade intermediaries is extremely important for the manufacturer in the conditions when he first enters the foreign market with his goods or starts selling a new product on the foreign market. The success of the manufacturer in the market in these cases directly depends not only on the competitiveness of the product itself, but also on the qualified actions of its resellers.

The relevance of the chosen research topic is enhanced by the fact that at present there is a problem of a significant qualitative lag behind the world standards of those services provided by local intermediary companies. At the same time, the Republic of Uzbekistan does not yet have a system of effective state regulation of the operations of intermediary companies in international business, and therefore they are not actually involved in the implementation of the task of increasing the country's international competitiveness.

Methods.

The methodological basis of the study was the dialectical approach, which involves the study of contradictions and interrelationships of the phenomena under consideration. Such general scientific research methods as observation and comparison, generalization and classification, analysis and synthesis, induction and deduction, the method of scientific abstraction, statistical methods, historical and logical methods were used in the work.

The problems of mediation and intermediary operations in a market economy cover a fairly wide range of problems. The most developed of them are issues related to the development of financial intermediation, which are devoted to the works of such well-known foreign specialists as F. Allen, J. Benston, D. Boyd, D. Gale, J. Gurley, D. Diamond, T. Campbell, V. Krekou, S. de Cousserg, H. Leland, D. Pyle, E. Prescott, R. Rajan, A. Santomero, K. Smith, J. Tobin, J. Friedman, W. Sharp, E. Shaw. Among the works of modern authors of the CIS countries, including Uzbekistan, the works of A. M. Abdullayev, N. I. Bairov, T. B. Berdnikov, O. A. Bogutskaya, Yu. B. Vlasenkova, E. N. Glushchenko, L. P. Drozdovskaya, M. A. Ikramov, A.V. Kanaeva, A.M. Kodirov, I. K. Klyuchnikov, O. A. Molchanova, Yu. V. Rozhkov, A.V. Streltsov and others.

Results & Discussion.

As many foreign studies show, the number of intermediary firms in world trade is constantly growing. This is due to the constantly increasing demand of consumers for goods and services, the renewal and replenishment of the range of the latter,

the expansion and deepening of the international division of labor, including in the field of distribution.

Trade and intermediary firms and organizations operating abroad are actively improving their activities through the use of new methods and technologies that are already successfully used in industry. This allows them to optimize their operations, helps to reduce prices and improve customer service. Currently, many of them are equipped with the most advanced means of communication, advanced operating systems for accounting for goods that work in real time, automated systems for processing invoices and orders. Modern technologies are being introduced into the field of warehouse management, where computer and other equipment are successfully used.

In our opinion, in a general sense, trade and intermediary operations are understood as operations related to the purchase and sale of goods and performed on behalf of a supplier (manufacturer or exporter/importer) by an independent trade intermediary on the basis of an agreement concluded between them and a separate order. Trade and intermediary operations in the world practice also include such types of activities as procurement, supply and marketing and trading activities, usually mediated by purchase and sale agreements. At the same time, the firms that carry out these operations are independent. They are not producers and end consumers of products located in the sphere of sale and carry out any operations with the goods at their discretion. The sphere of activity of trade and intermediary firms is very extensive. They are mainly engaged in commercial activities, while large intermediaries sometimes perform production operations related mainly to the processing of goods purchased and sold by them, transportation, insurance, warehousing of goods, but these functions are subordinate to the implementation of commercial operations.

A huge number of transactions in international trade are carried out with the help of intermediaries - trading firms, organizations and individuals who occupy an intermediate position between producers of goods and services and their final consumers. From an economic point of view, the concept of "trade intermediaries", the most widespread in international commercial practice, is quite applicable to all of them.

Through trade intermediaries, the overwhelming volume of entire commodity groups of machinery and equipment, many types of raw materials, basic semi-finished products, finished products, food products, consumer goods is sold on the world market. For example, according to various experts, more than two-thirds of machine-technical products and equipment involved in international turnover are sold through trade intermediaries. In general, according to modern estimates, more than half of the international trade exchange is carried out with the assistance or with the direct participation of trade intermediary firms, organizations and individuals independent of

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producers and consumers of goods and services. Taking into account domestic trade, which is often a continuation of foreign trade, the share of intermediaries in the trade exchange between producers and end consumers is even higher and, according to our calculations, is at least 90% of the total global exchange of goods and services.

The high role of intermediaries is characteristic both for the trade in mass-demand goods and for the trade in products, the demand for which is very limited due to their specifics. Often, the sale of unique goods is not complete without intermediaries, when there is only one monopolist manufacturer and 2-3 end consumers on the world market.

The main purpose of using intermediaries is to increase the economic feasibility and efficiency of foreign trade operations. Despite the costs of paying remuneration to intermediaries, the efficiency of operations is increased due to the following factors

- intermediaries, being closer to the buyer, know the market better and react more quickly to changes in its conjuncture, which allows them to sell goods on more favorable terms for the exporter, freeing him from many worries associated with the sale of goods;

- some intermediaries finance the exporter's transactions, advance suppliers, investing their own capital in the creation and operation of a sales network, which creates important economic benefits from saving money invested in circulation;

- intermediaries provide exporters with the opportunity to enter new markets relatively quickly, easier access to customers, enable the exporter to reduce or eliminate credit risks, save on accounting and office expenses, optimize marketing, advertising, etc.;

- intermediaries, always being in closer contact with the final consumers of goods and services, are important constant sources of valuable primary information about the market - its capacity, trends in the formation and change of demand, its segmentation, the position of competitors, sales prospects, prices and opportunities for their change, modern requirements for the level of quality and competitiveness of goods. The skillful use of such information by the exporter, as the practice of working in the foreign market of individual firms shows, often allows them to gain important competitive advantages, actively improve sales tactics and strategy, repeatedly recouping the costs of paying for the services of intermediaries;

- when working through intermediaries specializing in the mass sale of a certain range of goods, there is usually an additional benefit due to reducing the cost of circulation per unit of goods sold.

An analysis of the modern practice of international trade shows that small and medium-sized supplier firms primarily resort to the services of trade intermediaries in their foreign economic activities. The use of an intermediary tool is pivotal in the organization of sales of the goods produced by them.

Large industrial companies, including multinational ones, also use independent intermediaries. The latter, however, resort to the services of intermediaries mainly in the sale of secondary types of products, in certain hard-to-reach markets, small-capacity markets, in the absence of their own sales network based on trade branches and representative offices, with relatively small volumes or with occasional export-import operations.

Large supplier firms also actively use intermediaries when entering new export markets. Thus, the analysis of the foreign trade expansion of the leading industrial corporations in Japan allows us to distinguish three main stages in their sales strategy. At the first stage (initial entry into a new export market), Japanese companies use only foreign (less often) or Japanese (more often) resellers. At the second stage (development of the foreign market), sales are carried out partially both through intermediaries and through their own trade representative offices or trade branches, which are often organized in the form of subsidiary sales firms. At the last third stage (active approval on the foreign market), Japanese suppliers already fully sell their products through their own trading firms operating in the territory of the importing country.

The strategy of developing the US market by leading Japanese automobile corporations is very indicative in this regard. Thus, at the stage of introduction to the American passenger car market in 1957-1960, the sale of Nissan motor products was carried out by its traditional Japanese resellers - trading houses "Marubeni" and "Mitsubishi". In the future (1961-1965), the sale of its cars in the United States was carried out partly through its own sales company "Nissan Motor Corporation-USA" and partly through several local intermediaries. Since 1966, she refused the services of the latter completely, switching sales to her own trading company.

Assessing the importance of intermediaries, it should also be taken into account that they become an almost indispensable tool when an exporter or importer uses certain specific forms of sales, for example, exchange trading, participation in international auctions (tenders) for machinery, equipment and capital construction objects, when trading patents and licenses.

Speaking about the advantages of using intermediaries, we should not forget about the objective disadvantages that the involvement of a trade intermediary link in the sale of goods entails. The main one is the supplier's lack of direct contacts with the sales market.

When considering the issue of attracting a reseller, the manufacturer should always clearly understand the possible economic effect of his activities. If the intermediary does not provide additional profit compared to the one that the manufacturer extracts from the independent sale of goods on the market, its involvement is economically

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meaningless. Unfortunately, a thorough calculation of the possible economic effect of using an intermediary is very difficult in practice. Is it possible to estimate, for example, the lost profit from the use of an intermediary, which the manufacturer, due to its ignorance, does not even suspect?

In the conditions of a modern market economy, blind adherence to the principle of "we will do without

intermediaries" clearly does not stand up to criticism. The entire practice of international trade testifies to the infidelity of this principle.

In order to analyze the national market of mediation services in international business, the SWOT analysis technology was used, the results of which are presented in Table 1.

Table 1. SWOT analysis of modern national intermediary companies in international business

Strength	Weakness
1) Increasing the versatility of intermediaries and their provision of comprehensive services to their clients; 2) Consolidation and strengthening of the processes of consolidation of intermediary companies; 3) Approximation to international standards of business technologies used by intermediaries, including the introduction of new mobile and Internet technologies; 4) Opening of joint intermediary enterprises with Uzbek and foreign participation in Uzbekistan and abroad; 5) Increasing the role of the state in the gratuitous provision of intermediary services to national business, the most important of which is the creation of a single the national portal of foreign economic information.	1) The backlog of domestic intermediary companies from foreign intermediaries in terms of the volume of services rendered; 2) The lack of interest of intermediary companies in solving the problems of modernization of the national economy and improving the international competitiveness of Uzbekistan; 3) The remaining significant share of intermediaries in conducting shadow operations, complicity in corruption, unorganized trade, illegal foreign trade transactions; 4) Lack of transparency and openness of the intermediary business, unfair competition and insufficiently effective interaction of intermediary companies; 5) The danger of oligopolization of the intermediary services market by large multifunctional intermediary structures; 6) Low number of national intermediary companies represented on international information portals
Opportunities	Threats
1) Streamlining of the national legislation of Uzbekistan, the introduction of new regulatory legal acts to regulate certain types of intermediaries; 2) Increasing the support of intermediary companies by state authorities; 3) The use of local companies as intermediaries in a third country, which is especially in demand when foreign business enters the markets of the CIS countries, the EurAsEC, the Single Economic Space; 4) Support of local intermediary companies by international organizations and foreign public authorities; 5) The accession of the Republic of Uzbekistan to the WTO, which opens up new opportunities for expanding export-import operations of the national business; 6) Crisis phenomena in the economy, contributing to the withdrawal of domestic and foreign competitors from the market, as well as improving the efficiency of intermediary companies.	1) Imperfections of the legislative framework, the main of which are the absence of formulations of the concept of mediation and related terms fixed at the legislative level, as well as the absence of clearly defined rights and obligations of certain types of intermediary companies in regulatory legal acts; 2) Lagging behind foreign countries in the field of building a system of state support for intermediary companies; 3) Low competence and weak interest of local company managers in working with intermediaries; 4) Insufficient use of Internet technologies by local clients of intermediary companies; 5) Lack of statistical information on the activities of intermediaries in the national market of Uzbekistan; 6) Competition from foreign intermediary companies, especially intensified after Uzbekistan's accession to the WTO;

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7) Crisis phenomena in the economy, provoking a drop in the income of all types of intermediary companies, which turns out to be critical for many small businesses.

Conclusion.

An important feature of the qualitative changes that have occurred in the trade and intermediary link is the expansion of the directions and spheres of this activity. As a result of the expansion of the spheres of foreign activity, the largest firms appeared—transnational trading corporations (TGC), which occupy dominant positions in the world commodity markets of individual goods. An important feature is the transformation of the largest retail firms into international companies that play a significant role in the international trade turnover of individual countries. Through them, the impersonal products of foreign suppliers are sold on the domestic market on a huge scale (in other words, they are sold in the branded stores of the largest companies under the brand of the latter). Another important feature is the subordination of small and medium — sized exporting and manufacturing firms in developing countries to trade monopolies. Through them, they purchase raw

materials, which they themselves process and sell through their own retail stores. The broad participation of public and private trading companies of developing countries in international trade is also characteristic of modern conditions. In modern conditions, new forms of retail trade have been widely developed, bringing sellers as close as possible to end consumers, namely universal trade through supermarkets and department stores, parcel trade, mobile trade, vending machines. This has largely determined the specifics of their activities with consumer goods, their forms and methods

Thus, the need and effectiveness of the trade intermediary link in the implementation of export-import operations is quite obvious. If we reduce the whole matter to principles, then, as it seems to us, a more modern principle should operate in this area, namely: an intermediary is an objective necessity, but it is better to do without an extra intermediary.

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INFLUENCE OF VARIOUS SIDERATE CROPS ON ELEMENTS OF SOIL FERTILITY AND YIELD OF POTATO VARIETIES

Abstract: The purpose of the research is to study the influence of various siderate crops on the growth, development, yield formation, yield and seed quality of potato varieties, as well as soil fertility elements, and on their basis the selection of the best siderate and varieties, allowing to obtain a stable high healthy seed potato.

In 2016-2019, studies were carried out on old-irrigated medium loamy typical gray-earth soils with a groundwater table of 6-8 m. The soils were characterized by favorable agrophysical properties and a low content of humus, nitrate nitrogen, mobile phosphorus, and an average content of exchange potassium. Studied medium early varieties - Sante, Kondor, Arizona, Saviola and Bardoshli-3 on the following winter green manures - rape, oil radish, barley, peas, gray mustard and peas + oil radish. Winter plowing was used as a control. The highest yield is determined by growth (plant height 71.6-219.6 cm), development (density of bushes 103.4-556.2 pieces per 1 m²), biomass yield (19.3-35.1 t / ha) and seeds (rape - 22.7-24.3 c / ha, gray mustard - 17.8-19.6 c / ha, oil radish - 22.0-23.5 c / ha, peas - 26.7- 28.6 c / ha, barley - 83.0 - 85.1 c / ha) pure and mixed crops of green manure crops;

With these siderates, studied their influence on the mechanical components of the soil (in the arable layer the share of macro-aggregates is 13.4-25.9%, and of micro-aggregates 24.7-27.6%), physical (bulk density decreased by 1,23-1,31 g/cm³), and water properties (an increase in water permeability by 71.0-124.7 m³/ha), soil fertility (an increase in humus by 1.17-1.22%, nitrate-nitrogen - 12.38-33.56, mobile phosphorus - 31.37 -43.25, exchangeable potassium - 311.4-326.2 mg/kg of soil, the degree of weed infestation - 7.4-17.5% or not exceeding I and II points, an increase in the number of earthworms in 3.1- 6.3 times);

Potato plant development (the growing season lengthened to 4-8 days, 69.4-83.6 cm high; multi-stem 4.3-5.4 or more 1.1-1,6 pcs; powerful tops 404.4-495.3 g), formed not productive, healthy (yield of tubers 617.5-998.8 g, number of tubers - 6.7-11.2, average weight of one tuber - 76.2-93.1 grams) bushes and crops, yield (35.5-39.6 t/ha) and (marketable yield 29.1-39.1 t/ha, yield of seed tubers 21.2-29.2 t/ha, multiplication factor within 6.4-8.6) with high seed qualities of various varieties of potatoes;

When planting seed tubers of the studied potato varieties grown after the best siderates the growth, development, yield and seed qualities were studied after green manure crops, and when cultivated as a two-yield crop - field germination (95.8-98.6%) of seed tubers, productivity, plant infection (apparent: 7.6-8.8 latent: 23.3-26.7%) viruses and yield (21.5-31.0 t/ha, the proportion of degenerate tubers less than 3.3-4.1%) of early and mid-early potato varieties, promising medium-early varieties were identified and green manure crops for specific local conditions.

Key words: siderate crops, sideration, green fertilizers, biomass, growth and development, vegetation period, potato varieties, leaf surface area, productivity, yield of commodity and seed crops, reproduction coefficient, seed quality.

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Introduction

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It is known that the use of green manure gives great opportunities in preserving and increasing soil fertility, which have a positive effect on the quantity and quality of the crop, especially on reducing the infection of seed potatoes with viruses.

The influence of green manure crops on soil fertility of crops, growth, development, infection of plants with weeds, diseases and productivity of cotton, grain and other crops [1,2,3,4], and in potato growing [5,6,7,8] have been studied.

However, the influence of summer and autumn green manure crops on the elements of soil fertility of crops, growth, development, yield formation, quantity and quality of the crop in the context of potato varieties has not been studied. In this regard, the purpose of the research is to study the influence of various green manure crops on the growth, development, yield formation, yield and seed qualities of potato varieties, as well as elements of soil fertility and, on their basis, the selection of the best green manure crops and varieties, allowing to obtain a stable high healthy seed yield. potatoes.

Conditions, materials and research methods.

The studies were carried out in the conditions of old-irrigated typical sierozem soils of the Khisor farm in the Yakkabag district of the Kashkadarya region in 2016-2019. The mechanical composition of the soil is medium loamy, with the occurrence of groundwater 6-8 m. In the experimental plot, the humus content in the arable layer (0-30 cm) of the soil was 0.093-1.15%, the bulk density was 1.27-1.31 g/cm³, and specific gravity - 2.6-2.9 g/cm³, total nitrogen - 0.057-0.093%, phosphorus - 0.144-0.163%, potassium - 2.6-2.9%, nitrate nitrogen - 5.14-6, 51 mg/kg, mobile phosphorus - 17-27 mg/kg and exchangeable potassium - 287-307 mg/kg.

The objects of the study are old-irrigated typical sierozem soils of the Kashkadarya region, autumn rapeseed - varieties Nemerchansky-2268; oil radish - Raduga varieties; barley - Timur varieties; peas (green peas) - Vostok-55 varieties; gray mustard - Yubileynaya varieties, early ripening potato varieties of medium-ripening varieties Bardoshli-3, Sante, Kondor, Arizona and Saviola.

For these potato varieties, the following green manure crops were studied:

Winter green manure (spring green manure):

1. Winter plowing (control); 2. Spring plowing; 3. Rape - variety Nemerchansky-2268; 4. Oil radish - grade Rainbow; 5. Barley - Timur variety; 6. Peas - grade Vostok-55; 7. Gray mustard - grade Jubilee; 8. Peas + oil radish.

The area of the plot for green manure is 224 m², and for varieties it is 14 m², the experiment was repeated three to four times. Sowing of green manure

crops was carried out in the fall of October 14-19, seeding rates: rapeseed - 16.0; barley - 160; peas - 70; mustard gray - 14.0; oil radish - 20.0 kg/ha, and with the combined sowing of crops, the rate was taken in half. Fertilizers were applied at the rate of N₃₀P₁₀₀K₆₀ kg/ha. After sowing winter green manures 2 times - in autumn and spring with a rate of 450-500 m³/ha.

In winter green manure crops, 10-12 days before planting potatoes, and in summer green manure crops in late autumn, the yield was determined during the period of mass flowering or heading, then with the help of the KIR-1.5 unit, they were crushed, discarded and plowed to a depth of 28-30 cm.

In the experiments, all counts, analyzes, observations and activities were carried out on the basis of generally accepted methods and agricultural recommendations [9, 10].

Research results.

The biomass yield of summer green manure crops was 19.3-30.2 t/ha. The highest biomass yield (29.3-30.2 t/ha) was obtained from the siderata oil radish and pea+oil radish. In winter green manure crops, the biomass yield by species was 22.1-35.1 t/ha. The highest biomass yield (35.1 t/ha) was observed in the siderata oil radish, a relatively high yield (29.6-32.3 t/ha) when sowing peas+oil radish.

When sown in autumn as green manure crops, the mixture of peas+oil radish > 0.25 mm (0-30 cm) was 19.8-25.9%, or 8.2-13.0% higher than the control variant. When sowing peas, gray mustard in its pure form amounted to 18.3-25.3%, which is more than the control by 6.7-12.4%.

After various autumn green manure crops were also studied in medium early potato varieties Sante, Kondor, Arizona, Saviola and Bardoshli-3, in which it was observed that during the growing season of potato varieties before the first watering when sowing peas+oil radish as a siderata was provided in the arable layer (0-20 and 20-30 cm) with a bulk density of 1.23 and 1.27 g/cm³, or its decrease in comparison with the control (autumn plowing) by 0.05 and 0.07 g/cm³.

When sowing peas and gray mustard in pure form as a green manure before the first watering, in potato varieties during the period of growth in the arable layer (0-20 and 20-30 cm), a volumetric mass of 1.24 and 1.28 g/cm³ was revealed, which shows a decrease in comparison with autumn plowing by 0.04 and 0.06 g/cm³.

When used as green manure peas+oil radish before the last irrigation during the period of growth in the arable layer, the bulk density was 1.24 and 1.28 g/cm³, which provided the greatest decrease by 0.06 and 0.07 g/cm³ in comparison with control. In the autumn, when sowing peas and gray mustard as green manure in pure form according to potato varieties before the last irrigation in the arable layer, a decrease in volumetric mass of 1.25 and 1.29 or 0.05 and 0.06 g/cm³ ha was revealed.

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In the summer and autumn periods, a mixture of peas+oil radish, gray mustard and peas as green manure provided the highest humus content (1.17-1.22 or 0.02-0.03%) when sown in its pure form. The C: N ratio was favorable when the green manure crops were sown with mixed crops and the humification of the crop was increased. The highest concentration of N-NO₃ (12.38-33.56 mg/kg) was observed when sowing peas as green manure, relatively high when sowing peas+oil radish - (12.35-31.54 mg/kg). The greatest accumulation of mobile phosphorus in the soil (31.37-43.25 mg/kg) was observed in the summer and autumn periods, when rapeseed and gray mustard were sown in pure form, peas+oil mustard. Autumn green manure significantly changed the amount of available phosphorus. An increase in N-NO₃ under the action of green manure increases the amount of available phosphorus. The amount of exchangeable potassium was brought to the maximum amount (311.4-326.2 mg/kg) when sowing rapeseed, gray mustard and peas+oil radish as green manure.

According to the data obtained, the germination of tubers of potato varieties in winter green manures was observed 11-15 days after planting, and the field germination of seed tubers was 99.2-99.9%. Compared to the control variants of green manure, germination was 3-4 days earlier, field germination of tubers - 2.8-3.2%, budding - 1-4 days, flowering - 1-5 days longer, the growing season was increased to 4- 8 days.

When studying winter green manures in potato varieties Sante and Kondor, in comparison with the control, the highest indicators were revealed when sowing peas as green manures - field germination of seed tubers is 3.4-3.5% higher, seedlings are earlier by 4 days, budding and flowering - 3 -5 days, the duration of the growing season is 7-8 days longer.

It was determined that, when using a mixture of peas+oil radish and mustard in pure form as green manure, that a relatively high field germination of seed tubers (99.6-99.8 or 3.4-3.5%), seedlings (15 or 4 days earlier), budding (34 or 4 days long) and flowering (17-18 or 3-4 days long), the length of the growing season (87-89 or 7 days long). This pattern was also observed in potato varieties Arizona, Saviola and Bardoshli-3 tested on winter green manure.

Studies of potatoes of medium early varieties Sante, Kondor, Arizona, Saviola and Bardoshli-3, studied in winter green manures, showed that the growth, development and formation of growth organs (stems, leaves and side shoots) on the 30th day of cultivation amounted to 37.6- 46.5 or higher 2.9-7.6 cm, the growing season for 40-70 days ranged from 48.5 to 83.6 or higher from 2.6 to 16.4 cm. The tallest plants in winter green manure were noted in varieties Arizona, Saviola and Bardoshli-3.

The tallest plants were observed after sowing as green peas in a pure form - compared to the control variant, the height of plants on the 30th day of the

growing season is 45.8-46.5 or 7.6 cm higher, in the following 40-70 the th days of the growing season are longer, that every 10 days of the growing season 80.5-83.6 or 16.2-16.4 cm, after sowing peas+oil radish and pure peas on the 30th day of the growing season by 5, 7-7.2 cm, on the 40-70 th days of the growing season 77.2-81.7 or 12.9-14.5 cm higher than compared to the control (autumn plowing).

The highest formation of leaves, stems and side shoots from one bush in potato varieties Arizona, Saviola and Bardoshli-3, studied on winter green manures, was observed in autumn when sowing peas (green peas) as a pure green manure, which is 40 the th day of growing season was from a bush: leaves 140.6-145.6 or more 17.3-19.0; stems 4.5-4.6 or 1.0-1.3; side shoots 3.3-3.6 or 1.1-1.2, then on the 70th day of growing season from the bush the number of leaves increases by 217.8-242.6 or 42.6-53.7, and side shoots up to 8.6-9.4 or 3.0-3.8 pcs.

When sowing in the form of green manure, a mixture of peas + oil radish and blue mustard in pure form on the 40th day of growing season by varieties compared with the control of leaves from a bush is 16.2-16.9 more pieces, stems 1.1-1.0 ; lateral shoots 0.9-1.2, then on the 50-70-day the leaves increased by 17.1-47.0; lateral shoots 2.2-3.4.

The leaf surface area per hectare was 70.6-71.6 thousand m² for medium-early varieties of potatoes Sante and Kondor in autumn when sowing peas (green peas) as green manure. It is noted that when peas are used in the form of green manure, the leaf surface area is 21.3-21.8 thousand m²/ha higher than the control.

The potatoes studied on winter crops of green manure were found to have the highest leaf surface area on the 40-70th days of vegetation of plants of medium early potato varieties Arizona, Saviola and Bardoshli-3. When using the biomass of winter green manures, the leaf surface area by varieties was 67.8-72.1 thousand m²/ha, which is 17.5-21.3 thousand m²/ha more than the control. It was determined that the most in the leaf area (71.5-72.1 thousand m²/ha) when sowing peas in their pure form as green manure. When sowing a mixture of peas+oil radish and blue mustard in its pure form, the leaf surface area was 70.0-71.8 per hectare, or 19.7-21.0 thousand m²/ha more than the control. When using the biomass of winter green manures, the leaf surface area by varieties was 67.8-72.1 thousand m²/ha, which is 17.5-21.3 thousand m²/ha more than the control. It was determined that the most in the leaf area (71.5-72.1 thousand m²/ha) when sowing peas in their pure form as green manure. When sowing a mixture of peas+oil radish and blue mustard in its pure form, the leaf surface area was 70.0-71.8 per hectare, or 19.7-21.0 thousand m²/ha more than the control.

When studying the yield formation and potato productivity of medium early varieties Sante and Kondor after winter green manures, the productivity of tubers from one bush, the number of tubers and the

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average weight of one tuber were the highest when sowing peas as a green manure, which, compared with the control on the 60th day of the growing season, tubers per bush was 399.3-336.3 or 131.0-63.6, the average weight of one tuber was 76.7-74.7 or more by 18.4-11.3 g, the number of tubers was 5.2-4,5 or more by 0.6-0.2 pcs., These indicators increase by 70-80 days of the growth period in accordance with the law, in the last growing season (90 days) the number of tubers increased accordingly from the bush: 643.8 - 652.3 or 250.1-203.6, 78.5-93.1 or 8.0-17.1 g, 8.2-7.0 or 1.7-1.1 pcs.

After sowing a mixture of peas+oil radish and blue mustard in the form of green manure, which, compared with the control (autumn plowing), the potato varieties tested 60 days of growing tubers on one bush: the yield of tubers is 57.5-120 g, the number of tubers is 0,2-0.7 g, with an average tuber mass of more than 11.3-14.1 g, these indicators increase according to the law after 70-80 days, and in the last period of growth (90 days) from a bush: tuber yield 617.6 -627.1 or 223.9-178.4 grams, the number of tubers is 7.0-8.1 or 1.1-1.6 pieces, with an average tuber mass of 76.2-89.6 or 15.7-13.6 grams more. These patterns were also observed in potato varieties Arizona, Saviola, and Bardoshli-3, studied in winter green manures.

The productivity of potatoes of medium early varieties Sante and Kondor, studied in winter green manures, was the highest when sowing pure peas in the form of green manure (final yield 643.8-652.3 or 250.1-203.6 g). The greatest increase in bush weight was observed in medium-early potato varieties Arizona, Saviola and Bardoshli-3 grown on green manure crops, and on one bush relative to the control (autumn plowing): tops weight 450.5-495.3 or 161.0-197.7 , the final yield is 678.5-998.8 or 16.9-311.0 g, productivity per bush was 898.9-998.8 g. At the same time, it was obtained from one bush: 237.3-311.0 grams more than from the control (autumn plowing). When using mixed peas + oil radish and gray mustard in its pure form, according to potato varieties, it was obtained from one bush: the final yield was 876.5-988.7 g, which is 214.9-300.9 g more than in the control (autumn plowing).

It was noted that the yield of medium early potato varieties Sante and Kondor, studied in winter

green manures, was the highest when using peas as green manure, and the yield was 32.3-35.8 tons per hectare or an additional yield of 8.8-11.5 tons. Relatively high yields of 30.7-32.8 t/ha were obtained by sowing a mixture of peas+oil radish and blue mustard in its pure form as green manure and an increase in yield was obtained by 7.2-8.5 t/ha more than in the control (autumn plowing).

The highest yield (35.5-39.6 t/ha) of mid-early potatoes varieties Arizona, Saviola and Bardoshli-3 was recorded when sowing peas as green manure with an additional yield of 7.6-11.4 t/ha or 127.2-140 ,4%. A relatively high yield (33.6-38.7 t/ha) was obtained when sowing a mixture of peas+oil radish and gray mustard as green manure.

In the studied potato varieties Sante and Kondor, after winter green manure, the marketable yield per hectare was 23.4-35.3 t or 93.2-98.6%, of which 15.5-25.7 t/ ha or 66.3- 72.8% seed.

The total yield of potato varieties Arizona, Saviola and Bardoshli-3, studied on winter green manure, was 29.1-39.1 t or 94.5-98.9% of the marketable yield, 19.6-29.2 t/ha or 67,6-74.8% of the marketable yield was seed, and the multiplication factor was 5.9-8.8. When studying peas as winter green manure varieties, the marketable yield was 38.0-39.1 per hectare; the yield of seed tubers is 28.3-29.2 tons, and the multiplication factor is 8.6-8.8% (table 3).

When using winter green manure crops, potato varieties showed a positive correlation between the yield and leaf area $r = 0.797$ ($R^2 = 0.6347$), between the yield and the average weight of one tuber per bush - a high degree $r = 0.877$ ($R^2 = 0.7689$), between marketable and seed yields (Picture 1) - a high degree $r = 0.995$ ($R^2 = 0.9910$).

When using the biomass of winter green manure crops for green manure, the highest field germination of tubers of medium early potato varieties Sante and Kondor was found to be 97.4-98.0% or 6.2-6.4% higher than the control variant (autumn plowing), the germination rate (16 or 3-4 days earlier), lengthening the growing season (86-87 or 6-7 days), tall (70.1-74.6 or 12.3-15.1 cm higher) and multi-stem plants (4.3 - 5.5 or more 1.0-2.0 pcs.), Which was obtained when planting potato tubers in conditions of sowing peas as green manure.

Table 3. Productivity of the selected potato varieties after the use of the biomass of autumn green manure crops

№	Name of green manure crops	Yield by years, t/ha			Average yield, t/ha	Compared to control	
		2017	2018	2019		t/ha	%
The variety Arizona							
1	Control (autumn plowing)	30,1	25,8	28,9	28,2	-	100,0
2	Spring plowing	27,9	24,4	25,6	25,9	-2,3	91,8

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3	Rape	33,7	33,8	34,5	34,0	5,8	120,5
4	Oil radish	33,0	33,2	34,1	33,4	5,2	118,4
5	Barley	32,1	32,3	33,0	32,4	4,2	114,9
6	Peas	37,9	39,7	41,4	39,6	11,4	140,4
7	Gray mustard	36,8	38,5	39,1	38,1	9,9	135,1
8	Peas+oil radish	37,2	39,0	40,1	38,7	10,5	137,2
	$S_x = (\%)$	2,43	2,13	2,24			
	HCP_{0,5} = (t/ha)	0,82	0,70	0,77			
The variety Saviola							
1	Control (autumn plowing)	30,1	25,6	28,7	28,1	-	100,0
2	Spring plowing	27,8	24,3	25,5	25,8	-2,3	91,8
3	Rape	33,4	33,9	34,3	33,8	5,7	120,2
4	Oil radish	32,9	33,6	34,0	33,5	5,4	119,2
5	Barley	31,7	32,5	32,9	32,3	4,2	114,9
6	Peas	35,4	37,5	39,2	37,3	9,2	132,7
7	Gray mustard	34,6	36,5	37,0	36,0	7,9	128,1
8	Peas+oil radish	35,0	37,2	37,7	36,6	8,5	130,2
	$S_x = (\%)$	2,18	2,57	2,87			
	HCP_{0,5} = (т/га)	0,72	0,85	0,97			
The variety Bardoshli-3							
1	Control (autumn plowing)	30,0	25,3	28,6	27,9	-	100,0
2	Spring plowing	27,6	24,1	25,4	25,7	-2,2	92,1
3	Rape	31,5	31,9	32,8	32,0	4,1	114,7
4	Oil radish	30,8	31,5	32,3	31,5	3,6	112,9
5	Barley	30,4	30,8	31,2	30,8	2,9	110,4
6	Peas	34,4	35,5	36,6	35,5	7,6	127,2
7	Gray mustard	32,3	33,8	34,7	33,6	5,7	120,4
8	Peas+oil radish	32,5	34,9	35,3	34,2	6,3	122,6
	$S_x = (\%)$	2,69	3,47	4,35			
	HCP_{0,5} = (т/га)	0,83	1,08	1,40			

The smallest infection with viral diseases was observed when sowing seeds grown under conditions of using blue mustard, rapeseed in its pure form and a mixture of peas+oil radish as green manure, compared

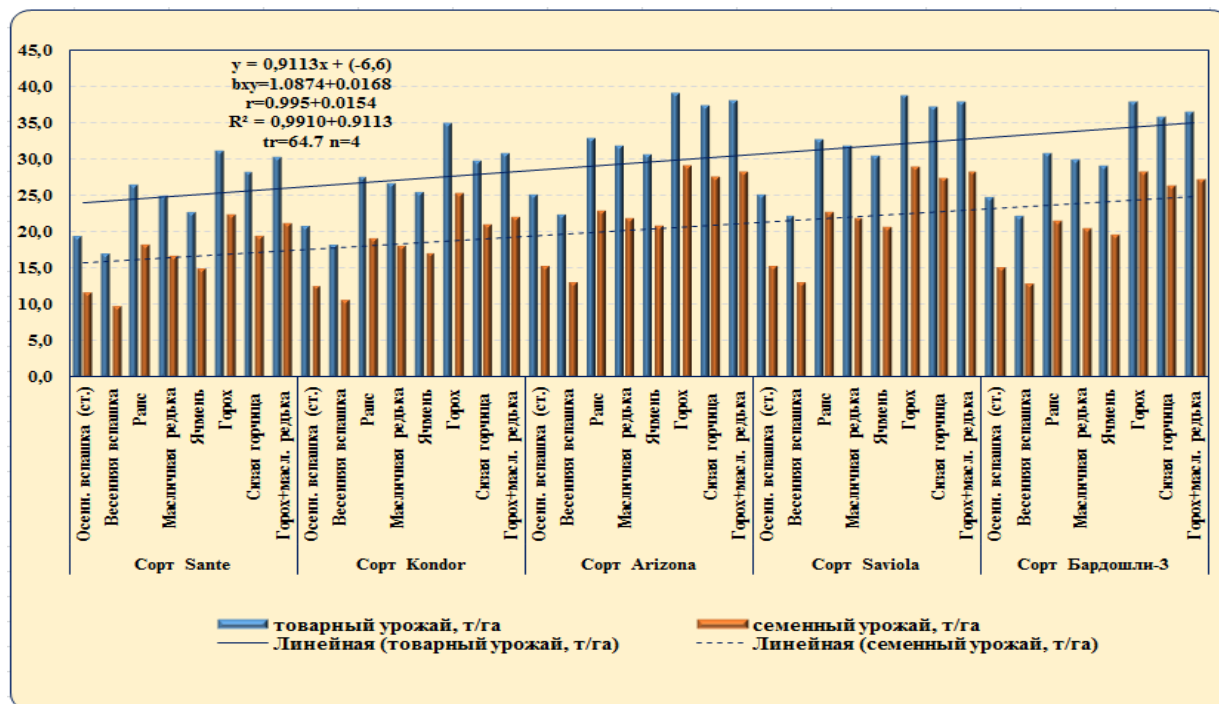
with the control (autumn plowing) by varieties decreased by 11.4-11.0% obvious, by 27.6-27.0 (including viruses X-7.8-7.1; S-12.2-11.8; Y-7.0-6.7; M- 1.0-0.9) percent of the latent form of morbidity.

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Picture 1. Influence of winter green manure crops on the yield of commercial and seed tubers of potato varieties.

When planting seed tubers of medium early potato varieties Arizona, Saviola and Bardoshli-3 grown after winter green manure crops, on the 20th day after planting, field germination of tubers by varieties was 95.7-98.6% or 4.0-6, 4% higher compared to control, seedlings appear 4-5 days earlier, the growing season lengthened by 4-7 days, plant height is above 6.5-15.6 cm, the number of stems in the bush is more than 0.6-1.2 pcs., the viral incidence of plants and tubers: the explicit form decreased by 8.6-11.4%, and the latent 17.4-27.4% (of which viruses X-3.5-7.9; S-9, 8-12.1; U-3.6-7.1; M-0.5-1.0).

Potatoes grown under pea conditions as green manure crops have the highest field germination (98.6 or 6.4-6.9%) when sowing seed tubers of Arizona, Saviola and Bardoshli-3 varieties, seedlings appear 4-5 days earlier, the vegetation of plants is increased by 7 days, the height of plants is 75.3-78.1 or higher by 15.0-15.6 cm, there are 4.4-4.6 or 1.2 more stems in the bush, the infection of plants and tubers by viruses: a decrease in the apparent form by 8.5-8.7, hidden by 26.3-26.4% (of which viruses X-6.5-6.6; S-11.2; Y-8.0; M- 0.6).

The lowest incidence of viral diseases (explicitly: 7.6-8.0 or 11.1-11.3% less; hidden: 23.3-24.1 or 27.1-27.8% less, of which viruses: X-5.3-6.0; S-10.7-11.1; Y-6.4-6.9; M-0.5-0.6%) was observed after green manure cultures - rapeseed, gray mustard and a mixture of peas+oil radish. The same pattern was observed when sowing seed tubers of potato varieties Arizona, Saviola va Bardoshli-3 after winter green manure crops.

When planting a reproduction of seed tubers grown after winter green manure, in comparison with the control (autumn plowing), the marketable yield of the Arizona variety increased by 2.1-8.5 tons or 6.8-9.8% per hectare, the percentage of degenerate tubers decreased by 2, 3-3.8%.

The highest marketable yield (29.1-31.1 t / ha) and a relatively low proportion of degenerate tubers (2.0%) were observed when planting seed tubers after peas. A relatively high yield (26.9-29.7 t / ha) and the minimum share of degenerate (1.6-2.0%) tubers by varieties were recorded when planting seeds grown after blue mustard in pure form and a mixture of peas + oil radish as green manure crops.

CONCLUSIONS

1. Under the conditions of old-irrigated typical sierozem soils of the Kashkadarya region, when studying the sowing of rapeseed, oil radish, barley, peas and blue mustard in a pure form, as well as a mixture of peas + oil radish as green manure crops in summer and autumn periods, the biomass yield per hectare was in autumn 19.3-30.2 tons, in spring 22.1-35.1 tons. The highest yield of biomass in both periods was obtained under the conditions of sowing oil-bearing radish in its pure form and a mixture of peas + oil-bearing radish. The biomass yield of winter green manures was 3.7-4.9 t/ha higher than summer green manures.

2. When using green manure crops, the growth and development of medium early varieties of potatoes occurs more intensively than in early

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ripening, forms a tall (69.4-83.6 or 10.2-16.4 cm high), multi-stem (4.3-5.4 or more 1.1-1.6 pcs.), Powerful tops (404.4-495.3 g) and a root system with a wide leaf surface (69.6-72.1 or more 19.9-21.3 thousand m²). As a result, the productivity of these varieties was 617.5-998.8 g per bush, the number of tubers - 6.7-11.2, the average weight of one tuber - 76.2-93.1 grams.

3. The highest yield (33.5-39.6 or 6.4-11.4 t/ha additionally), of which marketable yield 29.8-39.1 t/ha, seed tubers yield 21.2-29.2 t/ha, the multiplication factor in the range of 6.4-8.8 for medium early potato varieties Kondor, Arizona, Saviola and Bardoshli-3 was recorded using peas, gray mustard and a mixture of peas+oil radish as winter green manure crops.

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SYNTHESIS AND STUDY OF THE INFLUENCE OF THE ALUMOSILICATE MICROSPHERE ON THE PHYSICO-CHEMICAL PROPERTIES OF THE FOAMING FIRE-RESISTANT COATING

Abstract: This article presents studies of the synthesis of a new aluminosilicate microsphere from ash and slag and studies the effect of an aluminosilicate microsphere on the physicochemical properties of an intumescent fire retardant coating. The change in the maximum foaming temperature from 3400C to 5450C was determined. With an increase in the amount of added aluminosilicate microspheres, a slowdown in the foaming of the coating was observed, and at the same time, due to a slowdown in the foaming time, an increase in the thickness of the foamed coating occurs from 30 mm to 41 mm. It was determined that the most optimal amount of added aluminosilicate microsphere for a foaming fire retardant coating is 25%.

Key words: Aluminosilicate microsphere, fire retardant layer, alkaline agent, coating, foaming, ash-slag, geopolymerization, composition, foaming temperature, gel-like mass.

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СИНТЕЗ И ИЗУЧЕНИЕ ВЛИЯНИЯ АЛЮМОСИЛИКАТНОЙ МИКРОСФЕРЫ НА ФИЗИКО-ХИМИЧЕСКИЕ СВОЙСТВА ВСПЕНИВАЮЩЕГО ОГНЕЗАЩИТНОГО ПОКРЫТИЯ

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Аннотация: В данной статье приведены исследования синтеза новой алюмосиликатной микросферы из золашлака и изучено влияние алюмосиликатной микросферы на физико-химические свойства вспучивающегося огнезащитного покрытия. Определено изменение максимальной температуры вспенивания от 3400С до 5450С. С увеличением количества добавляемой алюмосиликатной микросферы наблюдалось замедление вспенивания покрытия и при этом, в связи с замедлением времени вспенивания, происходит увеличение толщины вспененного покрытия от 30 мм до 41. Определено, что самым оптимальным количеством добавляемой алюмосиликатной микросферы, для вспенивающего огнезащитного покрытия, составляет 25 %.

Ключевые слова: Алюмосиликатная микросфера, огнезащитный слой, щелочной агент, покрытие, вспенивание, золашлак, геополимеризация, композиция, температура вспенивания, гелеобразная масса.

Введение

Алюмосиликатные микросферы из летучей золы различных электростанций (Западно-Сибирская ТЭЦ, Беловская ГРЭС, Ново-Кемеровская ТЭЦ, Томь-Усинская ГРЭС), сжигающих кузнецкий уголь, были исследованы комплексом физико-химических методов (БЭТ, СЭМ, РСА анализ и гранулометрический анализ). Для сравнения был исследован образец микросфер Павлодарской ТЭЦ-2, сжигающей экибастузский уголь. Продемонстрированы различия текстурных, структурных и морфологических свойств микросфер, связанные с природой сжигаемого угля и рабочими условиями горения [1].

Исследована возможность получения литых заготовок из алюминиевого сплава, упрочненного добавлением полых алюмосиликатных микросфер. Приведены результаты микроструктурного анализа и исследования прочностных свойств. Проводятся эксперименты по увеличению адгезии расплавленного металла к поверхности микросфер, как с классическими микросферами, так и с микросферами, поверхность которых модифицирована покрытием, содержащим хром и карбид хрома. Продемонстрировано влияние адгезии на механические свойства [2].

Изучены основные параметры алюмосиликатных микросфер, образующихся на тепловых электростанциях России. Эти параметры определяют перспективное промышленное применение этих микросфер. Проведен сравнительный анализ свойств компонентов минерального угля, условий его горения, а также влияния химического и фазово-минералогического состава минеральных примесей в углях практически всех основных угольных месторождений на формирование микросфер. Рассмотрено влияние условий термической обработки на процессы газовыделения в минеральных частицах и на долю алюмосиликатных микросфер в летучей золе. Установлено, что при сжигании угольной пыли в печах с жидким шлакоудалением при прочих равных условиях выход микросфер выше. Проанализированы закономерности образования микросфер и рассмотрен механизм образования

микросфер в летучей золе при сжигании твердого топлива [3].

Ранее изучалось влияние микросфер золы алюмосиликатного типа на физико-механические свойства наполненного пенополиуретана (ППУ), полученного на основе простого полиэфира. Показано, что включение АМ приводит к увеличению вязкости наполненной композиции и изменению ее прочностных свойств. При этом коэффициент теплопроводности наполненного материала не изменяется [4].

Исследовано влияние полых алюмосиликатных микросфер на эффект Пейна, а также на физико-механические, термические, огнезащитные и теплозащитные свойства эластомерных смесей на основе этилен-пропилен-диенового каучука. На основании полученных результатов был предложен механизм взаимодействия эластомерной матрицы с микросферами. Усиление взаимодействия наполнитель – матрица и наполнитель – наполнитель способствует дополнительному трехмерному сшиванию, влияющему на набор физико-механических и термических свойств, и проявлению армирующего эффекта в слое кокса в условиях удаления эрозии и отслоения материала с высокоскоростным потоком газа. [5] Микросферы широко используются за рубежом для изготовления различных теплоизоляционных материалов, радиопрозрачной керамики, облегченных буровых растворов, цементных растворов и др.

Микросферы широко используются за рубежом для изготовления различных теплоизоляционных материалов, радиопрозрачной керамики, облегченных буровых растворов, цементных растворов и др. Было предложено использовать синтетические силикатные микросферы в качестве сорбентов для жидкостной хроматографии макромолекул, контрастных веществ для клинических ультразвуковых исследований, основа для компактных носителей электроники и др. В большинстве случаев алюмосиликатные микросферы, отделенные от летучей золы, могут эффективно заменять синтетические микросферы; однако использование этих микросфер в России

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крайне ограничено; обычно их вместе с золой вывозят на золоотвалы [6].

Микросферы, используемые в качестве наполнителей, подвергаются интенсивной нагрузке. Это может привести к их раздавливанию и потере плавучести. Поэтому наша цель здесь - изучить прочность микросфер на сжатие и оценить возможность их использования в качестве наполнителей. Большинство опубликованных исследований направлено на определение прочности микросфер как компонента других материалов (например, смол и пластиков) или моделирования частиц композитов. Была разработана методика прямого определения прочности микросфер на сжатие. Мы адаптировали эту методику для использования с испытательным оборудованием Института проблем материаловедения и для измерения плавучести микросфер, необходимой для определения прочности [7].

Зольные микросферы возникают в составе таких веществ, как золы-уноса в ходе сжигания угля, который выделяет большое количество тепла при сжигании. Зольные микросферы представляют собою пустотелые стеклокристаллические алюмосиликатные шарики, объем которых находится в пределах с 20 до 500 мкм. Отличают тонкостенные микросферы вместе с удельным весом вплоть до 0,7 г/см, а также толстостенные микросферы вместе с удельным весом вплоть до 2,2 г/см. Минусом тонкостенной микросферы является ее мягкость, а также умение легко и просто распадаться. В институте ТНИИХТ разработан способ получения алюмосиликатных микросфер из золошлаковых отходов Ангренской ТЭС. В процессе работы изучили химический составов стеклянной, зольной микросферы, полученной из алюмосиликатной микросферы и золошлаковых отходов [8].

Композиты, состоящие из связанных полых стеклянных микросфер, перспективны для конструкций, в которых необходимы материалы, сочетающие высокий модуль Юнга с низкой плотностью. Теоретически предсказаны упругие свойства композитов с идеально связанными полыми стеклянными микросферами. Термообработанные отливки микросфер из кварцевого стекла приближаются к теоретическому модулю Юнга снизу. Наилучший достигнутый результат - модуль Юнга около 1 ГПа при прочности около 0,8 МПа при плотности около 180 кг м⁻³. Это было получено путем

отливки микросфер из кварцевого стекла, связанных моно-фосфатом алюминия. Композиты, изготовленные прессованием соответствующих смесей микросфер / связующее с последующим нагревом, имели плотность ниже, чем у отливок, но имели модуль Юнга намного ниже теоретического значения [9].

В некоторых литературных источниках объясняется необходимость контролирования стехиометрию реакционноспособной смеси и природу катализатора и инициатора, используемого в процессе получения бикомпонентных систем. Это важно для того, чтобы оптимизировать свойства полимерных композиционных материалов в период их службы. Изучение оптимальных стехиометрических соотношений гарантирует хорошее качество конечного продукта с точки зрения его физико-химических и механических свойств [10].

Цель и методы исследования.

Целью исследования является синтез новой алюмосиликатной микросферы из золошлака и изучение влияния алюмосиликатной микросферы на физико-химические свойства вспучивающего огнезащитного покрытия. Алюмосиликатная микросфера получается из золошлака путём переактивации и термической обработки. Были получены огнезащитные покрытия с добавлением разных количеств алюмосиликатной микросферы. Проводились исследования в температурном режиме, секундомером определялось начало вспенивания, конец вспенивания, была определена максимальная температура вспенивания, толщина вспененного огнезащитного покрытия.

Результаты и их обсуждение.

Нами получены алюмосиликатные микросферы из золошлака путем переактивации (геополимеризации). Процесс синтеза идет следующим образом: измельчение золошлака до размера 50 мкм, активация с щелочным агентом, добавление органических модификаторов и других добавок. В конце реакции получается гелеобразная масса, которая легко измельчается, измельченная масса сушится при комнатной температуре до 10-15% остаточной влажности. Полученный активированный сероватый порошок обрабатывается при температуре до 800 °С. Полученные алюмосиликатные микросферы используются для получения огнезащитной вспучивающей композиции.

Таблица 1. Физико-химические параметры вспененного огнезащитного покрытия.

Алюмосиликатная микросфера содержание, масс. %	Время, с		Максимальная температура вспенивания, (°C)	Толщина вспененного покрытия, мм.
	Начало вспенивания	Конец вспенивания		
0	62	205	340	30
5	70	208	342	30
10	73	215	400	32
15	75	220	460	35
20	75	230	520	38
25	82	240	540	41
30	88	260	545	41

Физико-химические параметры вспененного покрытия (время начала и конца вспениваемого покрытия, подъема пены, максимальная температура вспенивания и толщина вспененного покрытия) контролировались секундомером, лазерным термометром. Из таблицы 1 видно, что концентрация алюмосиликатной микросферы влияет на характер полученного огнезащитного покрытия. При повышении концентрации добавляемой алюмосиликатной микросферы, время начала вспенивания покрытия влияет не значительно, повышается от 62 сек до 88 сек. Конец вспенивания тоже повышается, покрытие без алюмосиликатной микросферы заканчивает вспениваться за 205 сек, а у покрытия, которое содержит алюмосиликатную микросферу в количестве 25%, время вспенивания показывает 240 сек. Наличие алюмосиликатной микросферы существенно влияет на максимальную температуру вспенивающего покрытия. Максимальная температура вспенивающего

покрытия изменяется в зависимости от концентрации алюмосиликатной микросферы. При увеличении концентрации алюмосиликатной микросферы повышается температура вспенивания. Покрытия, без добавления алюмосиликатной микросферы, показывают максимальную температуру вспенивания 340°C, а при добавлении алюмосиликатной микросферы до 30% максимальная температура вспениваемого покрытия показывает 545°C. При повышении количества добавляемой алюмосиликатной микросферы замедляется вспенивание покрытия, при этом, в связи с замедлением времени вспенивания увеличивается толщина вспененного покрытия от 30 мм до 41 мм за счет равномерно закрытых пор. При испытаниях образцы не разваливались и не разрушались.

На рисунке 1 показаны полученная алюмосиликатная микросфера (рис. 1 а) и вспененные покрытия (рис. 1 б, в, г).

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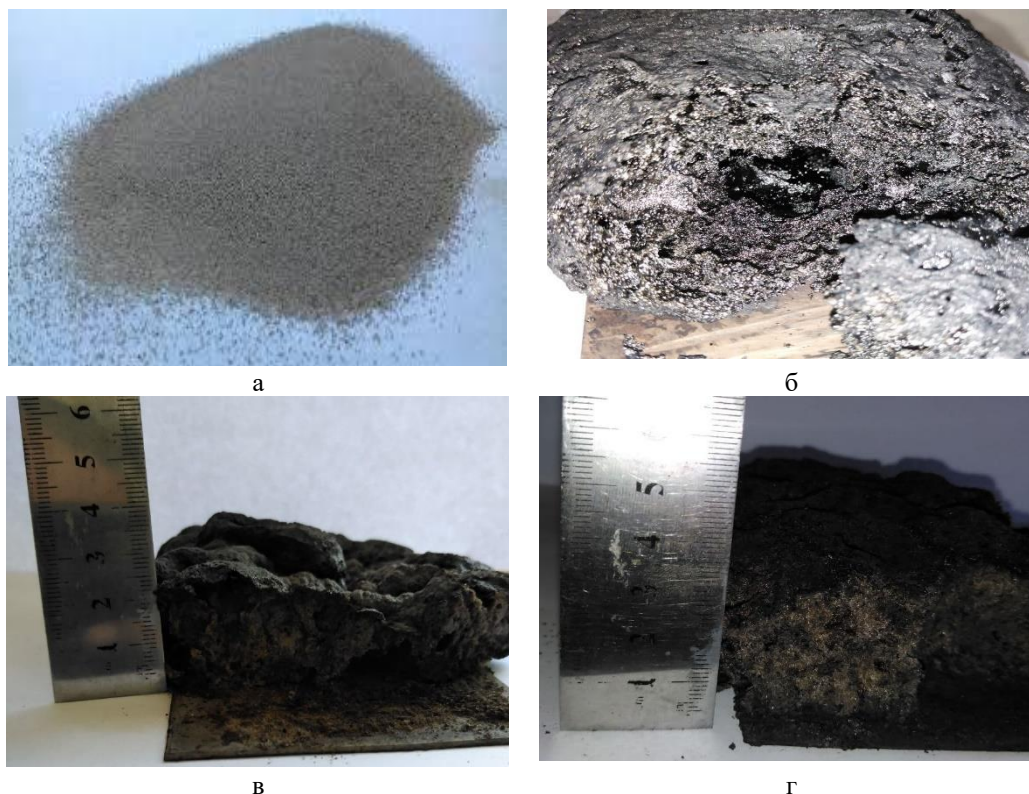


Рисунок 1. Полученная алюмосиликатная микросфера и вспененные огнезащитные покрытия. (а-полученная микросфера; б- вспененное огнезащитное покрытие без микросферы; в- вспененное огнезащитное покрытие с добавлением микросферы 10%; г- вспененное огнезащитное покрытие с добавлением микросферы 30%;).

На рисунке 1 а показана полученная алюмосиликатная микросфера с максимальным размером до 500 мкм. Без добавления микросферы полученное покрытие вспенено при 340 °С, но поры не равномерны и разных размеров (рис.1 б). С добавлением алюмосиликатной микросферы визуалью видно, что количество добавляемой алюмосиликатной микросферы влияет на толщину вспененного покрытия, на размеры пор и на равномерность покрытия (рис.1 в, г).

Выводы.

Таким образом, получена алюмосиликатная микросфера из золошлака и получено огнезащитное вспенивающее покрытие. Из исследований видно, что концентрация

алюмосиликатной микросферы влияет на свойства полученного огнезащитного покрытия. Наблюдается повышение конца вспенивания от 205 сек до 260 сек. Максимальная температура вспенивания повышается от 340°С до 545°С. При увеличении количества добавляемой алюмосиликатной микросферы замедляется вспенивание покрытия, при этом, в связи с замедлением времени вспенивания, увеличивается толщина вспененного покрытия от 30 мм до 41 мм за счет равномерно закрытых пор. Определено, что самым оптимальным количеством добавляемой алюмосиликатной микросферы на вспенивающее огнезащитное покрытие является 25 %.

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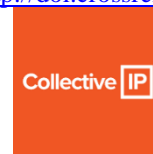
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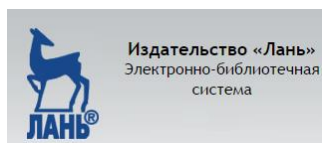
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