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IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 06 Volume: 98

Published: 12.06.2021 <http://T-Science.org>

QR – Issue



QR – Article



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ABOUT THE ADVANTAGES OF MARRIAGE BETWEEN QUALITY AND THE MARKET FOR FORMING PREFERENCES FOR FORMING PREFERENCES FOR CONSUMERS OF MANUFACTURED PRODUCTS

Abstract: In the article, the authors consider the most acute problem of the light industry - how to create a basis for a happy marriage between quality and the market, in order to please consumers in the regions of the Southern Federal District and the North Caucasus Federal District, which is in demand and enjoys preference over other manufacturers. We justifiably give preference to the quality of products, since the dependence of the assortment on the market is relatively conditional and indirect, because it is "tied" to the technical state of production, technology and professionalism of developers.

Key words: Marriage of convenience, quality, market, preferences, assortment, technical state of production technology, professionalism of developers, occupation of the market.

Language: English

Citation: Bordukh, D. O., Blagorodov, A. A., Tomilina, L. B., Prokhorov, V. T., & Volkova, G. Y. (2021). About the advantages of marriage between quality and the market for forming preferences for forming preferences for consumers of manufactured products. *ISJ Theoretical & Applied Science*, 06 (98), 331-346.

Soi: <http://s-o-i.org/1.1/TAS-06-98-35> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.06.98.35>
Scopus ASCC: 2000.

Introduction

UDC 685.34: 319.17

There are regularities the quality of a product is a measure of its use value, the formation of product quality at all stages of its life cycle, the disclosure of

which is the most important task of commodity science.

Today, the concept of "quality is interpreted differently in regulatory documents

GOST 15467 gives the following definition of a product - a set of product properties that determine its

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suitability to meet certain needs in accordance with its purpose. "

There is an opinion that such a definition narrows the concept of the essence of quality, because "certain needs in accordance with the purpose" mean something limited. For example, the sausage must be edible, the car must be driven, the house must have walls and a roof.

GOST R 50779.11 repeats the definition of ISO 8402: "Quality is a set of characteristics of an object related to its ability to meet established and anticipated needs."

Established needs are regulated by regulatory documents, implied - needs that must be identified and defined. The object in this definition means not only the PI product, but also the activity, process, organization, system, which allows you to design each process in the quality system - personnel, means of production, raw materials, technology, packaging, transportation, storage, etc. The adjective "perceived" needs emphasizes that needs and quality are unlimited.

In accordance with GOST R ISO 9000-2011 (identical to ISO 9000: 2008) "Quality Management Systems. Fundamentals and vocabulary ": "Quality is the degree to which a set of its own characteristics meets the requirements ", and we are talking about the requirements not only of the consumer, but of all interested parties. Thus, high quality is a high degree of satisfaction of the requirements of all interested parties (manufacturer, seller, consumer).

This definition does not contain the word "product" (or "object"), but this definition includes all aspects of quality, including the quality of a product, which has a set of its own characteristics and can be an object of quality.

Thus, when studying the quality of products (goods) in the course of commodity science of non-food products, we will be guided by the following provisions:

It is necessary to distinguish between the concepts of "quality" and "product quality", "product quality management" and "quality management". The concept of "product quality" can be interpreted in accordance with GOST R 50779.11. Product quality management is carried out at all stages life cycle products: pre-design, production, sales, consumption, disposal.

The term "quality" (a more comprehensive concept), that is, the degree of satisfaction of requirements, refers to quality management systems and is considered by economic disciplines. Quality management of each specific organization (for example, an industrial enterprise) is based on the principle: the only goal of the organization's work is high quality, that is, a high degree of satisfaction of all interested parties. In the quality management system of an enterprise, product quality is a must as a minimum.

Main part

The object of quality is a product that has a set of distinctive properties - characteristics.

"Requirements - a need or expectation that is established, assumed or obligatory" (GOST R ISO 9000-2011).

Thus, requirements are, first of all, needs. There is a hierarchy of needs. It is based on the basic needs (provision of food, clothing, housing), then (in ascending order) - the needs for safety, convenience and comfort of use, aesthetic, social needs. The top of the pyramid is made up of the needs of development (the need for creativity, the desire for self-expression). To satisfy needs, you need to express them quantitatively and qualitatively on the basis of certain criteria so that you can check them.

In accordance with ISO 8402, quality requirements are the expression of specific needs or their translation into a set of quantitatively or qualitatively established requirements for the characteristics of an object, in order to enable them to be realized or verified.

The establishment of quantitative requirements for the quality of goods is the most important condition for their development, production, sale, consumption.

Requirements for the quality of goods of specific groups (social, functional, ergonomic, aesthetic, reliability, safety, environmental) are regulated by the norms established in technical regulations, standards, technical conditions.

Based on the quality requirements for each product, a nomenclature of consumer properties and indicators is established.

Consumer properties - a set of properties that satisfy the needs or expectations of individual consumers. Thus, the nomenclature of consumer properties, in fact, determines the quality of goods, since it is a set of properties and indicators that determine the satisfaction of needs.

Property is an objective feature of a product (product) that manifests itself during its creation, assessment, storage and consumption (operation). Product properties can be simple or complex. A simple property is characterized by one feature, for example, the thickness of the textile thread, the hardness of the metal, etc. A complex property is a complex of features manifested in the aggregate. For example, the complex property reliability is a combination of such properties as reliability, durability, maintainability, and persistence.

Product quality indicator is a quantitative characteristic of one or several properties of a product included in its quality, considered in relation to certain conditions of its creation and operation or consumption.

The quality indicator quantitatively characterizes the suitability of the product to meet the needs in accordance with its purpose. So, the need to

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have a strong fabric is determined by the indicators "breaking load", "abrasion resistance", etc. Quality indicators can be expressed in various units and can be dimensionless. Each indicator has a name (product weight, vehicle speed, fabric whiteness) and a value (respectively 50 kg, 80 km / h, 4 points). Quality indicators are used to assess the conformity of products to the needs they meet.

Quality indicators, depending on the characterized properties, are divided into single indicators - they characterize the simple properties of the product (the strength of fastening of the shoe sole, the air permeability of the fabric) and complex - characterize the complex properties of the product (the reliability of the footwear, the hygienic properties of the fabrics).

Product quality indicators, depending on the purpose, are divided into basic and defining indicators.

Basic indicators - used for comparative characteristics of quality indicators, when it is necessary to determine the level of quality. The level of product quality is a relative characteristic based on a comparison of the quality indicators of the evaluated product with the baseline values of the corresponding indicators. The indicators of the best samples of similar products, created on the basis of advanced scientific and technical achievements, as well as indicators of standards or technical regulations, can be used as basic ones.

Defining indicators - indicators that are of decisive importance in assessing the quality of products. For each group of goods, its own set of defining indicators is regulated. For example, when assessing the quality of chipboard, the defining indicators are: bending strength, tensile strength, decorative coating hardness, resistance to temperature, abrasion.

The nomenclature of consumer properties and indicators is a set of properties and indicators that determine the satisfaction of real or perceived needs. That is, the nomenclature determines the quality characteristics of goods.

When classifying consumer properties, a hierarchical method is used, dividing properties at several stages of classification from the most complex to simple ones, and at the lower stages, single ones are distinguished.

Particular importance is attached to such basic complex consumer properties of goods as purpose, reliability, ergonomic properties, aesthetic properties, and safety.

Purpose - the ability of a product to perform the basic functions for which it is intended. Purpose refers to one of the defining properties of the quality of goods. If the product does not satisfy the consumer for its intended purpose, the rest of the properties lose their attractiveness. For example, if clothes and shoes do not sufficiently protect the human body from

adverse external influences, their reliability, aesthetic and other properties are not essential for most consumers. Depending on the needs to be met, the properties of the purpose are subdivided into subgroups: functional purpose; social purpose; classification purpose.

Functional properties (functional properties) reflect the ability of goods to fulfill their basic functions and satisfy basic needs. The performance of the main functions depends on the parameters of the product, the type of raw materials, and the quality of manufacture. The functional properties can be characterized by corresponding indicators, for example, the functional properties of the washing machine - the quantity and quality of the washed laundry.

The properties of the functional purpose of non-food products are characterized by the following data:

- performing the main function characterizing the degree of satisfaction of the most significant need (for example, creating and maintaining the required temperature in the refrigerator, boiling water in a kettle) when used as intended;

- perfection of auxiliary operations, determined by the peculiarities of the functioning of the product at different stages of commodity circulation (automatic defrosting of the refrigerator, irons with moistening);

- versatility of application, which determines the range of conditions and methods of operation (consumption) of goods for their intended purpose (for example, the ability of bicycles to ride on various roads, the ability of a scanner to scan text, photographs, and perform the function of a copier).

Social assignment properties - the ability of goods to meet individual or social social needs.

Social indicators are often the appearance of goods, the composition and content of individual components, for example, precious metals, stones, aromatic substances, etc. Often these indicators can be measured only qualitatively and are related to the psychological and physiological perception of the goods by the consumer. These indicators include the image of the product, the appearance (for example, the trendy color this season), sometimes the scent (for perfumes, creams, etc.) or sound (for audio equipment).

The properties of social purpose can be characterized by indicators of prestige, social targeting and obsolescence.

The prestige of quality is measured conditionally and is determined by the sociological method by questioning the priority and degree of importance of the quality indicators of goods for certain segments of consumers.

Social targeting can be measured not only qualitatively, but indirectly and quantitatively for individual goods. For example, clothes and shoes for

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children are determined by size, design features, color, etc., for all children's products, including food for children, an increased level of safety indicators is established.

Obsolescence is a decrease in the degree of customer satisfaction in a product due to changes and / or the emergence of new needs. The reasons for changing needs can be an increase in the quality of life: its material, social and / or cultural level; improvement of production under the influence of the achievements of scientific and technological progress; change in fashion, lifestyle; the formation of new needs (tastes, attitudes, etc.) through advertising, propaganda and other marketing methods. Obsolescence is not associated with physical wear and tear of goods. It is often significantly ahead of such wear.

Classification assignment properties - the ability of some properties and indicators to act as classification signs. Many indicators or properties (chemical composition and structure, functional properties, etc.) can serve as classification signs. For example, car models can be classified by Engine power, fuel consumption, carrying capacity, functional purpose (trucks, cars) and other characteristics.

Reliability - the ability of the product to maintain its functional purpose during storage and / or consumption (operation) within a predetermined time frame or the required MTBF. Operating time - the duration or amount of work of a product, measured in various units (days, years, kilograms).

Depending on the reliability criterion, the following subgroups of properties are distinguished: durability, reliability, maintainability and preservation.

Durability - the ability of goods to remain operational until the onset of the limit state or the established time for maintenance and repair.

Durability is more characteristic of non-food durables. Durability as an indicator of the preservation of functional purpose often conflicts with social purpose. Thus, many goods with significant durability become obsolete, having lost their social purpose. This applies to clothing, footwear, hats, and some difficult technical goods.

The service life of products, resource, etc. can serve as indicators of durability.

Service life - the duration of the life of the goods during which they perform their main functions.

Resource - the limiting possibility of using goods, fixed in regulatory documents, for example, the number of hours of work, the number of on and off (switches).

Reliability - the ability of goods to fulfill their functional purpose without the occurrence of defects, due to which their further operation is impossible or difficult. Reliability is characterized by the periods during which the goods are operated without failures

and failures, as well as the number of defects arising during the specified period.

The indicators of reliability can be the mean time to the first failure, the failure rate, and the probability of failure-free operation. The latter indicator means that no failure occurs within the specified operating time. In addition, safety indicators are the failure flow parameter, warranty time, mean time between failures, and repair times.

Failure flow parameter is the average number of failures of a remanufactured product per unit of time for a certain period. Warranty time - the life of the product, which is guaranteed by the manufacturer, subject to the operating conditions.

MTBF is a relative indicator that is characterized by the ratio of the total operating time of the product being restored to the total expected number of its failures during this operating time.

Maintainability - the ability of goods to restore their original properties, primarily functional purpose, after the elimination of identified defects.

Repair work is carried out to restore the basic properties of goods lost during operation or as a result of defects. Maintainability is typical for many non-food durables (household appliances, cars, etc.) and is closely related to durability, as it allows you to increase the service life of the goods.

Persistence - the ability to maintain the original quantitative and qualitative characteristics without significant losses for a certain period. If these losses do occur, they must be economically justified.

Preservation is inherent in all consumer goods, since storage is an inevitable stage in any movement of goods. This property is especially important for food products. Storage begins from the moment the finished product is released and continues until the disposal of the goods.

The indicators of the preservation of consumer goods are losses, the yield of marketable (standard) products, shelf life, shelf life. Preservation is closely related to the safety of many commodities, especially perishable foodstuffs, since the most important purpose of storage is to ensure safety.

Ergonomic properties - the ability of products to create a feeling of convenience, comfort; the most complete satisfaction of needs in accordance with the anthropometric, physiological, psychological and psychological and physiological characteristics of the consumer.

Ergonomics - a science that comprehensively studies a person in the specific conditions of his activity in order to optimize the means and processes of labor or operation (consumption) Thus, the ergonomic properties of a product are properties that determine the convenience and comfort of its consumption (operation) in the system "person - product - environment". They are aimed at optimizing the physical and mental load of a person.

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Ergonomic properties *subdivided on the the following subgroups:*

anthropometric, physiological (hygienic), psychological and physiological and physiological.

Anthropometric properties - the ability of goods, when consumed (used), to correspond to the greatest extent to the measured characteristics of the consumer. They are of the greatest importance in assessing the quality of non-food products, especially clothing and footwear. Therefore, in the design and development of products, data on anthropometric measurements of the population are used, on the basis of which the sizes of clothes, shoes, and hats are established.

In different regions of the globe, the anthropometric characteristics of people (height, fullness, waist, foot length and width, etc.) are not the same. As a result, the sizes of clothes and shoes produced in different countries do not correspond to each other.

To eliminate such barriers in international trade, manufacturers are striving to unify sizes by reducing their number (for clothing, some hosiery). So, for clothes in many Asian and some European countries, only five sizes are used: S, M, L, XL and XXL,

Indicators of anthropometric properties can serve not only the sizes of clothes, shoes, hats, but also the sizes of working parts of office equipment, household appliances, stationery, etc. The diameters of pens, pencils, markers are not accidental, they reflect the anthropometric characteristics of a human hand and provide convenience and rationality use. With their larger or smaller sizes, rapid fatigue sets in, and a feeling of inconvenience arises.

The dimensions of the furniture should ensure ease of use and comfort. In the case of dishes, the convenience of use is determined by the size, shape and design of individual parts (handles, lids, etc.). Anthropometric properties are typical mainly for non-food products, and for food products they are of limited use. The single indicators of these properties can be the size and shape of tobacco products (cigarettes, cigarettes, cigars), caramel products, the hardness of sugar refined, gingerbread, rusks and donuts. The hardness should be comparable to the strength of the teeth. So, stale gingerbread, crackers, bagels, when chewed, can lead to injury to the gums and teeth.

Physiological properties - the ability of goods to provide the convenience of functioning of individual organs or parts of the human body when using them.

In the process of consumption (operation) of goods, a person spends certain efforts, spending his energy. The less effort required when consuming a product, the better its functional properties. For example, indirect indicators of these properties can be the mass - clothing, shoes, dishes; the shape and volume of clothing, dishes; the design of controls for complex technical goods - handles, buttons,

handlebars. For the controls of household and other appliances, the optimal and maximum values of human effort are established, which allow to prevent increased fatigue with repeated exposure to these organs. The physiological properties of products should take into account the individual characteristics of certain segments of consumers for various reasons, for example, by age (products for children, the elderly, youth, etc.) and health status (for example, products for the disabled, left-handed people, etc.).

Hygienic properties non-food products are also associated with the impact on the living conditions of the human body and are subdivided into sorption, permeability properties, electrifying capacity, heat-shielding properties.

Sorption properties characterize the ability of materials to absorb or emit gas, vapor, water or other substances. For example, when assessing the hygienic properties of materials for clothing and footwear, indicators of sorption properties are determined: hygroscopicity, water absorption, moisture yield.

Permeability properties characterize the ability of materials to pass air (air permeability), moisture bunk (vapor permeability), dust (dust permeability), light (light permeability), dripping water (permeability, water resistance), etc. These properties are important for clothing, shoes, furniture.

Electrifying properties characterize the ability of a product to accumulate static electricity charges on its surface. Electrification when wearing clothes is unpleasant, and electrified clothes stick to the body and become dirty more quickly.

Heat-shielding properties characterize the ability of a material or product to transfer heat (thermal conductivity) and absorb it (heat capacity). Materials for the winter assortment of clothing, heat-insulating materials in construction, etc. should have heat-shielding properties.

Psychological properties - the ability of goods to provide the consumer with mental comfort during consumption (operation), to correspond to his individual perception of the goods. Mental comfort is a state of inner calmness, absence of discord with oneself and the world around.

Psychological requirements can be expressed through the perception of taste, color, volume and timbre of sound, brightness of the image, etc. For example, the perception of certain foods in certain regions of the world is determined by national, religious, family and other customs. Frog meat, which the French consider a delicacy, is not customary to eat in Slavic countries. Muslims do not eat pork, considering it an unclean product, and Hindus do not eat beef, since a cow in India is a sacred animal.

Certain psychological requirements are also imposed by the consumer on many non-food products, especially complex technical ones. For example, household audio and video equipment should correspond to the psychological capabilities of a

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person to perceive sound and visual information. Thus, an increased sound volume, a large number of frames or lines per unit of time, causes rapid fatigue, strong excitability of the nervous system. Therefore, long-term and frequent use of such products is unsafe for the health of consumers.

The psychological properties of non-food products, especially complex technical ones, are determined by the convenience of their operation, the ease of mastering their functional capabilities. For example, mastering the primary skills of working on a computer, and then switching to new models; the ability to develop skills for working with goods - driving a car, washing in a washing machine.

Psychological and physiological properties - the ability of goods to ensure compliance with the psychological and physiological capabilities and needs of the consumer. These properties comprehensively satisfy the psychological and physiological needs of a person.

Basically, they are characterized by organoleptic indicators, the basis of which is the psychological and physiological perception of individual properties of goods by a person using the senses. Organoleptic sensations depend on the physiological and psychological state of a particular person, which predetermines his needs. For example, in a state of fatigue, stress, depression, different people have different needs. Someone tries to relieve nervous tension with the help of alcoholic beverages, tea, coffee, tobacco products, someone - with the help of chocolate and sweets.

From the point of view of human physiology, this is understandable. With strong gustatory and olfactory sensations, the excitability of some parts of the cerebral cortex switches to others, which provide the perception of taste and smell. Ancient civilizations unconsciously developed techniques for relieving nervous tension with the help of various smells created by incense, fragrant herbs.

Aesthetic properties - the ability of a product to express social values in sensually perceptible signs of form and satisfy aesthetic needs of a person: information expressiveness, rationality of form, integrity of composition, perfection of production performance and stability of presentation.

The aesthetic properties of things are studied by aesthetics - the science of the essence and forms of beauty in nature, objects, artistic creation and life.

The majority of consumers have a desire for beauty and harmony, but different people have different ideas about them. Aesthetic needs are very individual, therefore it is rather difficult to ensure the aesthetic properties of goods and evaluate them.

Indicators of the aesthetic properties of goods are: the external (marketable) appearance, the integrity of the composition, design, fashion, style, information expressiveness, production excellence, etc.

Appearance - a complex indicator, including shape, color, surface condition, sometimes integrity. For the aesthetic perception of different goods, the significance of the listed individual indicators of appearance is not the same and depends on the characteristics of the goods.

The shape is characterized by geometric parameters. The perception of form is greatly influenced by the ratio of sizes. Aesthetic needs are most satisfied by a harmonious form, which is distinguished by an organic combination of sizes with geometric parameters and the purpose of the product.

For goods constructed from separate parts, their compatibility and direction of formation is important.

Color is determined by light waves of a certain length that are perceived by the human eye. For aesthetic perception, colors and colors are important. When choosing them, it is necessary to observe the basic provisions of color science.

The surface condition depends on the composition and structure of the substances or materials from which the product is made. The aesthetics of the surface is assessed by its condition (smooth, rough, fleecy, etc.), texture, and the presence of protruding parts. The aesthetic perception of the surface is influenced by the shape and color, and all three indicators are evaluated almost simultaneously and in combination, making up the integrity of the composition.

The surface condition of non-food products is characterized by texture and texture.

Texture - the structure of the surface of the product, determined visually. Along with color, the texture can ensure the harmony of the shape of the product. The texture is smooth and rough, shiny and matte, coarse and fine-grained. Each material (metals, fabrics, porcelain, ceramics, etc.) has its own peculiarities of texture, which can be changed, improved by surface treatment (grinding, polishing, applying colored glaze, embossing, etc.).

Texture - the state of the surface, characterized by the presence of visually determined elements of the internal structure of the material, for example, the presence of inclusions in jewelry stones, fibers in the cut of wood, creating a natural pattern. The texture can be natural (for natural materials) and artificial (for synthetic materials that imitate leather, wood, marble, etc.). Artificial texture is usually created by applying patterns corresponding to natural materials.

The visual perception of the state of the surface is also determined by the presence of drawings and inscriptions on it. Drawings can be in the form of images of people, flowers, animals, geometric shapes, information signs, etc. At the same time, drawings and inscriptions perform decorative and / or informational functions, and also create a mental perception of the state of the surface, for example, a certain texture or texture, shape and volume - there are techniques that allow you to visually increase or decrease the volumes

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and colors of goods. Therefore, the pattern on the surface of goods acts as a significant indicator not only of the state of the surface, but also of the overall appearance.

Integrity of the composition reflects the rational relationship of external signs with the internal structure and presupposes subordination to the main elements of secondary ones, the unity of the stylistic solution of all parts of the products.

For a number of non-food products, the integrity of the composition is characterized by the organization of the volumetric-spatial structure, plasticity, graphic tracing of the form and elements. The organization of the volumetric-spatial structure expresses the consideration of proportions, scales, rhythm and other constructive and artistic means of composition of products. Plasticity determines the expressiveness of the volumetric and elemental forms of the product.

Manufacturing excellence the product is determined by the thoroughness of the coating and surface finish, the cleanliness of the joints, information signs, packaging, etc.

It should be noted that the aesthetic perception of all indicators of appearance can relate not only to the product, but also to the packaging. Moreover, the aesthetic properties of packaged goods are largely determined by the external design of the packaging, under which goods with low aesthetic properties can be hidden.

Design - the ability of products to comprehensively satisfy aesthetic, ergonomic, social and other needs through their artistic design. Satisfaction of diverse needs and, first of all, aesthetic needs is achieved through a rational combination of indicators of appearance (shape, color, surface condition, etc.) with dimensions and indicators of functional and ergonomic properties. So, the beautiful shape of the products should be combined with ease of use (operation). The dimensions of the products as a whole or of their individual parts should ensure the harmony of form and functionality.

Design is an integral part of a particular fashion and / or style of goods. The development of product design plays an important role in designing a fashion direction and ensuring a certain style.

Style - the ability of goods to satisfy social and aesthetic needs using a set of indicators of appearance, design features and details, which are determined by the general perception of the world for a particular segment of consumers.

The style has been formed for quite a long time under the influence of historical, demographic, geographic, national, corporate and other factors.

Depending on the factors that shape the style, it is customary to distinguish the following styles:

- historical (antique, gothic, baroque, classicism, modern, etc.);

- geographical (European, Eastern, Latin American, etc.);
- national (Russian, French, English, etc.);
- social (individual, collective, corporate).

Like other subgroups of aesthetic properties, style satisfies not only aesthetic, but also social needs, since in most cases it also reflects the desire of people to be involved in a certain group of the population or era (to be modern). The style of goods, together with fashion, is an important means of creating the image of consumers (organizations or individuals) and satisfying prestigious needs as a kind of social need.

Fashion - the ability of the appearance of goods to satisfy aesthetic needs, formed or developed in a certain socio-cultural environment for a certain, limited period.

The fundamental features that characterize this property are individual indicators of appearance: the shape of the product as a whole and / or its individual parts (for example, a pointed, round or square shape of the toe of a shoe); color and / or color scheme (this is especially typical for clothes, shoes - the fashionable color of the season); the condition of the surface, including design details (for example, the presence of ruffles on dresses, blouses, accessories on shoes, furniture, etc.); the presence or absence of individual functional parts (for example, a heel on shoes, sleeves, belts - on clothes). The named indicators of fashion are ensured by selecting the most suitable types of raw materials, materials and developing a specific design.

Fashion is created by fashion designers to create new needs for products, in order to encourage the consumer to buy them, despite the fact that he has enough products for a similar purpose. Therefore, fashion acts as one of the most significant factors in the obsolescence of durable goods. At the same time, fashion is one of the important engines of scientific and technological progress, prompting fashion designers to create not only fashionable goods, but also to order the development of new materials and technologies.

Unlike style, fashion is a temporary community of formally artistic means expressing a certain attitude. At the same time when developing fashion. A certain style is taken into account. Fashion extends, as a rule, to the most mobile elements of the material environment and is a consequence of the natural tendency of people to make more and more beautiful and comfortable objects around them, used goods. The aesthetic perception of fashion is subjective and is associated with its direction, characteristic of a particular historical period. If long dresses or shoes with thin heels are in fashion, this is positively perceived by most consumers as a high level of aesthetic properties. Fashion is leaving, and the perception of these products can be exactly the opposite.

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Environmental properties - the ability of goods not to have a harmful effect on the environment during their production, storage, sale and consumption (operation).

The rapid development of technology with clearly inadequate environmental protection measures led to a noticeable deterioration of the ecological situation. The deterioration of the ecological situation is manifested in a significant pollution of the environment with biologically harmful substances, which affects the purity of air, water, food. Under these conditions, the degree of importance of ecological properties increases sharply. Despite this, the current regulations rarely establish indicators of the environmental properties of goods, although many consumer products do have such properties.

All goods pollute the environment to varying degrees at different stages of the distribution of goods. Thus, the greatest pollution of the environment in the form of waste and harmful emissions is observed in the production of various goods. For example, the main waste is waste of solid materials that were formed as a result of production: metal of all types, metal-containing (scale, slag), non-metal waste (wood, plastics, rubber, etc.), industrial waste, etc. Waste can be in the form of substances used or generated during technological processes (ash, wood chips, solutions of electrolytes, dyes, detergents, smoke and other waste gases). In addition to dust and industrial waste, the surrounding air of residential areas can contain toxic substances arising from the careless handling of household waste. For nude goods, after technological pollution, household pollution by packaging and pollution arising from operation and disposal are of greatest importance. An example of the environmental properties of cars is the content of harmful substances in exhaust gases.

Environmental problems are of a global scale. Many developed countries are implementing programs to solve environmental problems in various fields of activity. In accordance with the programs, research is invested, for example, in the search for alternative safe sources of energy, manufacturers who produce ecological products are encouraged at the state level. Many manufacturers, realizing the importance of environmental issues, are switching to the production of environmental products themselves.

At the international economic forum in Davos in 2007, the term "environmentally responsible consumption" was first voiced. An example of sustainable consumption is the well-known British clothing retailer Marks & Spencer, which has invested 350 million in a program to completely replace the textile materials of its entire range with environmentally friendly materials that can be recycled and reused during the recycling process.

Safety of goods. Currently, in legislative acts and standards, safety requirements are allocated to a special group as priorities.

According to the Federal Law "On Technical Regulation", "Safety of products, processes of production, operation, storage, transportation, sale and disposal is a state in which there is no unacceptable risk associated with causing harm to the life and health of citizens, property of individuals or legal entities, state or municipal property, environment, life or health of animals and plants".

With regard to the quality of consumer goods, safety can be defined as the absence of an unacceptable risk to the life, health and property of consumers during the operation or consumption of goods. Safety is the most important quality property that all consumer products must possess. Unlike other consumer properties, the deterioration or loss of which leads to loss of functional or social purpose, exceeding the permissible level of safety indicators translates the product into a dangerous category. Dangerous products are subject to destruction, and products that have lost other consumer properties are classified as conditionally suitable and can be used for industrial processing. In addition, the lost properties of products can be restored after appropriate elimination of defects,

For food and non-food products, regulatory documents (technical regulations, SanPiNs, etc.) establish complex safety requirements, which are called sanitary and epidemiological. These requirements cover chemical, radiation and biological safety.

Chemical safety - absence of unacceptable risk, which can be caused by toxic substances to life, health and property of consumers.

Substances affecting the chemical safety of goods are subdivided into the following groups: toxic elements (salts of heavy metals); mycotoxins; nitrates and nitrites; pesticides; antibiotics; hormonal drugs; higher alcohols and aldehydes; esters; furfural and oxymethyl furfural; monomers; prohibited food additives, dyes for packaging, polymeric materials (for specific goods).

Toxic elements have a significant impact on the safety of goods. According to the degree of importance, in decreasing order, they can be arranged as follows: arsenic, mercury, cadmium, lead, iron. These elements are taken into account when confirming that all food products meet their safety indicators. The exception is iron, the maximum permissible concentration (MPC) of which is set only for canned food in metal containers, wine and wine materials.

For non-food products, toxic elements are also regulated:

for crockery - cadmium (for all groups), for ceramic crockery - cadmium and lead; packaging materials - lead.

Chemical safety is especially important for non-food products that are in direct contact with food (dishes, packaging) or unprotected parts of the human

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body (clothes, shoes, children's toys, synthetic detergents, perfumery and cosmetic products), as well as emitting harmful substances during operation (vehicles, gas stoves, furniture made of particle boards and covered with phenol-containing varnishes, linoleum, facing, finishing materials, etc.). Hazardous substances released from non-food products can enter the human body through the skin or respiratory tract and cause poisoning, allergies, metabolic disorders, sleep disorders, the appearance of disorders of the nervous and cardiovascular systems, pain and other symptoms.

Toxic elements have a harmful effect on the human body when consumed internally (food), as well as in contact with unprotected parts of the body. Exceeding the maximum permissible concentration of toxic elements can cause poisoning of varying severity, sometimes even fatal.

Radiation safety - absence of unacceptable risk that can be inflicted on the life, health and property of the consumer by radioactive elements (isotopes) or ionizing radiation of these elements. MPCs for radioactive isotopes of cobalt, cesium and strontium, as well as radionuclides, are established as indicators of the radiation safety of food products. Of the non-food products, the most radiation-hazardous are some building materials (slate, asbestos, cement, etc.), mineral fertilizers, jewelry with refined precious stones exposed to ionizing radiation (for more details, see Ch. 10.)

Biological safety - absence of unacceptable risk that may arise from various kinds of bio-damage to goods.

Biological damage includes microbiological and zoological, including parasitological, damage.

Microbiological damage (disease) is caused by a variety of microorganisms. A distinction is made between bacterial and fungal diseases, which are the most common causes of food insecurity. At the same time, toxic substances accumulate in the products (mycotoxins - with mold, cadaveric and other poisons - with rotting, toxins of botulinus, salmonella, staphylococcus, E. coli, etc.), which cause poisoning of varying degrees, sometimes with a fatal outcome. Microbiological damage to non-food products occurs in the form of mold growth of fabrics, leather, furs and products from them. In this case, the damage caused is expressed in the loss of the mechanical strength of the materials.

Biodamage the second group (zoological damage) is caused by various representatives of the animal world (insects, rodents, birds). The result of such bio-damage is not only quantitative losses due to the eating of some of the goods by animals, violation of their integrity, but also the loss of safety, since damaged goods are contaminated with excrement (excrement) of insects, rodents and birds, and can also be infected with pathogenic microorganisms that

cause diseases such as foot and mouth disease, anthrax, plague, cholera, pseudotuberculosis, etc.

Mechanical safety - absence of unacceptable risk to life, health and property of consumers, which can be caused by various mechanical influences (shock, friction, puncture, deformation, etc.). Mechanical safety indicators are established mainly for non-food products: clothes, footwear (coefficient of seam thickness - for hosiery, requirements for seams and cuts - for linen garments, deformation of the toe and heel - for shoes, etc.), automechanical means (presence of seat belts, shock absorbers, absence of protruding parts in the cabin and on the body).

Electrical, magnetic and electromagnetic safety - absence of unacceptable risk that can be caused by the influence of electric current, as well as electric, magnetic and electromagnetic fields during the operation of complex technical goods.

When electrical goods are connected to sources of electric current, electric, magnetic and electromagnetic fields of various frequencies and powers are created. These fields have a negative effect on the human body if the permissible levels are violated.

A kind of electrical safety is electromagnetic safety, which in turn is due to electromagnetic compatibility in terms of ensuring the operation of devices and equipment, including household ones. The degree of impact on the human body depends on the type and brand of electrical goods, the duration of their operation and compliance with the rules of operation. Household appliances that create the strongest electric and electromagnetic fields include microwave ovens and televisions, computers, and mobile phones.

Thermal safety - the absence of an unacceptable squeak caused to the consumer by exposure to high temperatures during the operation and consumption of goods.

Heating devices must have thermal safety. It must also be ensured when serving and selling ready-made food products in a hot state.

Fire safety - absence of unacceptable risk to life, health and property of consumers during storage and operation of goods as a result of their ignition or spontaneous combustion.

Fire safety requirements are regulated by the Law of the Russian Federation "On Fire Safety". SN and Pami, Rules of technical regulations on fire safety and other documents.

This type of safety is inherent to a greater extent in non-food products, although if fire safety rules are not followed, almost all consumer goods, including food, can burn.

The highest flammability during storage is distinguished by such types of goods as ethyl alcohol, oil products, varnishes, paints, solvents, photographic and film goods, wood products, polymeric materials, paper, cardboard, which cannot be stored near heating

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appliances, open sources of flame, upon access sunlight.

Ensuring fire safety is essential when operating household electrical appliances, automobiles, electrical equipment, televisions, radios and other goods.

Product quality assurance is a set of planned and systematically carried out activities that create conditions for the release of products that meet the requirements of consumers. When implementing these measures, factors affecting the formation and preservation of the quality of goods are taken into account.

Factors influencing the formation of the quality of goods include: studying the market for goods, developing requirements for goods, quality of raw materials and materials, quality of construction and design, quality of manufacture, quality of labeling of goods.

The factors that preserve the quality of goods include: packaging, conditions of transportation and storage, sale and consumption (operation), technical assistance in service.

Factors shaping the consumer properties and quality of non-food products: chemical composition and properties of raw materials, structure of materials, design, production technology.

The chemical composition and structure of the initial substances and materials predetermine all the basic properties of goods, divided by nature into physical, chemical, mechanical, biological. Taking this factor into account, all the others are formed: design, technology, etc.

The starting materials are simple and complex substances characterized by constant chemical composition and specific properties. Indicators of these properties are density, temperature constants, spectral characteristics, etc., which are the basis for the identification of goods and various types of expertise.

There is a certain functional relationship between the amount of an element or chemical compound and the measured physical quantity, which is used to directly characterize the consumer value of a material or product. For example, the higher the carbon content in steel, the higher its hardness, therefore, the indicator of the amount of carbon is even indicated in the marking of steel. The quality of natural leather depends on the content of protein, tanning and fatty substances; synthetic detergents for fatty acid content; wood - on the content of cellulose and lignin. The content standards for these substances are indicated in the relevant regulatory documents.

An important factor is the influence of the constituent parts of the starting substances, in particular the functional groups that make up the composition of the molecules of the starting substances, namely:

- the hydroxyl group (-OH) in the composition of cellulose fibers (cotton, flax) causes a high hygroscopicity of 8-12%, good color ability, dependence of properties on moisture;

- carboxyl group (-COOH), amino group (-NH₂) in the composition of protein fibers (wool, silk, leather) provide good hygroscopicity - 11. -16%, good coloration, low electrification, the ability to form a network structure and, as a result, provide a high elasticity of fibers;

- the amide group (-NH) in the composition of polyamide fibers (nylon, enant, anide) causes low hygroscopicity - 4%, weak dependence of properties on moisture, mediocre coloration. increased electrification;

- the ester group (-COO) in the composition of polyester (lavsan) and polyacrylonitrile (nitron) fibers determines their hygroscopicity 0%, poor coloring, high electrification.

Thus, knowledge of the chemical composition of the starting materials makes it possible to predict the nature of possible changes in finished products during storage and operation, as well as to identify the goods.

The structure and structure of materials largely determine their properties. Often these concepts are identified. But under the structure is understood the nature of the bond and the sequence of the connection of atoms in the molecule, as in the primary structural unit of matter, and under the structure of the substance - the spatial arrangement of these structural units (molecules), the nature of integration into larger structural elements.

The whole set of substances is divided into low molecular weight and high molecular weight compounds. Accordingly, the transition from a low-molecular-weight state to a high-molecular one is accompanied by a change in properties. For example, ethylene is a gas and polyethylene is a solid.

Substances exist mainly in three states of aggregation: gaseous, liquid, solid. A separate form of matter is the plasma state. A plasma state is a special state of matter formed from ionized atoms and electrons or, in the general case, from positively and negatively charged particles in such proportions that the total charge is zero. It is a highly ionized gas. Thanks to the use of low-temperature plasma generators (plasmotrons), fundamentally new technologies have been introduced. Low-temperature plasma is used to obtain ultrafine powders of pure metals and other materials with predetermined properties.

Most of the technically important materials are solid body (crystalline and amorphous).

The properties of crystalline materials are highly dependent on the distribution of atoms. Crystalline substances have a strict three-dimensional periodicity of the internal structure. The crystal is represented

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graphically using a spatial lattice divided into several repeating identical elementary geometric bodies.

Most elements or chemical compounds, depending on the conditions, can change the crystal structure, which is stable at certain temperatures and pressures. This phenomenon is called polymorphism. Naturally, this changes not only the structure, but also the properties. For example: alpha-tin is a brittle semiconductor and beta-tin is a plastic material.

Thus, by transferring a material from one polymorphic modification to another, it is possible to control its properties, which is especially important in practice. Diamond and graphite are polymorphic modifications of carbon. The difference in their physical properties is a consequence of the unequal arrangement of carbon atoms in their crystal lattices. Using high-pressure technologies (9.8 10⁹ N / m²) at very high temperatures (1400-2000 ° C), diamond is obtained from graphite.

In amorphous materials, the arrangement of atoms is close to that in liquids. The main characteristic of amorphous bodies - isotropy - lies in the same properties in all directions. Unlike crystals, they do not have a definite melting point; the body continuously passes from a solid to a liquid state in a wide softening range.

Among non-metallic materials, polymers are of great importance. Polymers are substances whose macromolecules consist of numerous units (monomers) of the same structure. These include most of the materials from which consumer goods are made: plastics, rubbers, rubbers, adhesives, sealants, paints and varnishes, natural polymers (natural rubber, cellulose and protein fibers, asbestos). The molecular weight of the polymers ranges from 5,000 to 1,000,000.

In contrast to low molecular weight crystalline substances, polymers have special properties. They exist only in a condensed state: solid (crystalline or amorphous), highly elastic (rubbery) and liquid (viscous-fluid). Most polymers are characterized by the simultaneous coexistence of crystalline and amorphous phases in different ratios.

The basic molecular unit (macromolecule) of a high-molecular compound in an extended state can be represented as a long chain consisting of hundreds and thousands of atoms or atomic groups linked by major valence bonds. The length of such a chain is thousands and tens of thousands of times greater than its transverse dimensions, which determines the great flexibility of linear macromolecules (chains), the links of which, under the influence of thermal motion, easily rotate relative to each other. The ability of a flexible macromolecule to change its shape under the influence of external conditions provides high elasticity of the polymer and materials based on it. According to the shape of macromolecules, polymers are divided into linear, branched and spatial

(reticular), respectively, the properties of these polymers are different. For example:

The properties of polymers and products made from them are determined by the chemical composition, structure, as well as above the molecular structure, that is, by the mutual arrangement of macromolecular chains relative to each other. The term "supramolecular structure" means any structure formed as a result of different packing of macromolecules in space. There are 4 types of supramolecular structure:

globular structure - characteristic for amorphous polymers, fragile collapsing upon impact; fibrillar - characteristic of well-ordered amorphous polymers:

lavan, collagen fibers in the skin of an animal. Formed from bundles of longitudinally oriented macromolecules, which form macro fibrils, and those, in turn, fibrils (fibers) with high mechanical strength; lamellar (striped) - characteristic of rubbers, formed from straightened

molecules connected in bundles, and then in multilayer plates - lamellas; large structural formations in crystalline polymers: spherulites (consisting of rays formed by alternating crystalline and amorphous areas) and crystallites (flexible packs that are docked with each other with a flat side, forming plates that are layered, forming regular crystals).

Gradation of the structure of solids. The structure of the material in general can be represented as a hierarchical sequence of substructures, the coarsest of which is the macrostructure, which is a combination of large structural elements visible with the naked eye or through a magnifying glass (the location of annual layers in the end section of wood, threads in the fabric). The study of the macrostructure plays a major role in the detection of defects. Then follows the microstructure - this is a mutual combination of structural elements visible only under an optical microscope (microstructure of fibers, leather, paper, etc.). The next structure is atomic and crystalline. These structures are also called fine structure and are studied using electron microscopes, X-ray diffraction and spectrophotometric analyzes.

Design is one of the most important factors in the quality of finished products. The design is the shape, size, method of connection and interaction of parts and assemblies, "the relationship between individual elements, interchangeability, many operations and other features of the product. The design should ensure functionality, ergonomics, aesthetics, safety, reliability in the use and operation of products.

Production technology is a set of techniques, methods and operations for obtaining, processing raw materials, materials, semi-finished products or products intended for the formation of basic consumer properties. Distinguish between the technology of plastics, metals, silicates, fibrous materials,

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mechanical engineering, construction, etc., as well as mechanical and chemical technology.

Mechanical technology is associated with a change in the shape and a number of mechanical properties of the processed materials: metal forming, cutting, stamping, pressing, etc.

Chemical technology is based on processes carried out as a result of chemical reactions and leading to a change in the chemical composition and structure of the initial substances: oil refining and the production of petroleum products, wood processing to obtain artificial fibers, leather production technology, etc.

Under the influence of mechanical and chemical factors of the technological process, the properties of materials and goods can change. For example, by firing ceramic products, they are imparted with hardness and mechanical strength. Metallization of plastic products improves aesthetics, increases impact resistance, reduces the tendency to aging, and electrification. However, a violation of the processing regimes can lead to the appearance of defects that reduce the quality of goods. For example, a violation of the drying of ceramic products causes cracking, a violation of the cooling mode of molded plastic products - warping (distortion of the shape), etc.

Knowledge of the basic processes and operations of technological processing allows an expert commodity expert to understand the origin of defects in goods, to present reasonable claims to manufacturers.

Quality assessment is a set of operations performed in order to assess the conformity of a specific product to established requirements. Requirements are established in technical regulations, standards, technical conditions, contracts, technical specifications for product design. The carrier of the established requirements can be standard samples, reference samples, analogue goods. Failure to comply with a requirement is a non-compliance. To eliminate the causes of non-compliance, the organization takes corrective actions.

The main form of assessment is control. Any control includes two elements: obtaining information about the actual state of the object (for products - about its qualitative and quantitative characteristics) and comparing the information received with the established requirements. The comparison reveals the compliance or non-compliance of the actual values of quality indicators with the base ones. This operation ends with the establishment of certain gradations, classes, commercial grades, brands of products, which, ultimately, is associated with the decision to assign a certain gradation of quality to the product.

Gradation (class, grade) - a category or category assigned to objects that have the same functional application, but different quality requirements (GOST R ISO 9000-2011).

Products of different grades of quality differ in price, this makes it possible to satisfy the needs of consumers of two categories: quality-sensitive and price-sensitive. In addition, the division of goods into gradations in quality (of higher and lower quality) allows the rational use of natural, financial and labor resources that are not lost if products of low quality (for example, with acceptable defects) are sold at reasonable prices, and not destroyed. ... To make a final decision on the gradation of product quality, it is necessary to compare the actual and base values for the entire range of selected indicators.

A product is recognized as a standard product that meets the established requirements for all selected indicators. If a discrepancy is revealed for at least one of the determined indicators, then the product cannot be assigned a standard gradation, but only a lowered one - non-standard or defective.

Non-standard is a product that does not meet the established requirements for one or a set of indicators, but this discrepancy is not critical (dangerous).

Defect - a product with identified removable or irreparable inconsistencies in one or a set of indicators. After elimination of inconsistencies, the gradation of the goods can be changed. If the elimination has contributed to the improvement of all indicators to the established rate, the product is recognized as standard.

The sort of goods is determined by the quantity, type and values of the allowed deviations. The same deviations in relation to a higher grade are classified as defects (defects), to a lower grade - as permissible deviations. This content is embedded in the concept of the type of goods such as fabrics, garments and knitwear, shoes, dishes, haberdashery goods.

Difficulty groups (highest, first, second) - gradations that differ in the technical level of quality indicators. These gradations are inherent in household radio equipment, depending on the magnitude of the acoustic parameters.

Brand gradations are accepted for construction, chemical and other products. In one case, the division into brands reflects a measure of quality. In this case, the value of one or several quality indicators is taken as a basis: for cement and brick, compressive strength; for drawing paper - weight, rubbish, fracture strength, number of erasures maintained. In another case (fuel, lubricating oils, steels, adhesives), the division into grades primarily reflects the field of application. The gradations by quality groups (household soap, spring-particle boards), quality categories (videotapes), numbers (writing paper) are similar in meaning to the gradation of c0 brands, since the division is based on the normative value of a certain set of quality indicators.

Inconsistency and defects of goods

Non-compliance - non-compliance with the requirements (GOST and ISO 9000-2011). Defects are one of the types of inconsistencies.

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Defect - failure to comply with a requirement related to the intended or specified use (GOST R ISO 9000-2011). These two concepts have a common feature - non-fulfillment of requirements. The difference is that when defects are detected, legal liability arises if, due to their presence, the consumer cannot fully or partially use the defective product for its intended purpose. For example, canned food with such a defect as microbiological bombing cannot be used for food due to non-compliance with microbiological safety requirements. A variation of the concept of "inconsistency" can be considered the concept of "lack of goods". This term is regulated by the Law of the Russian Federation "On Protection of Consumer Rights".

"Lack of a product (work, service) - the non-compliance of the product (work, service) with the mandatory requirements provided for by law or in the manner prescribed by it, or the terms of the contract, or the purposes for which the product (work, service) of this kind is usually used or purposes, about which the seller (performer) was informed by the consumer when concluding the contract or the sample and or description when selling the goods according to the sample."

Defects are subdivided according to various criteria: the degree of significance, the availability of methods and means for their detection or elimination of the degree of harm caused, the place of detection. The classification of defects is shown in Fig. 1.

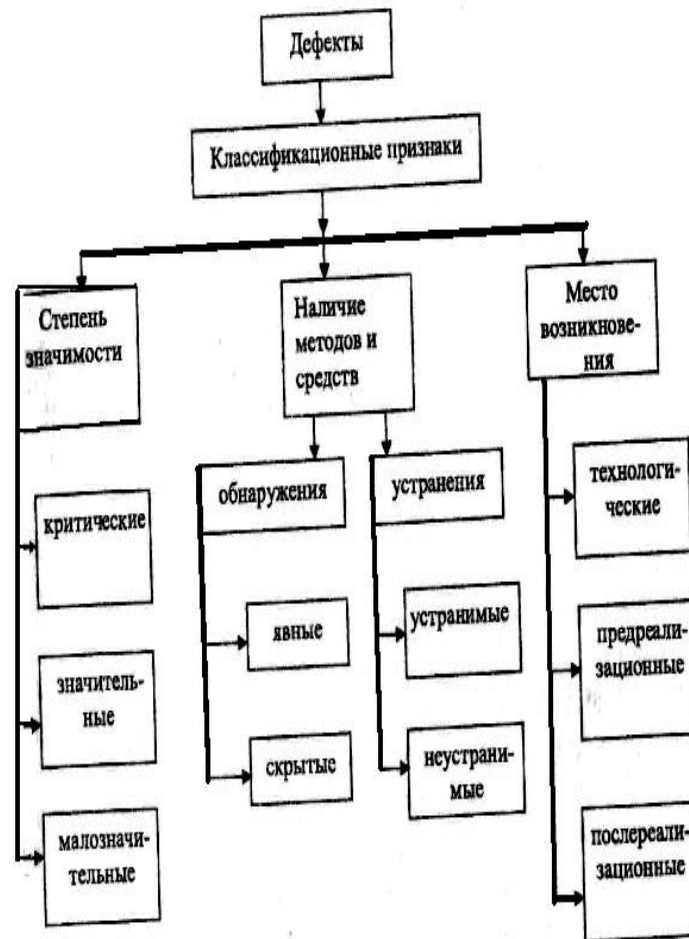


Fig. 1. Classification of defects

Conclusion

Quality control is of great importance in the manufacture of goods, their storage, transportation, sale and disposal.

As noted above, quality control is checking the compliance of quality indicators with established

requirements, which are defined in the relevant regulatory documents (standards, norms, rules, etc.) or in technical conditions. When making transactions, these documents are equated with the Terms of the Contract in the section "Quality Requirements", the main and special terms of delivery, etc.

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Quality control is carried out at different stages of the product life cycle, and the types and purposes of control at each stage may be different. At the production stage, quality control is carried out by the manufacturer. The purpose of such control is to reject low-quality products, as well as to establish the causes of defects. Close control is beneficial to the manufacturer.

At the stage of circulation, quality control is carried out to check the safety of goods during storage, transportation, and sale. The most important is quality control during the transfer of goods from one side to the other, for example, in transactions of purchase and sale, etc. These operations are carried out, as a rule, in accordance with the instructions "On the procedure for accepting industrial products and consumer goods by quantity" and "On the order of acceptance of products for industrial and technical purposes and consumer goods in terms of quality."

When delivering goods in order to preserve their quality and create conditions for timely and correct acceptance in terms of quality, the seller should ensure:

- observance of the rules of packaging and packing of products, marking and sealing of individual places;

- clear and correct execution of documents certifying the quality of the supplied products (technical passport, certificate of conformity, specification), shipping and settlement documents, compliance of the data specified in them with the actual quality of the supplied products;

- timely sending of documents to the buyer (consignee), certifying the quality of the goods;

- observance of the rules of delivery, loading and securing of goods.

Acceptance and delivery of goods - a section of the purchase and sale agreement, which describes the procedure for delivery and acceptance of goods: a) type of delivery and acceptance (preliminary and final); b) deadline for delivery-acceptance (in terms of quantity and quality); c) place of actual delivery-acceptance; d) quality acceptance method; e) the method for determining the quantity and quality of the actually delivered goods; f) who carries out the delivery and acceptance of the goods.

Acceptance - checking the conformity of the quality, quantity and completeness of the goods to its characteristics and technical conditions specified in the contract of sale. The content of the article of the contract (agreement) on the acceptance of goods in terms of quality and quantity depends primarily on the basic delivery terms accepted by the parties, as well as on the nature of the goods themselves.

The basic delivery condition determines the place of acceptance. So, if the parties have chosen the EXW condition (a term from the Incoterms reference book), then the place of acceptance of the goods will

be the territory of the plant. Under the FAS condition, the place of acceptance is the pier along the side of the vessel, where, according to this condition, the seller must store the goods. Thus, the delivered goods are accepted in terms of quality and quantity at the moment and place when and where the transfer of ownership of the goods and the risk of accidental loss or damage from the seller to the buyer occurs. The nature of the product determines the content of actions to check its quality and quantity.

If the goods are complex equipment, machine tools, machines, acceptance of its quality involves not only external inspection, but also checking at least part of the goods in operation. In this case, the buyer should be given the right to file a quality complaint within a sufficiently long period of 6-12 months.

If the goods are food, food, quality acceptance consists mainly of inspection and examination, as well as verification of documents certifying quality, production date, expiration date, etc.

Acceptance of goods in terms of quality can be carried out in two ways: on the basis of a document confirming the conformity of the quality of the delivered goods to the terms of the contract, and by checking the quality at the place of acceptance. The check of quantity and quality can be carried out selectively or for the whole delivered goods.

When using the first method, the contract establishes a percentage of the entire consignment to be checked. In the contract, it is imperative to stipulate by whom the delivery-acceptance of the goods is carried out. In the contract of sale, a clause may be made that, with the consent of the importer, the exporter has the right to deliver the goods without quality control.

Example. "The goods sold under this contract will be considered delivered by the Seller and accepted by the Buyer finally:

By gross weight and number of seats according to the bill of lading (either air waybill, or road waybill, or rail waybill, or postal receipt).

By net weight and other specified units as per shipping specification (either weight certificate or packing list).

In terms of quality, according to the manufacturer's certificate of quality or the Seller's letter of guarantee.

The place of acceptance and delivery of goods is considered to be the port of shipment - St. Petersburg."

Acceptance rules for certain types of products are established in a regulatory document - the standard of technical conditions for products, in the section of the same name. The rules include the procedure for product control, the procedure and conditions for the presentation and acceptance of products by the technical control bodies of the manufacturer and the consumer (customer), the size of the submitted batches, the need and time for holding the product before acceptance, a list of accompanying bearer

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 0.126
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

documentation, as well as the procedure for registering the acceptance results.

Depending on the nature of the product, test programs are established (for example, acceptance, periodic, typical, for reliability), and also indicate the procedure for using (storing) products that have passed the test, the need for selection and storage, samples for repeated (additional) testing, etc. . P.

For each category of tests, the frequency of their conduct, the number of controlled samples, the list of controlled parameters, norms, requirements and product characteristics and the sequence in which control is carried out are established.

For selective, or statistical, quality control, the control plan is indicated (the volume of the controlled lot, the volume of samples for piece or samples for non-piece products, control standards and decision rules). The section stipulates the rules and conditions of acceptance, the procedure and conditions for the rejection of products and the renewal of Acceptance after the analysis of the identified defects and their elimination. The section stipulates the procedure and conditions for the final rejection of products. In the same place, if necessary, the procedure and place for the application of stamps, stamps, seals, confirming the acceptance of products by the control authorities, is established.

References:

- (2008). *Quality management of competitive and in-demand materials and products*: Monograph / Yu. Mishin [et al.]; under the General editorship of doctor of technical Sciences, Professor VT Prokhorov. (p.654). Shakhty: Publishing house of GOU VPO "yurgues".
- (2012). *Management of production of competitive and demanded products*: VT Prokhorov [et al.]; under the General editorship of doctor of technical Sciences, Professor VT Prokhorov; VPO yurgues. (p.280). Novocherkassk: yurgtu (NPI).
- (2012). *Restructuring of enterprises-as one of the most effective forms of increasing the competitiveness of enterprises in markets with unstable demand*: monograph. NM Balandyuk [et al.]; under the General editorship of doctor of technical Sciences, Professor VT Prokhorov. FGBOU VPO "South-ROS. State. UN-t of Economics and service". (p.347). Mines: Fgbou VPO "yurgues".
- (2014). *Revolution of quality: through advertising quality or through real quality*: monograph by VT Prokhorov [et al.]; under the General editorship of doctor of technical Sciences, prof. VT Prokhorov; Isoip (branch) DSTU. (p.384). Novocherkassk: URGU (NPI).
- (2015). *Advertising as a tool for promoting the philosophy of quality of production of competitive products*. Kompanchenko EV [and others]; under the General editorship of doctor of technical Sciences, prof. VT Prokhorov; Institute of service and entrepreneurship (branch) Don state technical University of Shakhty: ISO and P (branch) DSTU, p. 623.
- (2015). *Assortment and assortment policy*: monograph / TV Prokhorov, TM Osina, EV Kononenko [and others]; under the General editorship of Dr. sci. Sciences, Professor VT Prokhorov, Institute of the service sector and entrepreneurship (Phil.) Federal state no. education.institutions of higher education. education "don state technical University. UN-t" in Shakhty, Rostov region (Isoip (branch) DSTU). (p.503). Novocherkassk: YURSPU (NPI).
- (2017). *The Concept of import substitution of light industry products: prerequisites, tasks, innovations*: monograph / Prokhorov VT [et al.]; under the General editorship of Dr. sci.Sciences, Professor VT Prokhorov; the Institute of service sector and entrepreneurship (branch) Don state technical University. (p.334). Novocherkassk: Lik.
- (2018). *Enterprise Competitiveness and product competitiveness-the key to successful import substitution of goods in demand by consumers of the southern Federal district and the Northern Federal district*: collective monograph / Prokhorov VT [et al.]; under the General editorship of Dr. sci. Sciences, Professor VT Prokhorov; the Institute of service sector and entrepreneurship (branch) Don state technical University. (p.337). Novocherkassk: Lik.
- (2018). *Management of real product quality and not advertising through the motivation of behavior of the leader of the collective of light industry enterprises*: monograph. OA Surovtseva [et al.]; under the General editorship of Dr. sci. Sciences, Professor VT Prokhorov; the Institute of service sector and entrepreneurship (branch) Don state technical University. (p.384). Novocherkassk: URGU (NPI).

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10. (2019). *The quality management system is the basis for technical regulation for the production of import-substituting products*: monograph / VA Golovko [and others]; under the General editorship of Dr. sci. Sciences, Professor VT Prokhorov; the Institute of service sector and entrepreneurship (branch) Don state technical University. (p.326). Novocherkassk: URGU (NPI).
11. (2019). *On the possibilities of normative documentation developed within the quality management system (QMS) for digital production of defect-free import-substituting products*: monograph / AV Golovko [et al.]; under the General editorship of doctor of technical Sciences, prof. VT Prokhorov; Institute of service and entrepreneurship (branch) Don state technical University. (p.227). Novocherkassk: Lik.
12. Aleshin, B.S., et al. (2004). *Philosophy and social aspects of quality*. - Moscow: Logos.
13. (2021). *Methodological and socio-cultural aspects of the formation of an effective economic policy for the production of high-quality and affordable products on the domestic and international market*: monograph / OA Golubeva [et al.]; with the participation and under the general ed. of kan. Ph. D., Prof. Mishina Yu. D., Doctor of Technical Sciences, prof. VT Prokhorov; Institute of Service and Entrepreneurship (branch) Don State Technical University. (p.379). Moscow: "Regulation".