

STUDY AND RESEARCH OF CHEMICAL TECHNOLOGY OF CERAMICS AND GLASSES

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ABSTRACT

The industries that use ceramics and glass products are also diverse, they are widely used in the production of tools and consumer goods, science, construction and agriculture. The main reason for this is that they have several important technical properties. Ceramic and glass products have high strength in compression and cracking, are resistant to burning, rotting and rusting, are resistant to electricity, heat and cold, soundproof and resistant to chemicals. In the main part of the cited materials, "Ceramics and glass classification" and "Ceramics and glass production technology" were briefly presented. Parallelism between the parts of this tariff was not allowed. In the last sections, important information on the production of building bricks, ceramic and porcelain products, refractory and technical products, window glass and crystal production were provided.

Keywords: Ceramic and glass products compression, details of optics such as lenses, prisms, active substances of laser technology, New ceramics and new glass products "Ceramics and glass production technology" were briefly presented. Parallelism between the parts of this tariff was not allowed.

INTRODUCTION

Materials and products based on ceramics and glass are extremely diverse. They can be monolithic in appearance (prefabricated construction, brick, porcelain, glass and steel products), [1] used in various fields - technology, construction and transportation, processed in different ways, and have different chemical composition.

In addition, ceramic and glass products are almost identical in terms of their main features, especially the type of raw materials used, production method and technological parameters [2]. Saying this, of course, does not lead to the conclusion that there is no change in the chemical composition of materials, working methods and methods [3]. But the difference is mainly due to the chemical and mineralogical composition of the produced materials, the mutual cohesion

of minerals and the properties related to them. The resulting substance is unstable and stable to the chemical environment, resistant or resistant to grass, cloudy and transparent[4].

The industries that use ceramics and glass products are also diverse, they are widely used in the production of tools and consumer goods, science, construction and agriculture[5]. The main reason for this is that they have several important technical properties. Ceramic and glass products have high resistance to compression and cracking, are resistant to burning, rotting and rusting, are resistant to electric current, heat and cold, soundproof and chemically resistant[6]. Ceramic and glass products occupy an important place among modern synthetic materials. Since ancient times, they have been widely used in the construction of houses and industrial enterprises, in the manufacture of machines and devices, and in the manufacture of various products[7]. Such artificial products, called "precious stones" and previously used only for making fine jewelry, are widely used in technology as high-quality dielectric and semiconducting materials[8]. Also, many optical details such as lenses, prisms, active substances of laser technology, and jewelry are made[9].

Modern technology and its fields such as space engineering, aviation, rocketry, mechanical engineering, power engineering, radio engineering, and nuclear industry exist at high and extremely high speeds, pressures and temperatures[10]. This, in turn, requires chemists to discover new types of traditional ceramics and glassware and artificial materials that can withstand the above conditions[11]. Among the modern solid objects created on the basis of scientific and technical progress, there are functional type ceramics created on the basis of ceramic technology and cital and citalized technical stones obtained by glass technology[12]. New functional ceramic products are technically called electrical ceramics, magnetic ceramics, optical ceramics, chemoceramics, bioceramics, thermal ceramics, mechanical ceramics, nuclear ceramics and similar names[13]. Scientific research on ceramic ashing in the production of engines, especially in the United States of America, Japan. It is widely practiced in developed countries such as Great Britain, France, South Korea, and Sweden[14]. Japan is one of the world leaders in the production of heat engines and electronics ceramics, and in the United States of America, the production of construction ceramics is being carried out at a rapid pace[15]. These products, whose production is increasing day by day, include ceramic turbocharger rotors, gas pipe linings, adiabatic and gas turbine engines, cutting tools, and more[16].

The creation of citadels obtained on the basis of glass products and technology made it possible to produce many materials with a zero or negative coefficient of thermal expansion, highly resistant to sudden changes in temperature[17]. These products are superior to metals due to their mechanical strength, resistance to abrasion, corrosion and acids, and high dielectric properties[18].

The large production of new ceramic and new glass products, the daily increase in demand for them in the world market, made it necessary to expand the raw material base of production[19].

Traditional substances such as kaolin, bentonite, loess, feldspar, sand, magnesite[23], limestone, dolomite, soda, potash retain their position, and the raw material base is a large number of natural and artificial compounds BeO, J_2O_3 , Al_2O_3 , ZnO, SnO, MgO, TiO_2 , ZrO, Fe_2O_3 , ZnS, BaS, CeS, BeS, CdS, SnO, SiC, TiC, Si_3N_4 , ThO₂, TiB₂, ZrB₂, ZnB₂, B₄C, BN, TiN, UO₂, ThS, UC, WC, US, etc. increased due to[20].

Searching for raw materials that are part of ceramic and glass technology and introducing new technologies based on them and improving the quality of manufactured products are among the current problems[21].

An attempt was made to cover as much as possible the facts about the types of natural raw materials found in Central Asia, including Uzbekistan, their properties and chemical and mineralogical composition. Also graining, flouring, collipation. information on drying and burning was also given sufficiently[22].

In the main part of the cited materials, "Ceramics and glass classification" and "Ceramics and glass production technology" were briefly presented. Parallelism between the parts of this tariff was not allowed. In the last sections, important information on the production of building bricks, ceramic and porcelain products, refractory and technical products, window glass and crystal production was provided.

The knowledge of technology refers to the knowledge of means and methods of processing materials. Therefore, we present some general information about the production process of silicate and its products.

The basis of the production technology of ceramics and fire-resistant materials, as well as glass and steel products, is the transformation of natural or artificial raw materials and materials (powder) into a technical monolithic stone characterized by complex properties to a certain extent.

Some parts of ceramics and glass technology can be schematically described as follows:

Technology of ceramics and refractory materials: raw materials → powder. preparation of plastic mass or slinker → «.polishing → drying → incineration → thermal mechanical or chemical treatment → sorting → packing — warehouse of goods;

Technology of glass and steels: raw materials → preparation of cement powder or briquettes → melting → crimping → thermal mechanical or chemical treatment → sorting → packing → storage of finished goods.

First of all, we will focus on the materials used as raw materials in the technological process. Raw materials such as clay, loess, feldspar, sand and fireclay, glass and steel products are used in the production of ceramics and refractory materials, and raw materials such as sand, limestone, soda or potash are used. As you can see, there is a lot of similarity in the types of raw materials used in the production of various silicate products. However, depending on the characteristics of the manufactured products, their ratio and type may change. For example: in the construction of FHLUTH, FOBUK and porous joints, easily liquefiable and low

temperature-resistant type of clay 1620 Klan is used. Various additives - quartz or quartz sand, iron oxides, limestone particles and organic compounds cause them to liquefy at lower temperatures. Fire-resistant clays are used to obtain fire-resistant materials.

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