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AREAS OF USE OF COMPOSITE MATERIALS MADE OF METAL OXIDES AND CARBIDE

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Abstract: In this article, tools made of composite material are used to produce smooth surfaces at low rotational speeds in the mechanical processing of very small surfaces. In order to eliminate such shortcomings, experiments were carried out and the technological processes of preparation by adding metals and metal-based hard-to-melt metal alloys were highlighted in order to expand the fields of use of tools..

Key words: Oxide, Carbide, Composite, Viscous, Strong, Cavenite, Converter, Heating, Baking, Powder, Milling, Alloy.

Enter Annealed ceramic materials are used in the mechanical processing of powder products where such materials produce viscous waste. The disadvantage of these materials is that they do not conduct heat well due to their low bending strength and low viscosity. For this reason, tools made of such composite material are used to create smooth surfaces at low rotation speed during mechanical processing of very small surfaces. In order to eliminate such shortcomings, experiments were conducted and in order to expand the fields of use of tools, the works of adding metals and metal-based hard-to-melt metal alloys were carried out and are being used now[5].

Al_2O_3+Mo(Ni, Co, Fe, Cr)
Al_2O_3+Mo_2C(WC, TiC+WC)
Al_2O_3+TiC+ Mo_2C yoki
Al_2O_3+Ti+TiC,

Carbide oxide mineraloceramic cutting materials are widely used among the tools with such composition. Technically, such campsite materials are called "Cavenite". (Al_2O_3+Mo_2C+TiC). Fast-cutting, rbid compounds make up 20-40% of the solid solution.
Hardness in the carbide phase is HB=2000
Bending strength-500N/mm2
The hardness of the hardened alloy prepared by heating is HB=1350-1750, the bending strength limit is 2KN/mm^2 [5]

The cutting speed of carbide oxide cutting tools is 2 times higher than that of hard alloys and 15-20 times faster than the cutting speed of cutting steels. Due to the high fragility of carbide oxide cutting tools, it has the property of using a very small layer of swarf on the metal surface without the influence of continuous external force[6].

Therefore, with the help of such tools, they are used in clean processing of metal surfaces and milling operations in a very thin layer. With the help of these tools, non-ferrous metals, cast iron, polymer and graphite materials are mechanically processed.

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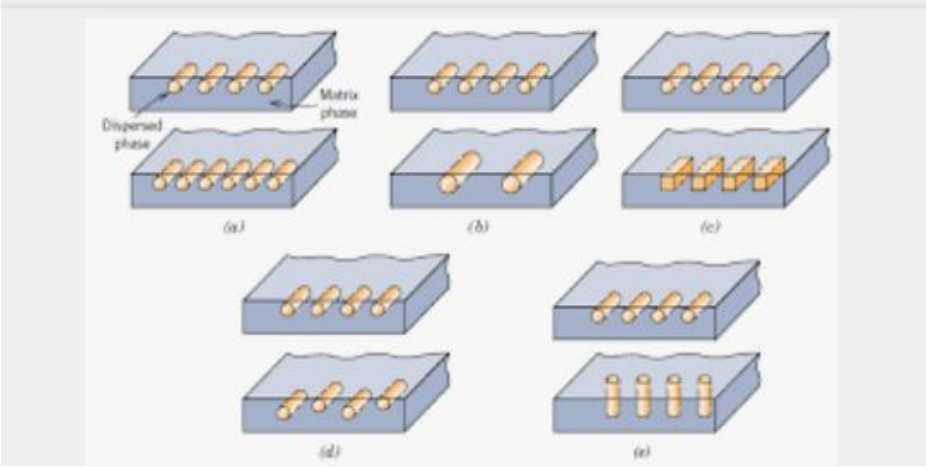


Figure 1. Composite materials

Hard-melting metal oxide composite materials in the field of metallurgy. In the process of metal melting, thermocouples inserted into the liquid metal are always covered with a tube-shaped fabric to protect them during temperature measurement. "Cermet" composite materials are used in order to ensure that this material is resistant to decay under the influence of liquid metal, and is very resistant to the influence of molten metal in the bath for several hours[7].

ZrO_2+Mo, Al_2O_3 (TiO_2)+Cr(MoW)

ZrO_2+Mo= in a composite alloy

Mo=13-25%.

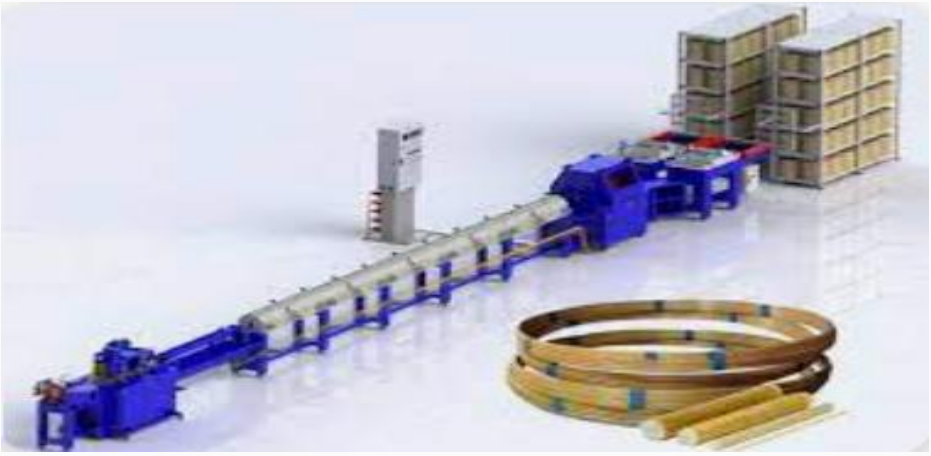


Figure 2. Composite fittings

Such a protective fabric is used in the production of steel products by processing metals in the presence of oxygen in "Converters" with the presence of composite materials. Composite materials ZrO2+Ti prepared by hot baking are showing good results in the future as a protective material in metal melting furnaces..

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