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POLISHING MATERIALS FOR METAL SURFACES

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Abstract: This article provides extensive information about composite materials that smooth the metal surface. In this technological process, during the preparation of materials, the mixture in the form of powder is pre-deformed, pressed under the influence of a certain force, and achieved as a result of thermal treatment.
Key words: Composite, polishing, silicon carbide, diamond, bornitrite, bronzes, iron, steel, cobalt, rubber, magnesite, silicate, bronze.

Enter: Composite materials used for grinding metal surfaces are made of aluminum oxide, silicon carbide, diamond or cubic bornitrite, as well as binders. In the preparation of these materials, the mixture in powder form is pre-deformed, pressed under the influence of a certain force, and prepared by thermal treatment[2].

1) 1) Various types of bronzes, iron, steel, cobalt metallic with metal-based material
2) 2) annealed hard alloys. By adding elements of nickel, iron, and copper, it ensures that the powder particles adhere well to each other and become strong.
3) 3) Bonding materials in the form of polymers are bonded with diamond particles Al_2O_3 and SiC, phenolpharmldegite or epoxides are used. In this case, at a temperature of 180-190 ^oC, the polymer matrix becomes soft, therefore, in order to prevent rapid erosion of the tool, the wetted cooling liquid is polished in the presence of the material.
4) 4) Bonding materials in the form of ceramics are used to hold small particles of corundum, silicon carbide, and even for individual diamonds. it works well.

5) Graphite binders work well for diamond grinding abrasive stones. Such materials have the same low electrical conductivity and friction as metal compounds, similar to polymer ceramic compounds.
6) Rubber fasteners are used with bornitrite, carrund and carbide, which have a round and cubic structure, which is made elastically with diamond. [6]As a rubber product, the mixture with synthetic rubber fillers and abrasive materials is vulcanized at a temperature of 120-160 ^oC. The tools made by this method will not break and fall apart and will be strong in profile[7].
7) Magnesite and silicate binders: it is used in the preparation of round abrasive stones made of AL_2O_3 and SiC. The binder in the form of silicate is removed from the liquid glass solution and proCessed at 200-300 ^{oC} [8].

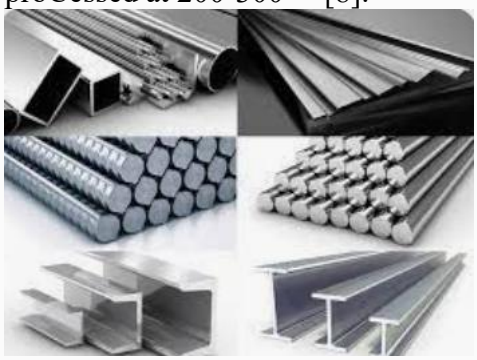


Figure 1. High quality steels

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Various fillers are added as a binder to increase the durability of diamond abrasive tools. Such fillers (coal, graphite) and thick alloy consist of AL_2O_3, SiC, WC, B_4C. Because of this, it increases its frictional wear.

Abrasive materials with diamond content.[9]

Polishing tools are made from natural and artificial diamonds. Due to the non-uniform nature of natural diamond particles, they are fixed with polymer binders. Each diamond particle around the metal-coated connector (N1-Nickel) increases heat conductivity, so during use, the phenomenon of overheating of the tool ^oC curs everywhere. Diamond abrasive stones are prepared by mixing the tools with powdered diamond and binder material and then machining them under pressure[10].



Figure 2. 5D Diamond Painting



Figure 3 Senzi Butterfly Diamond Paintings Heat treatment with polymeric binders is carried out at a low temperature of 160-180 ^{oC}.

Bronze fasteners are fired at a temperature of 650-800 ^oC, iron-based alloy and cobalt metal fasteners are fired at a temperature of 900 ^oC, hard alloys are fired at a temperature above 1000 ^oC. During annealing, the fixture material is made of (chromium and nickel) or graphite. In order to prevent the diamond from turning into graphite during the heating period, it is carried out at a temperature not exceeding 900 ^{oC}. Soft materials are treated with abrasive tools with large particles. It is used for obtaining a large layer of scum. For hard materials, it is processed with fine-grained abrasive tools. Metal-based compounds are used in the proCessing of high-precision parts, as they are resistant to friction and corrosion.

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