

WHAT ARE MINERAL POWDERS HOW TO USE CORUNDUM AND SiC?

Hard mineral powders have long been indispensable in numerous industries and products of daily life.

A very important field of application for the high-purity white high-grade corundum is surface coatings. They increase the scratch resistance or abrasion protection of the respective layer. Specially coated corundum grains have been used for decades in furniture surfaces, worktops and flooring as a functional additive which, due to its physical properties, disappears invisibly into the melamine.

When functionalizing the corundum, an extremely thin layer of an organic adhesive group is applied to the corundum particles. This causes a chemical integration into the melamine resin matrix and thus enables the scratch/abrasion resistance..

However, the advantages of white high-grade corundum can also be used profitably in combination with other binders, for example in powder and UV coatings.

In addition, corundum is increasingly being used in components with electrical elements as an insulator that also has a heat-dissipating effect.

Various corundum are used not only to protect ramps and highly wear-resistant industrial floors.

This mineral can also be the material of choice for introducing an anti-slip function into floors and other surfaces.

Compared to corundum, SiC is harder and more brittle. The areas of application are diverse and range from classic abrasives to hard concrete aggregates that make industrial floors abrasion-resistant and conductive. conductive and gives vaults their special resistance.



Specially coated corundum grains have been used for decades in furniture surfaces for decades

It is used in engineering ceramics, where it is used as an abrasive. In engineering ceramics, it is used due to its low weight and low thermal expansion. SiC is also a semiconductor and is used in the manufacture of blue light-emitting diodes, for example. The glitter effect in dark colors (e.g., facades, plasters) is also very pronounced with SiC

Corundum, both in white and pink, and brown form, is the world's by far the most used abrasive. However, SiC is also often used for this purpose. The physical properties of the grains are decisive for the resulting abrasive type.

In general, the following applies to corundum: the purer the harder. Toughness, in turn, is increased by the addition of various metal oxides and a shortening of the cooling process during production.

	Characteristics	Machined materials	Grinding application
Silicon carbide	very hard, very brittle	Cast iron, carbide, glass, plastics, non-ferrous metals, partly ceramic materials, stainless, acid & heat resistant steels, hardened high alloy steels up to 65 HRC; nitriding steels	all grinding processes
White high-grade corundum	hard, brittle	unalloyed, alloyed, unhardened & hardened steels up to 63 HRC (carbon content - 0.5 %, tensile strength approx. 500 N/mm ²), nitriding steel untreated, cast steel, nodular cast iron GGG, malleable cast iron, tool steel, steel hard chromium plated	universal for all precision grinding processes such as external & internal cylindrical grinding, surface grinding, tooth flank grinding & tool grinding
Ruby corundum	tougher, but equally hard as white corundum	High alloy, tough steels such as HSS & tool steels	Special applications such as profile grinding of high-alloy steels, tooth flank grinding, external cylindrical grinding
Semi-precious corundum	less hard, but tougher than white high-grade corundum	unalloyed, alloyed, unhardened & hardened steels up to 63 HRC (carbon content - 0.5 %, tensile strength approx. 500 N/mm ²), nitriding steel untreated, cast steel, nodular cast iron GGG, tool steel	especially suitable for centerless & external cylindrical grinding

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