



Technical Ceramic Magnesium Oxide

Magnesium oxide belongs to the high temperature ceramics group.

It has excellent electrical insulating properties even at high temperatures and also a high thermal conductivity and melting point.

Materials from Rauschert

- RAPAL® 300 Aluminium oxide
- RAPAL® 200 Aluminium oxide
- RAPAL® 100 Aluminium oxide
- RAPAL® 200 AZ
Zirconia toughened Aluminium oxide
- RAPAL® Aluminium oxide
- RAPOX® Aluminium oxide
- Zirconium oxide
- Silicon carbide
- Silicon nitride
- Pyrolit Cordierite
- Steatite
- Porcelain
- Porous ceramics
- Ceramic coatings
- Magnesium oxide



- Varistor ceramics
- PTC-ceramic

Rauschert at a glance



Technical Ceramics



Technical Plastic Components



Functional Components



Energy & Engineering

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Material

Magnesium oxide is obtained from seawater, brines or by mining from magnesite deposits.

After a calcination process, to convert to periclase, it is fused in an electric arc furnace. After that it is selectively crushed and ground to the desired particle size.

Depending on the application Rauschert can supply MgO purities from 94 - > 99% and also a selection of grain sizes to suit the application (information on request).

Additionally porous steatite C230, porous spinel and porous alumina are available for the same applications.

Production

MgO products are normally produced by extrusion and can have various shapes and numbers of holes.

The parts are dried, cut to length and sintered.

The hardness of the MgO products (so-called crushables) can be varied in wide ranges to suit the application.

Rauschert can also produce MgO products by injection molding or dry pressing; these methods are particularly suitable for larger quantities (more information on request).

Characteristics

Chemistry

	RM 94	RM 96	RM 98	RM 98TE	RM 99	RM99ASTM	RM99SW
MgO (wt%)	> 94	> 96	> 98	> 99	> 99,3	> 99,4	> 99,6
CaO (wt%)	< 3	< 1,5	< 1,20	< 0,35	< 0,35	< 0,35	< 0,2
SiO ₂ (wt%)	< 3	< 2,0	< 0,80	< 0,35	< 0,35	< 0,13	< 0,12
Al ₂ O ₃ (wt%)	< 1	< 0,90	< 0,90	< 0,25	< 0,25	< 0,15	< 0,15
Fe ₂ O ₃ (wt%)	< 0,3	< 0,15	< 0,13	< 0,12	< 0,12	< 0,04	< 0,1
Cd (ppm)	< 20	< 10	< 10	< 10	< 10	< 10	< 10
B (ppm)	< 30	< 20	< 20	< 20	< 20	< 20	< 30
C (ppm)	< 300	< 300	< 300	< 300	< 300	< 300	< 300
S (ppm)	< 30	< 20	< 20	< 20	< 20	< 20	< 20

Potential

Application*

	HC, (CH)	TC, HC, CH	CH	TC	CH	TC	TC

Mechanical properties

Density (g/cm ³)	2,20 - 2,45
Open porosity (wt%)	30 - 42

Thermal properties

CTE 20 °C - 800 °C (*10 ⁻⁶ /K)	13
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*HC: Heating Cable, CH: Cartridge Heater, TC: thermocouple

Applications

Due to its high thermal conductivity, excellent electrical insulation and high melting point MgO is suitable for high temperature applications.

The MgO shapes produced can be supplied in the hard form for sheathed heaters and high watt density cartridge heaters, or in crushable form for thermocouple cables, heating cables, fire resistant cables and glow plugs.

The shapes formed maintain the separation distance between each conductor, conductor to heating element and sheath, also sheath to conductor and or thermocouple.

Enquiries

For quotation please send a drawing of your part together with MgO purity, hardness required (or application and working temperature), tolerances and quantities.

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