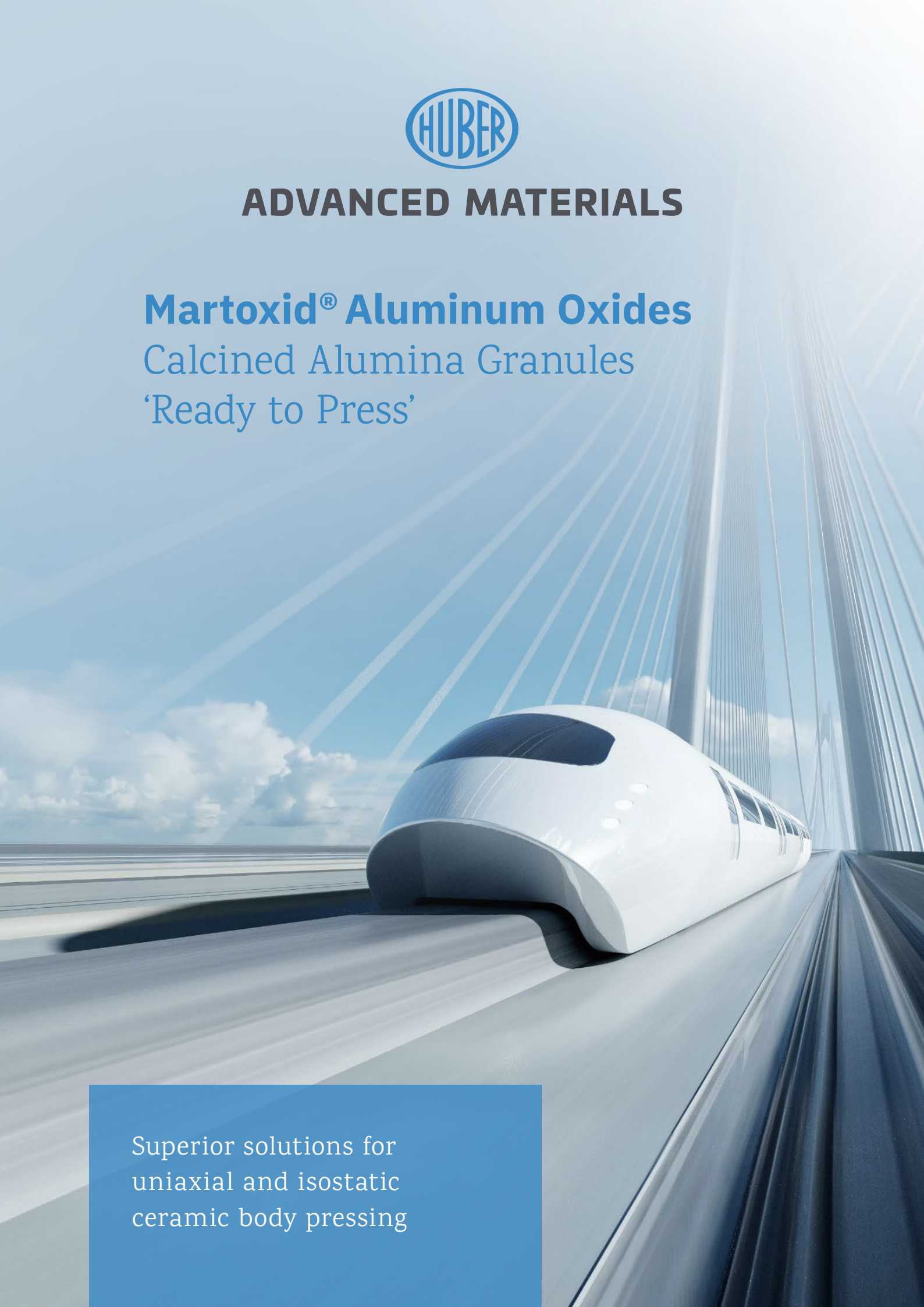
ADVANCED MATERIALS

Martoxid® Aluminum Oxides

Calcined Alumina Granules ‘Ready to Press’

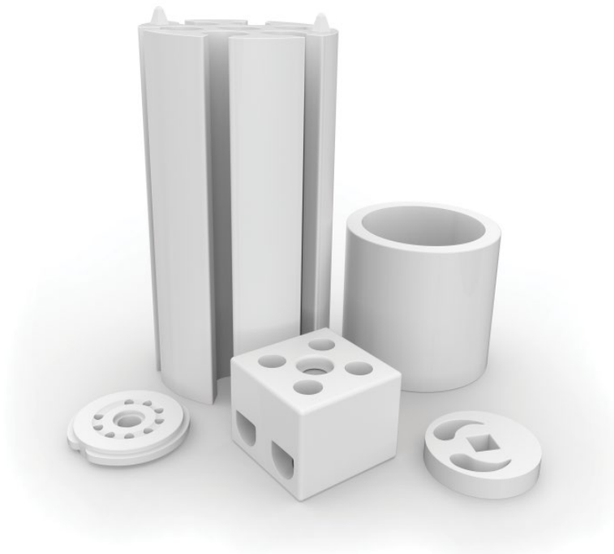


Superior solutions for
uniaxial and isostatic
ceramic body pressing

Pioneering **spirit**

Our pioneering spirit leads to an exclusive and unique line of Martoxid® ‘Ready to Press’ granules to enhance your specialized ceramics applications

Huber Advanced Materials pioneered the development of a new generation of granules to meet the specialized needs for ceramics, and in particular for uniaxial and isostatic pressing. Using our many years of experience spent fine-tuning our applications expertise, we have designed a wide range of ceramic Martoxid® ‘Ready to Press’ grades with Al_2O_3 content ranging from 94% to 99%. **Martoxid® KMS ready-to-press** products are designed to produce engineered ceramics, electronic components, anti-wear components and other high performance applications.



A carefully controlled manufacturing process combined with constant process monitoring and detailed quality control ensure the production of consistently high-grade feed stocks with consistent product characteristics. High performing raw materials that are controlled by Huber Advanced Materials form the basis of these grades. The result culminates in a spray dried granulate that **exhibits superior ceramic properties** for pressed bodies. Of particular advantage is the moderate sintering temperature range, as the recommended firing temperature lies between 1150 °C and 1630 °C.

Carefully controlled
manufacturing process with constant monitoring

Huber Advanced Materials has a proud history of being a cooperative partner with its customers. This framework has resulted in creating value-driven solutions for a variety of ceramic requirements. We have demonstrated that we have the experience and know-how along with superior customer and technical service to deal with your feedstock preparation. Now, it’s time to learn more about our specific Martoxid® ‘Ready to Press’ offerings.

Martoxid® KMS ‘Ready to Press’ products and features

↘ Feedstock

94 – 99% Al_2O_3

↘ Grades

Martoxid® KMS-94
Martoxid® KMS-96
Martoxid® KMS-98
Martoxid® KMS-99

↘ Properties

- Custom Made
- Superior Workability
- Good Pressability (Uniaxial + Isostatic)
- Excellent Sintering Behavior
- First-Rate Ceramic Properties
- High Wear Resistance
- High Mechanical Strength
- Excellent Price Performance Ratio

↘ Applications

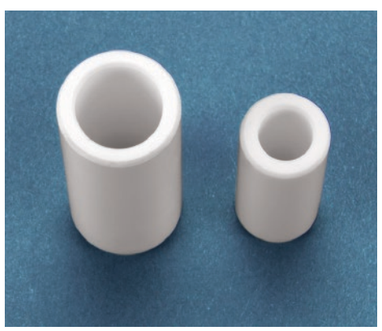
Engineered Ceramics
Electronic Components
Functional Ceramics
Anti-Wear Parts

The science behind the **KMS grades**

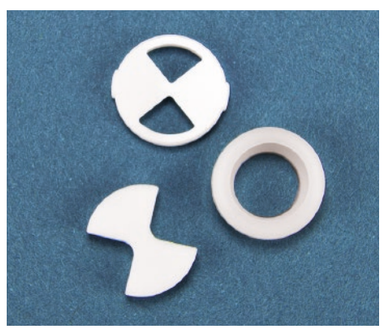
Martoxid® KMS aluminium oxides for ‘Ready to Press’
Typical chemical and physical properties

PROPERTIES	KMS-94	KMS-96	KMS-98	KMS-99
Al_2O_3 Content (%)	94	96	98	> 99
Na_2O Content (%)	0.05	0.05	0.05	0.03
Loss on Ignition (%)	3	3	3	3
Moisture (%)	< 0.3	< 0.4	< 0.4	< 0.4
Bulk Density (kg/m³)	1150	1100	1200	1300
Average Granule Size (µm)	130	180	170	170
Pressed Density at 100 MPa (g/cm³)	2.33	2.37	2.45	2.45
Sintered Density (g/cm³)	3.72	3.82	3.88	3.92
Ideal Sintering Temperature Range (˚C)	1590–1620	1550–1600	1600	1600
Longitudinal Shrinkage (%)	15.5	16	16	15.5
Bending Strength, 4-point Method (MPa)	> 280	> 300	> 330	> 330
Modulus of Elasticity E (GPa)	320	340	370	380
Hardness, Vickers HV2 (kN/mm²)	16–18	17–19	17–19	17–20
Abrasion, Sand Blasting Method (%)	*	0.1	0.1	*
Dielectric Strength E_d (kV/mm)	> 20	35	33	35

* Not determined



*Our **Martoxid® KMS Ready to Press** granules are engineered to meet the intricate and specialized needs of superior ceramics.*



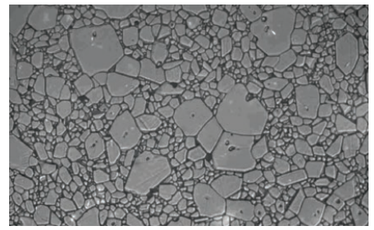
Martoxid® KMS Aluminum Oxide

Typical microstructures after sintering

1

Martoxid® KMS-99

Operation Pressure 140 MPa @ 1620°C
Sintered Density 3.92 g/cm³
Average Grain Diameter Approximately 5 µm

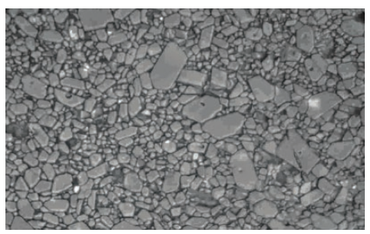


20µm

2

Martoxid® KMS-98

Operation Pressure 140 MPa @ 1590°C
Sintered Density 3.88 g/cm³
Average Grain Diameter Approximately 5 µm

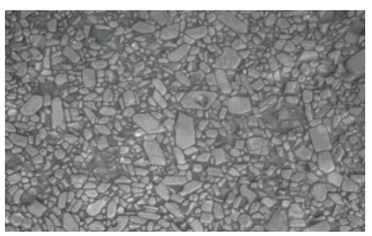


20µm

3

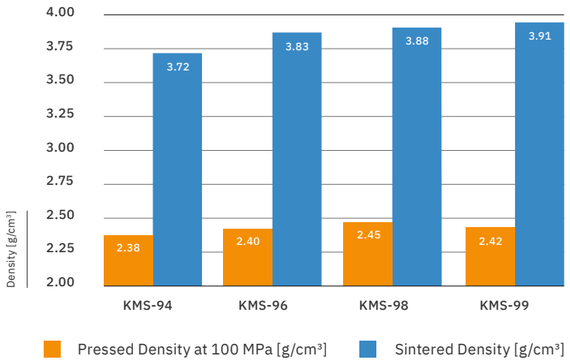
Martoxid® KMS-96

Operation Pressure 130 MPa @ 1590°C
Sintered Density 3.82 g/cm³
Average Grain Diameter Approximately 4 µm



20µm

Martoxid® KMS
Sintered and pressed density data



The density data at pressed and sintered stages proves the ability of the KMS granules to produce high performance components while remaining cost effective.

LET US WORK FOR YOU!

The high performing Martoxid 'Ready to Press' grades are designed to meet and exceed your most demanding requirements for a variety of **high-end ceramic applications.** We've got a Ready to Press product with the exacting physical properties you're looking for to take your application and formulation to the next level.

Huber Advanced Materials has more than half a century of experience supplying aluminum oxides and calcined aluminas and in addition to the individual product grades we've discussed, we provide superior technical service and expertise along with our dedicated and personalized customer care that's second-to-none. Contact us today for more information and to obtain samples of our Martoxid Ready to Press products.

 Martoxid/KMS/TechnicalCeramics/RevI/August2022

Touching lives.
Enhancing safety.
This is
Huber Advanced Materials.

Our global **footprint**

The Huber Advanced Materials (HAM) SBU is a specialty chemicals business with a global, leading position in the development and production of halogen-free fire retardant solutions, smoke suppressants and specialty aluminas touching lives and enhancing safety for millions of people around the world.

Americas

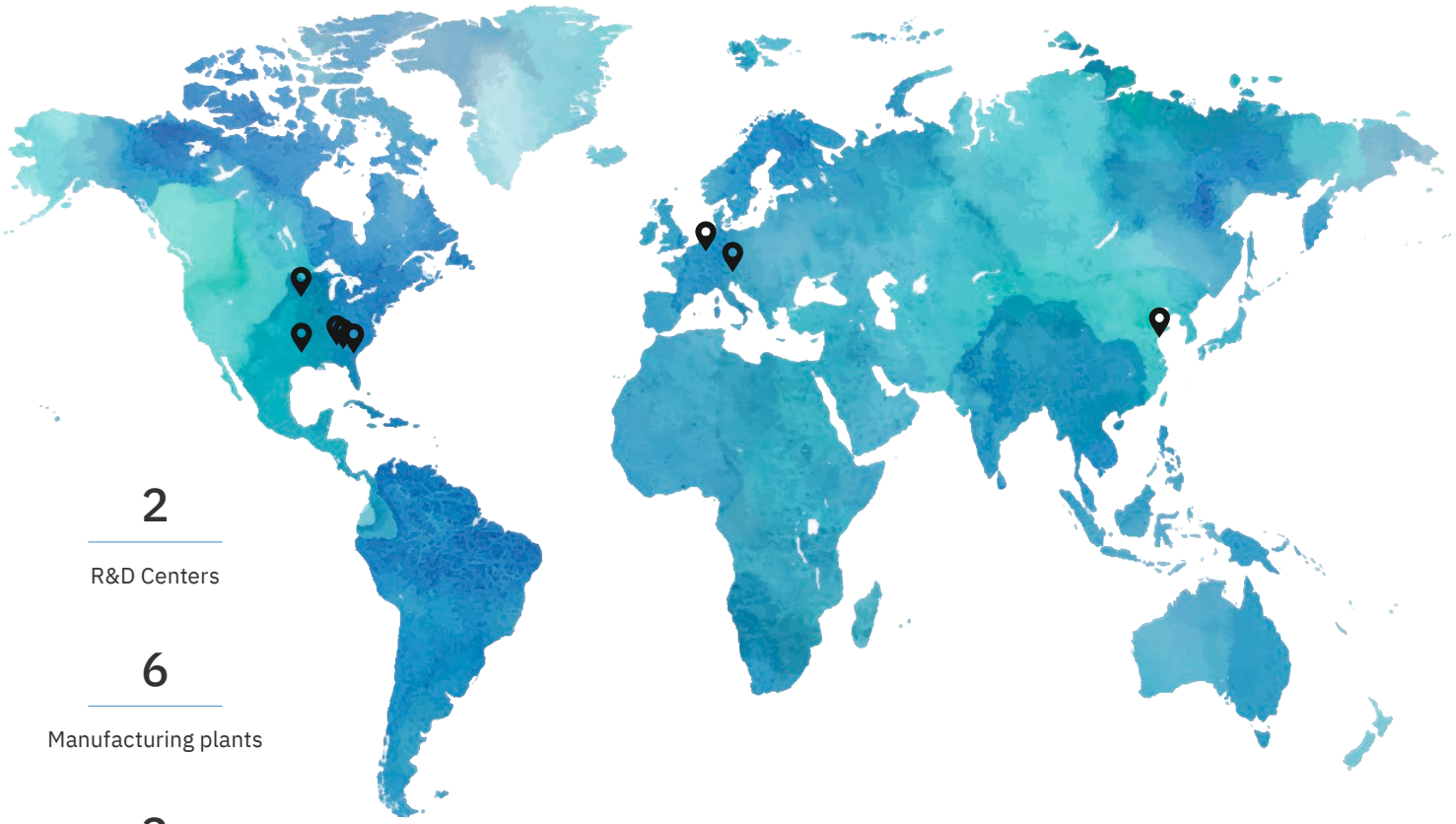
Fairmount, GA
Atlanta, GA
Kennesaw, GA
Marblehead, IL
Bauxite, AR

Europe

Bergheim, Germany
Breitenau, Austria

Asia Pacific

Qingdao, China



2
R&D Centers

6
Manufacturing plants

3
Customer Care Centers

Martinswerk GmbH
+49 2271 9020
info@martinswerk.com
www.martinswerk.com

Europe, Middle East, Africa & India

Huber Advanced Materials
+1 866 564 8237
hubermaterials@huber.com
www.hubermaterials.com

Americas

HEM (Qingdao) Co. Ltd.
+86 532 58792008
hubermaterials@huber.com
www.hubermaterials.com

Asia Pacific