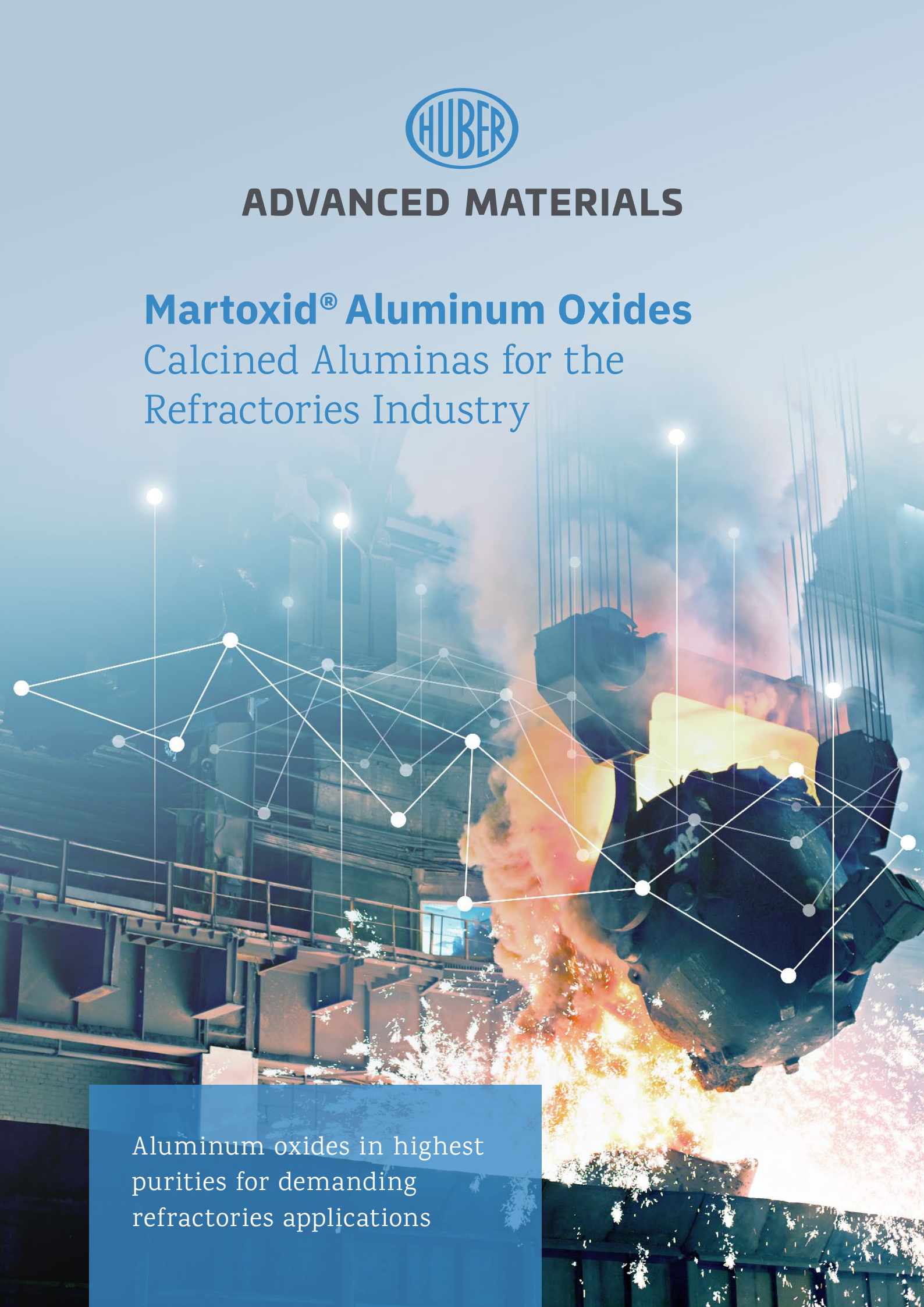
HUBER

ADVANCED MATERIALS

Martoxid® Aluminum Oxides

Calcined Aluminas for the Refractories Industry



Aluminum oxides in highest purities for demanding refractories applications

High-tech **materials**

Superground Martoxid® aluminum oxides from Huber Advanced Materials excel as high-temperature resistant binding systems in demanding refractories applications.

Superground Martoxid® aluminum oxides match or exceed customer requirements for high temperature resistance, mechanical stability and processing characteristics, while offering superior economics compared to silicon carbide, white fused alumina and tabular alumina.

With Huber Advanced Material's refractories solutions customers benefit from:

- Longer operational life of refractories
- Ability for higher operating temperatures
- Improved processability

These superground aluminum oxides are preferably used as highly reactive binding systems in low- and no-cement castables as well as in slide gates, nozzles, lances, kiln furnitures and ceramic filters.

Our unique processing expertise, together with the choice of the highest quality synthetic raw materials allow us to tailor particle size distribution, specific surface area and soda content according to customer requirements.

Huber Advanced Materials has met the challenge to develop a superground **Martoxid® MR** generation of low soda aluminum oxides.

Based on the low soda aluminas, Huber Advanced Materials offers a wide range of tailor made **SUPERGROUND ALUMINUM OXIDES** for different applications:

Martoxid® **MR-23**

Martoxid® **MR-32**

Martoxid® **MR-42**

Martoxid® **MR-70D**

- Low Soda Content [≤ 0.1%]
- High Ceramic Reactivity
- Low Content of Mixing Water
- Excellent Rheological Qualities

Additionally, Huber Advanced Materials offers a line of **GROUND ALUMINAS:**

Martoxid® **DN-206**

Martoxid® **MDS-6**

Martoxid® **MZS-3**

Martoxid® **PN-202**

Completing the comprehensive product line are our four **UNGROUND ALUMINA GRADES:**

Martoxid® **DN-6**

Martoxid® **MDS**

Martoxid® **MZS**

Martoxid® **PN-6**

Martoxid® Calcined Aluminas
Key Chemical & Physical Properties

	Superground Martoxid Grades				Ground Martoxid Grades				Unground Martoxid Grades			
PROPERTY	**MR-23**	**MR-32**	**MR-42**	**MR-70D**	**DN-206**	**MDS-6**	**MZS-3**	**PN-202**	**DN-6**	**MDS**	**MZS**	**PN-6**
Na_2O [%]	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.5	≤ 0.1	≤ 0.1	≤ 0.5	≤ 0.5	≤ 0.06	≤ 0.1	≤ 0.5
Fe_2O_3 [%]	≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03	≈ 0.02	≈ 0.02	≈ 0.02	≈ 0.02

Huber Advanced Materials

has more than half a century of supplying Martoxid® calcined aluminas for refractory industry applications.

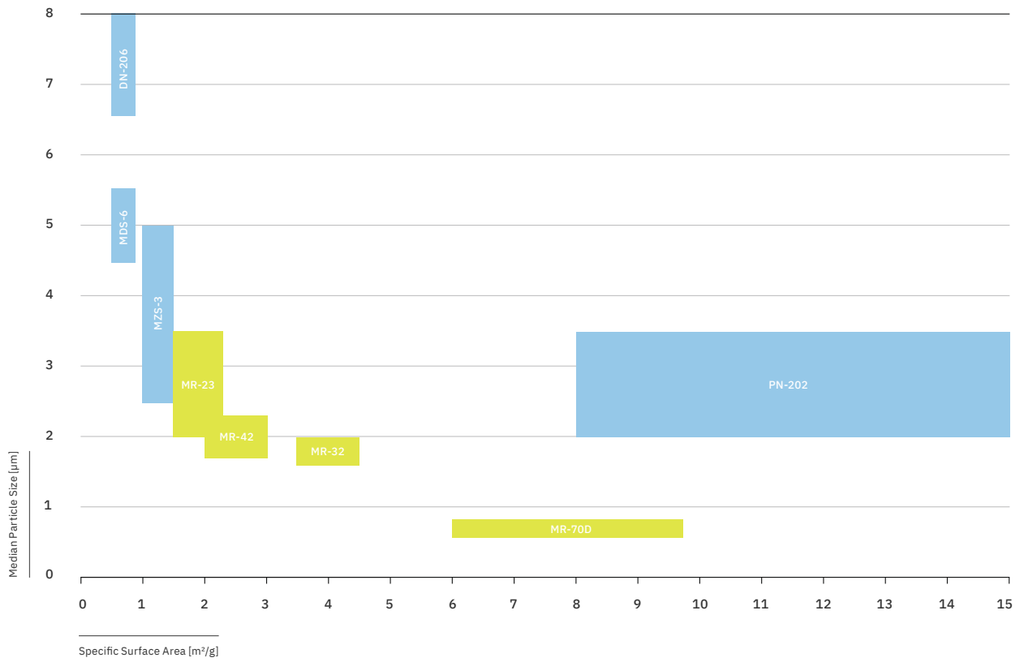
In addition to our innovative Martoxid® grades, we provide superior technical expertise and service along with a deep dedication toward providing fast, personalized customer support.

We look forward to working with you. Contact us today for more information and to attain samples of our array of Martoxid® calcined alumina products for your refactory-related applications.

Martoxid® Calcined Aluminas
For the Refractory Industry

	Superground Martoxid Grades				Ground Martoxid Grades				Unground Martoxid Grades			
REFRACTORY APPLICATIONS	**MR-23**	**MR-32**	**MR-42**	**MR-70D**	**DN-206**	**MDS-6**	**MZS-3**	**PN-202**	**DN-6**	**MDS**	**MZS**	**PN-6**
Refractory Bricks		●				●	●	●	●	●	●	●
Ceramic Fibers for Insulation									●	●	●	
Mortars, Cements						●	●	●			●	●
Spinels	●	●		●	●		●					
Slide Gate Nozzles	●	●	●	●			●					
Preshaped Castables	●	●	●	●			●					
Kiln Furniture	●			●			●					
Vibration Castables	●	●	●	●	●	●	●					
Self-Flowing Castables		●	●									
Ceramic Filters for Foundries	●			●			●	●				
Crucibles	●			●			●					
Riser for Foundries						●	●	●				
Slag Binder in Iron and Steel Production									●	●	●	●
Gunning Castables					●		●					

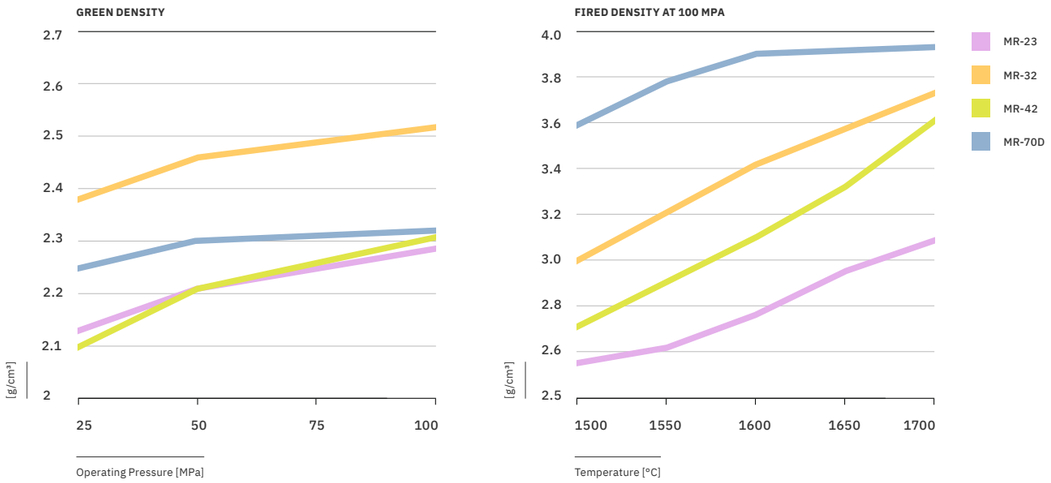
Martoxid® Superground and Ground Grades
Median Particle Size Versus Specific Surface Area



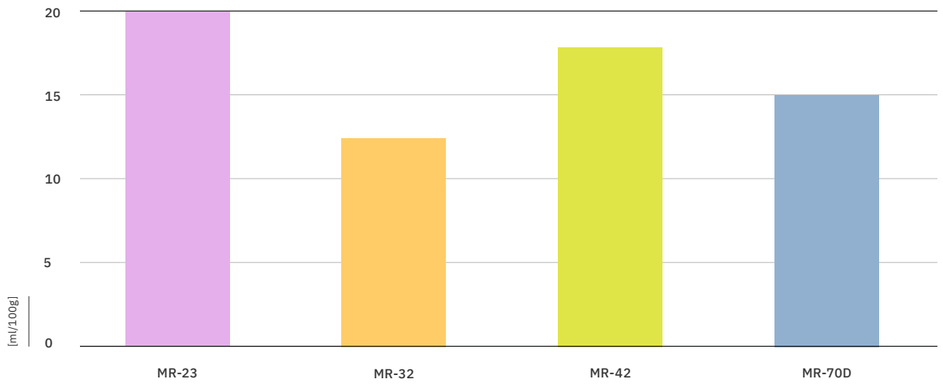
Martoxid® Unground Grades
Specific Surface Area, Average Granule Size [d50] and Primary Crystal Size

	Unground Martoxid Grades			
CHEMICAL PROPERTY	**DN-6**	**MDS**	**MZS**	**PN-6**
Specific Surface Area [m²/g]	0.2 – 0.5	0.5 – 0.7	0.6 – 1.3	4 – 14
d_{50} [µm]	80	70	70	80
Primary Crystal Size [µm]	6	4	2.5	1

Martoxid® Superground Grades
Green and Fired Density Ceramic Properties



Water Absorption Data



The superground **Martoxid®** aluminum oxide grades meet and exceed the requirements of many applications applicable to the refractory industry. Above you will find key points for green and fired density along with water absorption data for the superground products.

Since we offer **five unique products** with varying chemical and physical properties, our technical experts will work closely with you to completely understand your specific application to identify and customize the Martoxid product solution perfectly suited for your application.

 Martoxid/CalcinedAlumina/Refractory/Rev1/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

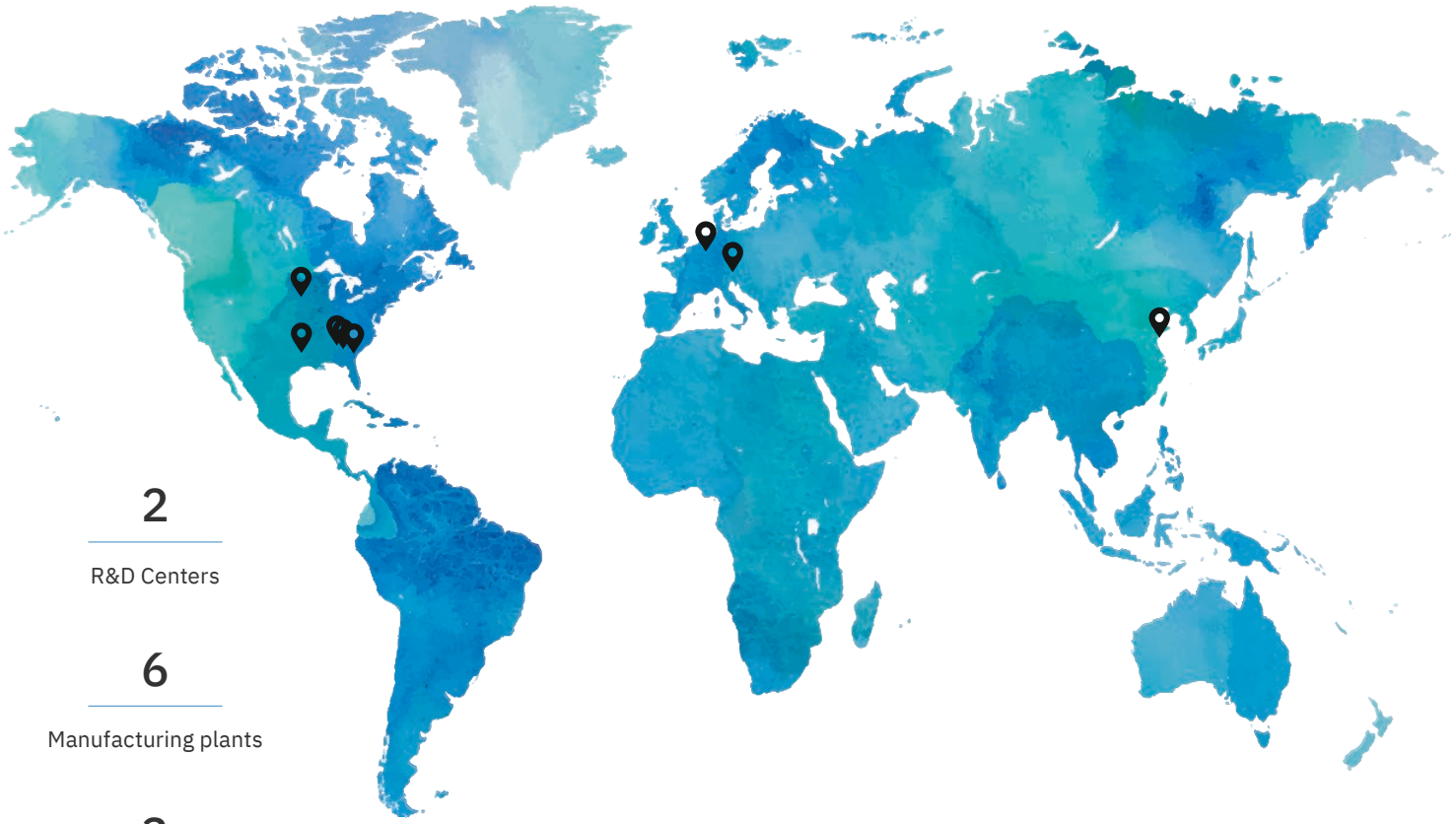
Fairmount, GA
Atlanta, GA
Kennesaw, GA
Marblehead, IL
Bauxite, AR

Europe

Bergheim, Germany
Breitenau, Austria

Asia Pacific

Qingdao, China



2
R&D Centers

6
Manufacturing plants

3
Customer Care Centers

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