HIGH QUALITY
MARTOXID® ALUMINUM OXIDES
FOR THE REFRACTORY INDUSTRY

HUBER | MARTINSWERK
CALCINED ALUMINAS
In the field of modern ‘high-tech’ refractory materials, superground Martoxid® aluminum oxides from Huber | Martinswerk play an extraordinary important role as a high-temperature resistant binding system.

Similar to high quality raw materials [e.g., SiC, white fused alumina and tabular alumina], superground Martoxid® aluminum oxides help fulfill the customer’s requirements concerning high temperature resistance, mechanical stability and processing characteristics, but are more economical.

The demand on high-tech refractory products is marked by a distinct growth worldwide. This tendency can be explained by the following requirements:
- Longer operational life of refractories
- Operation at higher temperatures
- Improved properties for cost effective production

These requirements only could be achieved by using high-quality synthetic raw materials.

Huber | Martinswerk has met the challenge to fulfill the increasing demand of the market and developed the superground Martoxid® MR generation of low soda aluminum oxides.

Based on the low soda aluminas, Huber | Martinswerk offers a wide range of tailor made superground aluminum oxides for different applications:

**Martoxid®** MR-32; MR-42; MR-42/B; MR-23; and MR-70

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

The main properties of these aluminas are characterized by particle size distribution, specific surface area and soda content.

The most demanding requirements are met by the Martoxid® MR aluminas:
- Low Soda Content \([\leq 0.1\%]\)
- High Ceramic Reactivity
- Low Content of Mixing Water
- Excellent Rheological Qualities

Additionally, Huber | Martinswerk offers a line of ground aluminas:

**Martoxid®** MZS-3; MDS-6; DN-206; and PN-202

Completing the comprehensive product line is our five unground alumina grades:

**Martoxid®** DN-6; MDS; MZS; PN-6; and RN

We look forward to consulting with you about the product best-suited for your application. More details for all of the high performing Mart oxid grades we offer like chemical and physical properties, specific surface area, particle size distribution, water absorption, green density and fired density are featured in this brochure.

### Key Chemical and Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Superground Martoxid Grades</th>
<th>Ground Martoxid Grades</th>
<th>Unground Martoxid Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\text{Na}_2\text{O} [%])</td>
<td>≤ 0.1</td>
<td>≤ 0.1</td>
<td>≤ 0.1</td>
</tr>
<tr>
<td>(\text{Fe}_2\text{O}_3 [%])</td>
<td>≤ 0.03</td>
<td>≤ 0.03</td>
<td>≤ 0.03</td>
</tr>
</tbody>
</table>
## Martoxid® Superground and Ground Grades

**Median Particle Size Versus Specific Surface Area**

<table>
<thead>
<tr>
<th>Chemical Property</th>
<th>DN-6</th>
<th>MDS</th>
<th>MZS</th>
<th>PN-6</th>
<th>RN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Surface Area ( [m^2/g] )</td>
<td>0.2 - 0.5</td>
<td>0.5 - 0.7</td>
<td>0.6 - 1.3</td>
<td>4 - 14</td>
<td>0.2 - 20</td>
</tr>
<tr>
<td>( D_50 ) [µm]</td>
<td>80</td>
<td>70</td>
<td>70</td>
<td>80</td>
<td>70</td>
</tr>
<tr>
<td>Primary Crystal Size [µm]</td>
<td>6</td>
<td>4</td>
<td>2.5</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>
Martoxid® Superground Grades

Green and Fired Density Ceramic Properties

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 perfect for your situation.
Huber | Martinswerk 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 refractory-related applications.

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