FINAL ADVANCED MATERIALS

# TECHNICAL DATA SHEET

Rev. N° 3 - 11.07.2024

# 2MS.001
# Alumina Powder

## Summary




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## Overview

The structure, the purity, the hardness and the specific surface area are the main characteristics of $Al_2O_3$ powders. The differences between the products may seem minimal but the physico-chemical properties between two ranges are completely different.

Our wide range of alumina powder will allow you to select the best product suited to your application/Final Advanced Materials offers a wide range of alumina powders to best suit your project:

- Sintering powders
- Filling powders
- Polishing powders
- Anti-sticking powder (during heat treatment)

When choosing the product, the following criterias have to be taken into account:

- Granulometry
- Calcination time
- Hardness
- Specific surface area

For specific grain sizes, we can offer customised sieving. Please get in touch.

## Applications

- Precision honing and polishing
- Precision Sandblasting/Micro sandblasting
- Metallographic and mineralogical polishing
- Filler for synthetic resins and elastomers
- Special filler
  - Example: flame retardant filler for synthetic resins. foams and elastomers
- Oven filling


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## Comparative Table

| Item N° | Purity | Hardness |
|---|---|---|
| **Series 100** | Average | Very high |
| **Series 200** | High | High |
| **Series 300** | < Series 200 | High |
| **Series 400** | Average | High |
| **Series 500** | Average | Average |
| **Series 600** | Somewhat low | Average |
| **Series 900** | Average | Low |
| **Series 1000** | High | Average |
| **Series 1100** | High | Low |
| **Series 1400** | - | - |
| **Series 2000** | High | Average |
| **Series 3000** | High | Very high |
| **Series 4000** | Average | High |
| **Series 5000** | Very high | Low |
| **Series 5100** | Average | High |
| **Series 5200** | Average | Average |
| **Series 5300** | High | High |
| **Series 5400** | High | High |

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## Product Range

### Series 100

#### Property

- Purity: average
- Hardness: very high
- Porosity: very low
- Specific Surface Area: very low
- Chemical Composition
  - $Al_2O_3$ > 99.7 %
  - $Na_2O$ < 0.2 %
- Granulometry $d_{50}$
  - 1.5 µm - 2.35 mm

#### Applications

- Precision honing and polishing
- Precision Sandblasting/Micro sandblasting
- Compressed air surface treatment
- Electrical insulation

### Series 200

#### Property

- Purity: high
- Hardness: high
- Porosity: low
- Specific Surface Area: low
- Chemical Composition
  - $Al_2O_3$ = 99.85 %
  - $Na_2O$ = 0.06%-0.08 %
- Granulometry $d_{50}$
  - 3 µm - 80 µm

#### Applications

- Filler for synthetic resins
- Filler for elastomers

### Series 300

#### Property

- Purity: < Series 200
- Hardness: high
- Specific Surface Area: > Series 200
- Chemical Composition
  - $Al_2O_3$ = 99.7 %
  - $Na_2O$ = 0.1 %
- Granulometry$d_{50}$
  - 0.50 µm - 80 µm

#### Applications

- Filler for synthetic resins
- Filler for elastomers
- Anti-stick agent

**About Item N° 007-0320:** this product is purer than the other alumina from the 300 and 200 series specially made to prevent smaller parts sticking during heat treatment.

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## Product Range

### Series 400

#### Property

- Purity: average
- Hardness: high
- Specific Surface Area: very high
- Chemical Composition
  - $Al_2O_3$ = 99.6 %
  - $Na_2O$ = 0.3 %
- Granulometry $d_{50}$
  - 0.6 µm - 80 µm

#### Applications

- Added to certain paints/inks formation of a particularly hard coating

**Note:** The fineness of the alumina you use depends on the thickness of the layer of paint or ink.

### Series 500

#### Property

- Purity: lower than previous series
- Hardness: average
- Specific Surface Area: average
- Chemical Composition
  - $Al_2O_3$ = 99.6 %
  - $Na_2O$ = 0.3 %
- Granulometry $d_{50}$
  - 3 µm - 60 µm

#### Applications

- Filler for synthetic resins
- Filler for elastomers

### Series 600

#### Property

- Purity: quite low
- Hardness: average
- Chemical Composition
  - $Al_2O_3$ = 99.6 %
  - $Na_2O$ = 0.3 %
- Granulometry $d_{50}$
  - 3 µm - 60 µm

#### Applications

- Common or special industrial sanding/polishing

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## Product Range

### Series 900

**Property**

- Purity: average
- Hardness: low
- Specific Surface Area: high
- Chemical Composition
  - $Al_2O_3$ = 90 - 99.5 %
- Granulometry $d_{50}$
  - 0.3 - 10 mm
- Alumina granulates

**Applications**

- Filtration, purification

### Series 1000

**Property**

- Purity: high
- Hardness: average
- Specific Surface Area: average
- Chemical Composition
  - $Al_2O_3$ = 99.6 % - 99.8 %
- Granulometry $d_{50}$
  - 0.05 - 3 µm

**Applications**

- Metallographic and mineralogical polishing

### Series 1100

**Property**

- Purity: high
- Hardness: low
- Specific Surface Area: low
- Chemical Composition
  - $Al_2O_3$ > 99.8 %
- Granulometry $d_{50}$
  - 10 - 80 µm

**Applications**

- Precision polishing

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## Product Range

### Series 1400

**Property**

- Alumina for filling
- Chemical Composition
  - $Al_2O_3$ > 99.6 %
- Granulometry $d_{50}$: 150 µm

**Applications**

- Electrical resistance filling

### Series 2000

**Property**

- Purity: high
- Hardness: average
- Specific Surface Area: average
- Chemical Composition
  - $Al_2O_3$ = 99.8 %
- Granulometry $d_{50}$: 0.4 - 80 µm

**Applications**

- Filler for wear resistance
- Electrical insulation
- Electronic components
- Porous ceramics
- Catalyst support

### Series 4000

**Property**

- Purity: average
- Hardness: high
- Specific Surface Area: low
- Chemical Composition
  - $Al_2O_3$ = 99.8 %
- Granulometry $d_{50}$
  - 80 - 118 µm

**Applications**

- Micro sandblasting and micro polishing

# 2MS.001
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## Product Range

### Series 5000

**Property**

- Purity: very high
- Hardness: low
- Specific Surface Area: average
- Chemical Composition
  - $Al_2O_3$ = 99.99 %
- Alumina gamma γ
- Granulometry d $_{50}$ :
  - 0.5 - 10µm
  - 0.6 - 20 µm.

**Applications**

- Special high purity filler

### Series 5100

**Property**

- Purity: average
- Hardness: high
- Chemical Composition
  - $Al_2O_3$ > 99.5 %
- Granulometry $d_{50}$: 0.7 - 90 µm

**Applications**

- Special filler for synthetic resins and elastomers

### Series 5200

**Property**

- Purity: average
- Hardness: average
- Chemical Composition
  - $Al_2O_3$ de 99.7 % - 99.85 %
- Granulometry $d_{50}$:0.65 - 80 µm

**Applications**

- Sanding and polishing

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## Product Range

### Series 5300

#### Property

- Purity: high
- Hardness: high
- Specific Surface Area: low
- Chemical Composition
  - $Al_2O_3$ de 99.85 %
- Granulometry $d_{50}$: 3 µm

#### Applications

- Special filler for synthetic resins and elastomers

### Series 5400

#### Property

- Purity: high
- Hardness: high
- Specific Surface Area: low
- Chemical Composition
  - $Al_2O_3$ from 99.60 %
- Granulometry $d_{50}$ : from 0.6 µm

#### Applications

- Special filler for synthetic resins and elastomers
- Nanometric polishing

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# Technical Data

| Item N° | Ø $d_{50}$ | Purity % | Item N° | Ø $d_{50}$ | Purity % | Item N° | Ø $d_{50}$ | Purity % |
|---|---|---|---|---|---|---|---|---|
| 007-0100 | 139 µm | 99.80 | 007-0215 | 0.4 µm | 9970 | 007-0500 | 5 µm | 99.60 |
| 007-0115 | 1.5 µm | 99.70 | 007-0220 | 3 µm | 99.80 | 007-0510 | 2.2 µm | 99.60 |
| 007-0120 | 2.8 µm | 99.80 | 007-0230 | 50 µm | 99.80 | 007-0515 | 3 µm | 99.60 |
| 007-0125 | 5 µm | 99.80 | 007-0240 | 40 µm | 99.80 | 007-0520 | 47 µm | 99.60 |
| 007-0130 | 2 mm | 99.80 | 007-0250 | 30 µm | 99.80 | 007-0525 | 4 µm | 99.60 |
| 007-0135 | 6 µm | 99.80 | 007-0260 | 3.7 µm | 99.70 | 007-0526 | 4 µm | 99.60 |
| 007-0140 | 425 µm | 99.80 | 007-0300 | 80 µm | 99.70 | 007-0600 | 37 µm | 99.50 |
| 007-0141 | 112 µm | 99.80 | 007-0305 | 60 µm | 99.80 | 007-0601 | 400 nm | 99.70 |
| 007-0142 | 95 µm | 99.80 | 007-0310 | 80 µm | 99.70 | 007-0610 | 15 µm | 99.70 |
| 007-0150 | 85 µm | 99.80 | 007-0311 | 13 µm | 99.70 | 007-0620 | 5 µm | 99.60 |
| 007-0151 | 70 µm | 99.80 | 007-0312 | 27 µm | 99.70 | 007-0630 | 2.3 µm | 99.70 |
| 007-0160 | 50 µm | 99.80 | 007-0320 | 75 µm | 99.95 | 007-0631 | 4 µm | 99.80 |
| 007-0161 | < 40 µm | 99.75 | 007-0325 | 15 µm | 99.80 | 007-0632 | 5 µm | 99.70 |
| 007-0162 | 16 µm | 99.80 | 007-0330 | 5 µm | 99.70 | 007-0640 | 3 µm | 99.60 |
| 007-0163 | 12 µm | 99.80 | 007-0335 | 0.85 µm | 99.70 | 007-0641 | 3 µm | 99.70 |
| 007-0164 | 10 µm | 99.80 | 007-0340 | 0.4 µm | 99.70 | 007-0650 | 15 µm | 99.80 |
| 007-0165 | 30 µm | 99.80 | 007-0350 | 90 µm | 99.90 | 007-0660 | 60 µm | 99.80 |
| 007-0166 | 20 µm | 99.80 | 007-0355 | 1.3 µm | 99.80 | 007-0670 | 8 µm | 99.80 |
| 007-0167 | 0.7 mm | 99.80 | 007-0360 | 3 µm | 99.70 | 007-0680 | 60 µm | 99.80 |
| 007-0168 | 0,6 mm | 99.80 | 007-0370 | 75 µm | 99.80 | 007-0691 | 34 µm | 99.50 |
| 007-0169 | 230 µm | 99.75 | 007-0380 | 4.5 µm | 99.70 | 007-0700 | 1.3-2.3 mm | 99.30 |
| 007-0170 | 180 µm | 99.75 | 007-0390 | 33 µm | 99.50 | 007-0710 | 0.2-1 mm | 99.30 |
| 007-0171 | 340 µm | 99.80 | 007-0391 | 50 µm | 99.80 | 007-0715 | 0.5-1 mm | 99.30 |
| 007-0200 | 7 µm | 99.80 | 007-0392 | 63 µm | 99.80 | 007-0720 | 2-5 mm | 99.30 |
| 007-0204 | 14 µm | 99.90 | 007-0400 | 100 µm | 99.60 | 007-0750 | 1 – 2 mm | 99.30 |
| 007-0205 | 4.9 µm | 99.80 | 007-0410 | 4.5 µm | 99.50 | 007-0760 | 0-500 µm | 99.30 |
| 007-0207 | 90 µm | 99.85 | 007-0415 | 70 µm | 99.60 | 007-0770 | 200-600 µm | 99.30 |
| 007-0210 | 4 µm | 99.80 | 007-0416 | 70 µm | 99.80 | 007-0800 | 74 µm | 99.50 |

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| Item N° | Ø $d_{50}$ | Purity % | Item N° | Ø $d_{50}$ | Purity % | Item N° | Ø $d_{50}$ | Purity % |
|---|---|---|---|---|---|---|---|---|
| 007-0810 | 75-80 µm | 99.85 | 007-1404 | 1 mm | > 99.50 | 007-2105 | 90 µm | 99.60 |
| 007-0820 | 12 µm | 99.80 | 007-1501 | 3.2 mm | 99.70 | 007-2110 | 0.9 µm | 99.00 |
| 007-0830 | 9 µm | 99.80 | 007-1502 | 4.8 mm | 99.70 | 007-4000 | 118 µm | 99.80 |
| 007-0900 | 0.3-0.9 mm | 90.00 | 007-1601 | 68 µm | 99.70 | 007-4010 | 80-90 µm | 99.80 |
| 007-0910 | 1-3 mm | 90.00 | 007-1602 | 65 µm | 99.80 | 007-5002 | 0.6-20 µm | 99.99 |
| 007-0915 | 1-2.5 mm | 99.50 | 007-1700 | 100 µm | 99.80 | 007-5010 | 40 µm | 100 |
| 007-0920 | 2-5 mm | 97.00 | 007-1701 | 190 µm | 99.70 | 007-5101 | 75 µm | 99.50 |
| 007-0930 | 2-7 mm | 90.00 | 007-1702 | 100 µm | 99.80 | 007-5102 | 80 µm | 99.60 |
| 007-0940 | 5-10 mm | 95.00 | 007-1800 | 3 µm | 99.60 | 007-5103 | 90 µm | 99.60 |
| 007-0950 | 78 µm | 99.50 | 007-2000 | 80 µm | 99.80 | 007-5104 | 45 µm | 99.60 |
| 007-0960 | 5 µm | 99.50 | 007-2001 | 90 µm | 99.60 | 007-5105 | 60 µm | 99.60 |
| 007-0970 | 0.3-1 mm | 94.00 | 007-2002 | 2.5 µm | 99.70 | 007-5106 | 30 µm | 99.50 |
| 007-0980 | 0.3-2 mm | 94.00 | 007-2003 | 11 µm | 99.70 | 007-5107 | 40 µm | 99.50 |
| 007-1000 | 0,05 µm | 99.60 | 007-2004 | 4.1 µm | 99.80 | 007-5108 | 60 µm | 99.80 |
| 007-1005 | 1 µm | 99.60 | 007-2005 | 1 µm | 99.60 | 007-5201 | 0.4 µm | 99.90 |
| 007-1010 | 0.4 µm | 99.70 | 007-2006 | 1 µm | 99.80 | 007-5202 | 9 µm | 99.99 |
| 007-1020 | 1 µm | 99.80 | 007-2007 | 9 µm | 99.80 | 007-5203 | 18 µm | 99.85 |
| 007-1030 | 596 nm | 99.60 | 007-2008 | 30 µm | 99.80 | 007-5204 | 0.9 µm | 99.70 |
| 007-1031 | 822 nm | 99.60 | 007-2009 | 3.5 µm | 99.80 | 007-5205 | 5 µm | 99.90 |
| 007-1032 | 60 µm | 99.40 | 007-2010 | 88 µm | 99.80 | 007-5301 | 3 µm | 99.85 |
| 007-1100 | 35 µm | 99.99 | 007-2011 | 6 µm | 99.80 | 007-5401 | 0.6 µm | 99.60 |
| 007-1106 | 0.4 µm | 99.90 | 007-2012 | 2.5 µm | 99.70 | 007-5514 | 900 µm | 99.70 |
| 007-1108 | 40 µm | 99.99 | 007-2013 | 0.45 µm | 99.80 | 007-5515 | 752 µm | 99.70 |
| 007-1110 | 80 µm | 99.99 | 007-2014 | 93 µm | 99.60 | 007-5518 | 425 µm | 99.70 |
| 007-1120 | 25 µm | 99.90 | 007-2015 | 50 µm | 99.70 | 007-5519 | 340 µm | 99.70 |
| 007-1130 | 10 µm | 99.80 | 007-2016 | 3 µm | 99.70 | 007-5584 | 30 µm | 99.70 |
| 007-1201 | 3-7 µm | 99.40 | 007-2017 | 0.5 µm | 99.70 | 007-5601 | 200-300 nm | 99.70 |
| 007-1202 | 8 µm | 99.70 | 007-2101 | 1 µm | 99.60 | 007-5701 | 3-6 µm | 99.60 |

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|---|---|---|---|---|---|---|---|---|
| **007-1401** | 150 µm | 99.60 | **007-2102** | 8 µm | 99.60 | **007-5801** | 0.8 µm | 99.70 |
| **007-1402** | 2 mm | 99.50 | **007-2103** | 13 µm | 99.60 | **007-5901** | 107 µm | 99.50 |
| **007-1403** | 420 µm | 99.50 | **007-2104** | 20 µm | 99.60 | **007-9002** | 45 µm | 99.50 |
| **007-6501** | 3.2 mm | 95.50 | **007-8001** | 1.1 µm | 99.60 | **007-9003** | 250 µm | 99.50 |
| **007-7001** | 35 µm | 99.70 | **007-9000** | 33 µm | 100 | **007-9100** | 0.25 µm | 99.60 |
| **007-7002** | 2 µm | 99.93 | **007-9001** | 100 µm | 99.50 | | | |

Physical variables included in this documentation are provided by way of indication only and do not, under any circumstances, constitute a contractual undertaking. Please contact our technical service if you require any additional information.