

## Product Information

# Chromium (III) Oxide Patinal®

### GENERAL INFORMATION

Chromium(III) Oxide ( $\text{Cr}_2\text{O}_3$ ) is an absorbing material, used to form grayish coatings e.g. on sun glasses.

### AREAS OF APPLICATION

- Absorbing coatings for ophthalmics or ND-filters

### THIN FILM PROPERTIES

Range of transparency	< 600 nm – 8 $\mu\text{m}$
Refractive index	
• at $\lambda = 700 \text{ nm}$	~ 2.24
• at $\lambda = 8 \mu\text{m}$	~ 2.1

The optical properties of the thin film are strongly dependent on the deposition rate, substrate temperature and oxygen partial pressure. Strict control of these parameters allows excellent reproducibility.

### NOTES FOR EVAPORATION

Evaporator source	Resistance heated evaporator Electron beam evaporator
Boat / liner	Tungsten boat / molybdenum liner
Melting temperature	2200 – 2300 °C
Deposition rate	0.5 – 1.5 nm/s
Substrate temperature	RT – 300 °C
OCR-settings	Density 5.21 g/cm <sup>3</sup> , z-ratio 0.4



## PRODUCTS

Chromium(III) Oxide Patinal® is available as powder.

Product Code	Description	Purity*	Dimensions
1.02484	Chromium(III) Oxide Patinal®	≥ 99.9 % (3N)	Powder, less than 0.3 mm

\* The purity values are based on the specified trace metals.

### Appearance

1.02484	Grey powder
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## SPECIFICATION

Cobalt (Co)	≤ 0.001 %
Copper (Cu)	≤ 0.001 %
Iron (Fe)	≤ 0.02 %
Manganese (Mn)	≤ 0.001 %
Vanadium (V)	≤ 0.02 %

### Sizes

1.02484	Particle size (laser diffraction) (d95) ≤ 300 µm
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### Application test

Each batch has to pass a specific application test assessing its evaporation behaviour.

### RoHS information

The RoHS compliance information is part of the Certificate of Analysis (CoA) for each batch of Patinal® material.



## Quality assurance

Research, production and sales of our Patinal® evaporation materials take place under a certified DIN EN ISO 9001:2000 quality management system and DIN EN ISO 14001 environmental management system. The quality of the materials is assured by our manufacturing processes, in-process controls and quality tests. Each batch is released only after passing our chemical analysis and application tests designed to confirm the suitability of the material for the evaporation process.

## Handling precautions

Product safety information required for safe use is not included in this document. Before handling, read product and safety sheets and container labels for safe use, physical and health hazard information. The material safety data sheet is available online at [www.patinal.com](http://www.patinal.com), from your EMD representative or distributor, or by calling your global Merck KGaA, Darmstadt, Germany, contact.

## Disclaimer

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