TECHNICAL DATA SHEET

Caustic Calcined Magnesia (CCM)

Custom grades manufactured to customer specification

DOCUMENT CONTROL	
Document No.	**TDHX-TDS-CCM-001**
Revision	**1.0**
Issue Date	**October 2025**
Supersedes	**None**
Issued by	**TDHX Groups — Technical Sales Division**
Product type	**Calcined magnesia**

Technical Data Sheet — Light Burned Magnesium Oxide

Full production range. Individual shipments are supplied against the specification agreed with the customer.

PRODUCT AT A GLANCE	
MgO Content	80.0 % – 96.0 %, adjusted by ore selection and beneficiation
Reactivity	Citric acid activity 15s – 300s, from low to very high
Whiteness	72 – 96
Fineness	200 / 325 mesh
Packing	25 kg bags, 500 – 1,250 kg jumbo bags, bulk
Supply basis	Custom specification

1. Product Identification

Item	Detail
Product Name	Light Burned Magnesium Oxide
Common Designation	Caustic Calcined Magnesia (CCM), Light Magnesia, Reactive Magnesia
Chemical Name	Magnesium oxide
Chemical Formula	MgO
CAS Registry No.	1309-48-4
HS Code	2519.90
Appearance	White to off-white, odourless, free-flowing powder
Supply basis	Custom-manufactured to agreed customer specification

2. Product Description

Light burned magnesium oxide is manufactured by calcining selected natural magnesite ($MgCO_3$) at controlled temperatures in the range of 700 °C to 1,000 °C. At this calcination level the magnesium carbonate decomposes into magnesium oxide while the crystal lattice remains open and imperfectly developed, which gives the product its characteristic high porosity, high specific surface area and

pronounced chemical reactivity.

Unlike dead burned (sintered) magnesia, which is calcined above 1,500 °C into a dense, chemically inert crystal structure, light burned magnesia retains an active, defect-rich lattice. This makes it suitable both as a reactive chemical feedstock and as a functional additive where controlled reactivity, high whiteness or fine particle size are required.

TDHX Groups produces light burned magnesium oxide across a broad range of grades derived from different ore sources, calcination profiles, milling fineness and classification steps. The parameters in this data sheet describe the full manufacturing window available across our production range, not a single fixed grade.

3. Manufacturing and Customisation

TDHX Groups operates a flexible production model. Rather than restricting supply to a limited catalogue, we adjust ore selection, kiln residence time, calcination temperature, grinding fineness and classification intensity to match an agreed specification. Customisation is available on the following parameters:

- **Magnesium oxide content**, adjusted through ore selection and beneficiation
- **Reactivity**, adjusted primarily through calcination temperature and residence time
- **Particle size and distribution**, adjusted through milling and air classification
- **Whiteness and colour**, adjusted through ore selection and iron removal
- **Bulk density**, adjusted through grinding and compaction control
- **Surface area**, adjusted through calcination profile and milling route
- **Purity level**, including low-chloride and low-heavy-metal variants for regulated applications

4. Chemical Composition

NOTE

The table below states the full manufacturing window. Individual delivered lots are supplied within the narrower limits agreed in the purchase specification.

Parameter	Unit	Manufacturing Range	Typical Test Method
Magnesium oxide (MgO)	%	**80.0 – 96.0**	EDTA complexometric titration / XRF
Calcium oxide (CaO)	%	**0.20 – 3.50**	EDTA titration / XRF
Silicon dioxide (SiO_2)	%	**0.30 – 6.00**	Gravimetric / XRF
Iron oxide (Fe_2O_3)	%	**0.05 – 1.50**	Colorimetric / XRF
Aluminium oxide (Al_2O_3)	%	**0.05 – 1.20**	XRF

Parameter	Unit	Manufacturing Range	Typical Test Method
Loss on ignition (1,000 °C)	%	**0.50 – 9.00**	Gravimetric
Moisture, as packed (105 °C)	%	**0.20 – 1.50**	Gravimetric

5. Physical Properties

Parameter	Unit	Manufacturing Range	Typical Test Method
Whiteness	%	**72 – 95**	ISO 2470 / Hunter
Bulk density, loose	g/cm³	**0.45 – 1.15**	ISO 697
Oil absorption	g/100 g	**15 – 45**	ISO 787-5
pH value (10 % suspension)	—	**9.5 – 11.0**	ISO 787-9
Mohs hardness	—	**5.5 – 6.0**	—

6. Storage

Light burned magnesium oxide is hygroscopic and will gradually react with atmospheric moisture and carbon dioxide, forming magnesium hydroxide and magnesium carbonate. This reduces reactivity over time.

- Store in a cool, dry, well-ventilated warehouse, away from direct sunlight
- Keep packaging sealed and undamaged until use
- Avoid storage in humid or condensation-prone areas
- Do not stack above the load rating of the bag
- Keep away from acids and strong oxidising agents

7. Safety and Handling

Light burned magnesium oxide is not classified as a hazardous substance under the GHS or CLP classification systems. As with any fine mineral powder, however, dust generation should be controlled.

- Avoid inhalation of dust; use a P2 or N95 respiratory mask in dusty environments
- Wear safety goggles and gloves when handling
- Provide local exhaust ventilation at transfer and bag-opening points
- Avoid eye contact; rinse with plenty of water if contact occurs

- Prevent dust from entering drains and watercourses
- Keep containers closed when not in use

8.Disclaimer

The information in this Technical Data Sheet is provided in good faith and is believed to be accurate as at the issue date. It describes the typical and range properties of TDHX Groups light burned magnesium oxide and is intended as guidance for evaluation and specification purposes only.

Because actual performance depends on the customer's formulation, process conditions and handling, this document does not constitute a guarantee of suitability for any particular application. Purchasers are responsible for carrying out their own tests to determine fitness for purpose.

TDHX Groups accepts no liability for loss or damage arising from the use of this information. Specifications may be revised without prior notice; please confirm the current revision with our technical sales team before contractual us.