

## Technical Data Sheet (TDS)

### 1. Product Overview

- **Product Name:** Magnesium Hydroxide
- **English Name:** Magnesium Hydroxide
- **CAS Number:** 1309-42-8
- **Formula:** Mg(OH)<sub>2</sub>
- **Molecular Weight:** 58.32 g/mol
- **Product Characteristics:** High-purity white crystalline powder, odorless, slightly hygroscopic, slightly soluble in water (strongly alkaline 10% suspension), insoluble in organic solvents. Non-combustible with excellent flame retardant properties (releases water at high temperature); reacts exothermically with strong acids and decomposes at >350°C to magnesium oxide. FDA/EU/China approved for food/pharmaceutical use; multi-functional as flame retardant, antacid, flocculant with low impurity content and eco-friendly properties.

### 2. Technical Specifications

Item	Specification
Appearance	White to off-white crystalline powder
Purity (Mg(OH) <sub>2</sub> )	≥ 98.0%
Moisture Content	≤ 0.5%
pH Value (10% aq. suspension, 25°C)	10.5–12.0
Chloride (Cl <sup>-</sup> )	≤ 0.05%
Sulfate (SO <sub>4</sub> <sup>2-</sup> )	≤ 0.05%
Heavy Metals (Pb)	≤ 5 ppm
Iron (Fe)	≤ 0.01%
Calcium (Ca)	≤ 0.5%
Insoluble Matter in Water	≤ 0.1%
Solubility (20°C)	0.009 g/100mL (water); soluble in dilute acids
Density (25°C)	2.36 g/cm <sup>3</sup>
Flame Retardancy	Excellent (non-combustible)

### 3. Product Advantages

1. **Superior Flame Retardancy:** Non-halogenated, eco-friendly flame retardant (releases H<sub>2</sub>O to cool materials; no toxic fumes); meets RoHS/REACH standards.
2. **Dual-Function:** Flame retardant + smoke suppressant (reduces smoke generation during combustion); ideal for plastics/rubber.
3. **Regulatory Approved:** FDA GRAS (E528) and China GB approved for food/pharm use; non-toxic, no harmful residues.
4. **Acid Neutralization:** Strong alkaline suspension for effective neutralization of acidic water/soil/food; mild antacid for gastric acid relief.
5. **Eco-Friendly:** Non-halogenated, no environmental pollution; Mg is an essential nutrient for plants/animals; neutralizes acid rain-affected soil/water.
6. **Stable Performance:** Slightly hygroscopic with no caking (proper packaging); chemically stable under normal storage/use.
7. **Multi-Functional:** Flame retardant, antacid, flocculant, soil conditioner – one product for multiple applications.

### 4. Application Fields



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- **Plastics/Rubber (Flame Retardant):** Non-halogenated flame retardant for PVC/PE/PP/ABS/rubber; smoke suppressant for cables/construction materials (meets RoHS/REACH).
- **Food Industry (E528):** Antacid for dairy/beverages; buffering agent for processed foods; pH adjuster for canned food.
- **Pharmaceuticals:** Antacid (milk of magnesia) for gastric acid/heartburn relief; laxative (oral suspension); excipient for tablets/capsules.
- **Water Treatment:** Flocculant for wastewater (removes suspended solids/heavy metals); neutralizer for acidic drinking water/wastewater.
- **Agriculture:** Soil conditioner (neutralizes acidic soil); Mg nutrient supplement (chlorophyll synthesis for plants).
- **Other:** Cosmetic pH adjuster (skincare); industrial neutralizer (metal surface treatment/chemical processing); paper coating additive (fire retardant).

### 5. Usage Methods

- **Plastics Flame Retardant:** Add 30–60% (mass ratio) to plastic resin (PVC/PE/PP); mix evenly before extrusion/injection molding (no additional flame retardant needed).
- **Water Treatment Flocculant/Neutralizer:** Add 100–500 ppm to wastewater; stir evenly to neutralize acid (pH 6.0–8.0) and precipitate suspended solids.
- **Pharmaceutical Antacid:** Prepare 8% aq. suspension (milk of magnesia); take 5–10 mL orally for gastric acid relief (per doctor's advice).
- **Agricultural Soil Conditioner:** Spread 50–200 kg/acre on acidic soil; till into soil (adjust dosage by soil pH).
- **Optimal Conditions:** Use at 10–40°C; avoid mixing with strong acids (exothermic reaction); dampen powder to prevent dust during handling.

### 6. Packaging & Storage

- **Packaging:** 1 kg/bag (food/pharm grade), 25 kg HDPE moisture-proof drums, 50 kg fiber drums, 1000 kg IBC totes (bulk industrial); food-grade aluminum foil packaging available.
- **Storage:** Cool, dry, well-ventilated warehouse ( $\leq 30^{\circ}\text{C}$ ); sealed moisture-proof packaging; avoid direct sunlight/high temperature ( $> 350^{\circ}\text{C}$ ); separate from strong acids.
- **Shelf Life:** 36 months (unopened); 6 months after opening (seal tightly after use).
- **Transportation:** Non-hazardous goods; avoid moisture/collision/acid contact during transport; dampen bulk powder to prevent dust.

### 7. Safety & Protection

- Wear nitrile gloves, safety goggles, and N95 dust mask for bulk powder handling; avoid dust inhalation/skin-eye contact.
- Rinse skin/eyes with plenty of water immediately if contact occurs; consult a doctor if irritation persists.
- Do not mix with strong acids (exothermic reaction); use fume hood and heat-resistant gloves if acid contact is unavoidable.
- Separate food/pharm grade from industrial grade (dedicated storage/handling); comply with GMP/HACCP for food/pharm use.

### 8. Quality Assurance

- Manufactured under ISO 9001 (quality), ISO 14001 (environmental), GMP (pharm/food) and HACCP (food) management systems; RoHS/REACH compliant for flame retardant grade.
- Each batch is strictly tested for purity, heavy metals, and flame retardancy (industrial grade); accompanied by a COA for compliance with all applicable standards.
- Provide customized technical solutions (dosage, formulation) for plastics/flame retardant/water treatment/agri applications; on-site technical support available.