

TECHNICAL DATA SHEET

Magnesium Oxide

Feed Grade Mineral Additive / Buffering Agent for Aquaculture and Ruminant Feed

Product Description

Magnesium Oxide is a feed grade inorganic magnesium source supplied as a fine white to off-white powder. It provides a concentrated source of magnesium for mineral premixes, complete feed, aquaculture feed, and ruminant rations. In practical feed formulation, Magnesium Oxide is valued for its high magnesium content, heat stability, low odor, and compatibility with common mineral carriers and dry blending systems. For ruminants, it is widely used to support magnesium supplementation and rumen buffering strategies. In aquaculture, it can be applied as part of mineral nutrition programs and feed additive blends where stable magnesium contribution is required.

1. Product Identification

Product Name	Magnesium Oxide
Chemical Name	Magnesium oxide
CAS No.	1309-48-4
Molecular Formula	MgO
Molecular Weight	40.30 g/mol
HS CODE	
Appearance	White to off-white fine powder
Primary Function	Magnesium source, mineral additive, and buffering agent for feed applications

UNIT:MT	Covered the pallets	Without pallets	
20'FCL	20	24	
40'FCL	28	28	
We can offer	25KGS/ABG	50KGS/BAG	1350KGS/BAG



2. Typical Specification

Items	Standard A
Appearance & physical characteristics	White powder, odorless, tasteless and non-toxic
Solubility status	Practically insoluble in water, Insoluble in ethanol, soluble in acid or ammonium salt solution
Magnesium oxide (MgO)	99.0%~100.5%
Calcium oxide (CaO)	≤0.5%
Soluble Substances	≤2.0%
Hydrochloric acid insoluble matter	≤0.1%
Iron (Fe) ppm	≤40
Lead (Pb) ppm	≤3.0
Arsenic (As) ppm	≤3.0
Loss on ignition	≤5.0
Bulk Density (g/ml)	N.A.

Item	Standard B
MgO	≥ 94%
SiO ₂	≤ 0.5%
CaO	≤ 1.5%
Fe ₂ O ₃	≤ 0.9%
Al ₂ O ₃	≤ 0.6%
LOI	≤ 3%
-200 mesh	≥ 90%

3. Applications and Benefits

Mineral supplementation in aquaculture feed

Magnesium Oxide can be used in aquaculture feed as a concentrated magnesium source for mineral premixes and complete diets. Magnesium is involved in normal enzyme activity, energy metabolism, osmotic balance, and skeletal development in aquatic species. In practical feed production, Magnesium Oxide offers good thermal stability during mixing, conditioning, and pelleting, making it suitable for sinking pellets, floating extruded feed, and specialty aquatic diets. It may be used together with calcium, phosphorus, trace minerals, vitamins, and functional additives according to the final nutrition design. Because aquatic species, culture water, feed ingredients, and growth stages differ significantly, the inclusion level should be determined by a qualified nutritionist. Proper dispersion in premixes is recommended to avoid localized high mineral concentration and to support consistent intake.

Support for feed stability and mineral balance in aquatic systems

In aquatic feed, mineral quality is important not only for animal nutrition but also for product consistency during storage and use. Feed grade Magnesium Oxide is an inorganic, non-volatile

material with low odor and good stability, so it can be incorporated into dry feed blends without contributing undesirable smell or rapid degradation. It is useful in mineral premixes, aquatic feed additive blends, and formulas that require stable magnesium contribution under processing and transport conditions. In water-contact feeding environments, it is important to manage pellet durability, leaching behavior, and mineral availability through appropriate formulation and processing control. Magnesium Oxide should be evaluated together with binders, phosphates, organic acids, and other mineral salts to confirm compatibility. Good manufacturing practice, uniform mixing, and moisture control help maintain reliable quality.

Rumen buffering and magnesium supply for dairy and beef cattle

Magnesium Oxide is widely used in ruminant feed as both a magnesium source and a practical rumen buffering ingredient. In dairy cow and beef cattle rations, it can help support dietary magnesium intake, especially when forage magnesium level is limited or when high-producing animals require balanced mineral supplementation. It is also commonly included in buffer systems designed to support rumen pH management in high-concentrate diets. By helping maintain a more stable rumen environment, Magnesium Oxide may support feed intake, fiber digestion, and overall ration performance when used as part of a properly balanced program. The final dosage should consider forage analysis, concentrate level, dietary cation-anion balance, production stage, and veterinary or nutritionist recommendations. Gradual introduction and accurate mixing are recommended for consistent results.

Use in ruminant premixes, mineral blocks, and compound feed

For ruminant applications, Magnesium Oxide is suitable for mineral premixes, compound feed, concentrates, lick blocks, and total mixed ration additive systems. Its high magnesium density allows formulators to deliver meaningful magnesium levels with relatively low inclusion, which helps control formula space and handling cost. The product can be blended with calcium carbonate, dicalcium phosphate, sodium bicarbonate, trace minerals, vitamins, yeast products, and other feed additives after compatibility confirmation. In premix manufacturing, particle size, flowability, and bulk density should be controlled to reduce segregation during transport and feeding. Magnesium Oxide is not intended to replace complete mineral management; it should be used within a ration program based on forage testing, target animal category, and local regulatory requirements. Store the product dry to preserve free-flowing performance.

4. Handling and Safety

Avoid inhalation of dust during handling. Use appropriate local exhaust ventilation, dust mask, gloves, and eye protection where necessary. Keep away from incompatible materials and maintain good housekeeping in production areas. This product is intended for feed use only and should be applied in accordance with local feed regulations and approved formulation practice.