1. PRODUCT AND MANUFACTURER IDENTIFICATION

Product names:

NanoActive® MgO
NanoActive® MgO Plus

Manufacturer:
NanoScale Corporation
1310 Research Park Drive
Manhattan, KS 66502
(785) 537-0179

Product Information:
(785) 537-0179
24-Hour Chemtrec Emergency Number:
U.S. (800) 424-9300
International (703) 527-3887

2. CHEMICAL COMPOSITION AND EXPOSURE LIMITS

Component	CAS Number:	OSHA PEL:	ACGIH TLV:
Magnesium Oxide	1309-48-4	15 mg/m^3 particulate	10 mg/m^3 total dust

3. HAZARD IDENTIFICATION AND EMERGENCY OVERVIEW

Appearance and odor: White powder, no odor.
Routes of Exposure: Eye and skin contact, inhalation, ingestion.

Eye Contact: May cause eye irritation
Skin Contact: May cause skin irritation
Inhalation: May cause respiratory tract irritation. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count.
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

Acute health hazards: Inhalation of dust may cause irritation of mucus membranes and the upper respiratory tract. Large exposures may damage the olfactory system and upper respiratory system. May cause diarrhea.

Chronic health hazards: Magnesium oxide exposure is considered a chronic health hazard but the chronic effects are not well characterized.

Carcinogen status: NTP: No, **IARC:** No, **OSHA:** No

4. FIRST AID MEASURES

Skin: In case of skin contact, flush with copious amounts of water for at least 15 minutes, remove contaminated clothing and shoes. If irritation continues after flushing, seek medical attention.

Inhalation: If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration.

Eyes: In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eyelids with fingers. Seek medical attention.

Ingestion: If swallowed, wash out mouth with water provided that person is conscious. Seek medical attention.

5. FIRE-FIGHTING MEASURES

Magnesium oxide is neither flammable nor explosive. May emit toxic fumes at very high temperatures. Firefighting in the presence of magnesium oxide should include the use of standard NIOSH approved self-contained breathing apparatus (SCBA) and full protective equipment for protection against dust and aerosols of solutions. Magnesium oxide may be exposed to water, carbon dioxide, dry chemical, and foam-extinguishing agents as necessary during firefighting operations, although the energy of hydrolysis released during exposure to water may generate additional heat.

6. ACCIDENTAL RELEASE MEASURES

Wash area with soap and water. Clean up spills immediately, using the appropriate protective equipment. Sweep up and place into a suitable container for disposal. Avoid generating dust.

7. HANDLING AND STORAGE

Keep in sealed containers to avoid slow reactions with carbon dioxide and moisture in air.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Respiratory Protection: Use NIOSH approved respirator when use is necessary.
Skin Protection: Wear appropriate protective gloves and clothing to prevent skin exposure.
Eye Protection: Wear appropriate protective glasses or chemical safety goggles.
Other Protective Equipment: Wear appropriate protective clothing to minimize contact with skin.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color/Appearance: White powder
Odor: None
Molecular Weight: 40.30
Boiling point: 3600^{o}C
Melting point: 2800°C
Specific gravity: 3.58
Vapor pressure: .3 mm_{Hg} (1727^{o}C)
Solubility in water: 90 g/L
pH of a slurry = 10.3

10. STABILITY AND REACTIVITY

Stability: Stable under normal temperature and pressure
Hazardous Polymerization: None
Incompatibility: Strong oxidizing agents; reacts violently with phosphorous pentachloride, chlorine trichloride, or bromine pentafluoride. Will adsorb CO_2 from air.
Decomposition Products: None

11. TOXICOLOGICAL INFORMATION

Acute Oral: LD_{50} > 5 g/kg, MgO Plus: LD_{50} > 4 g/kg
Acute Dermal Irritation: EPA Category IV “non-irritating”
Skin Sensitation: Non-sensitizer
Acute Eye Irritation: EPA Category III, MgO Plus: Category II
Inhalation: Non-Toxic

12. ECOLOGICAL INFORMATION

None available.

13. DISPOSAL CONSIDERATIONS

Disposal should be in accordance with applicable local, state, and federal regulations.

14. TRANSPORT INFORMATION

(49 CFR 172.101-2): not listed

15. REGULATORY INFORMATION

TSCA: Listed in the TSCA inventory.
SARA (Title 313): Not subject to reporting requirements
CERCLA RQ: None

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. NanoScale Corporation makes no warranty with respect hereto and disclaims all liability from reliance thereon. The information is intended for use by persons with professional knowledge of the subject matter or with access to such persons. Persons receiving this information are urged to conduct their own assessment of the suitability and completeness of the information for their particular application.