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## 1. PRODUCT AND MANUFACTURER IDENTIFICATION

Product names:

**Aluminum Oxide – NanoActive<sup>®</sup> Al<sub>2</sub>O<sub>3</sub>, NanoActive<sup>®</sup> Al<sub>2</sub>O<sub>3</sub> 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**

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## 2. CHEMICAL COMPOSITION AND EXPOSURE LIMITS

<u>Component</u>	<u>CAS Number:</u>	<u>OSHA PEL:</u>	<u>ACGIH TLV:</u>
Aluminum Oxide	1344-28-1	15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>

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## 3. HAZARD IDENTIFICATION AND EMERGENCY OVERVIEW

**Routes of exposure:** Eyes, skin, inhalation and ingestion.

**Eye Contact:** Dust may cause mechanical irritation.

**Skin Contact:** Dust may cause mechanical irritation. Low hazard for usual industrial handling.

**Inhalation:** May cause respiratory tract irritation. May cause lung damage.

**Ingestion:** Ingestion of large amounts may cause gastrointestinal irritation. Expected to be a low ingestion hazard.

**Chronic Health Effects:** Chronic inhalation of fine dusts may cause lung damage.

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

#### 4. FIRST AID MEASURES

**Inhalation:** Remove from exposure to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if cough or other symptoms appear.

**Eye Contact:** Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**Skin Contact:** Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

**Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical attention.

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#### 5. FIRE-FIGHTING MEASURES

Aluminum oxide is neither flammable nor explosive. Full protective gear and a NIOSH approved self-contained breathing apparatus (SCBA) should be used to protect eyes, skin, and lungs from exposure during firefighting operations around Aluminum Oxide.

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#### 6. ACCIDENTAL RELEASE MEASURES

Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, using the appropriate protective equipment. Avoid generating dusty conditions, provide adequate ventilation.

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#### 7. HANDLING AND STORAGE

Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

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#### 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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Color/Appearance:** Fine white powder

**Odor:** None

**Molecular Weight:** 101.961

**Boiling Point:** 2980° C

**Melting Point:** 2050° C

**Specific Gravity:** 3.97

**Vapor Pressure:** N/A

**Solubility in Water:** Insoluble

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## 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal temperature and pressures.

**Hazardous Polymerization:** None reported.

**Incompatibility:** Reacts with chlorine trifluoride or ethylene oxide.

**Decomposition Products:** None reported.

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## 11. TOXICOLOGICAL INFORMATION

### Al<sub>2</sub>O<sub>3</sub> Plus

**Acute Oral Toxicity:** LD<sub>50</sub> > 2 g/kg

**Acute Dermal Toxicity:** LD<sub>50</sub> > 5 g/kg

**Acute Dermal Irritation:** PII = 0, non-irritating

**Skin Sensitization:** Non-sensitizer

**Acute Eye Irritation:** Practically non-irritating

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## 12. ECOLOGICAL INFORMATION

There are no data available on this product.

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## 13. DISPOSAL CONSIDERATIONS

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

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## 14. TRANSPORT INFORMATION

(49 CFR 172.101-2): Not listed

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## 15. REGULATORY INFORMATION

**TSCA:** Listed in the TSCA inventory.

**SARA (Title 313):** Alumina oxide is 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.

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## 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.