



NANO WINGS PRIVATE LIMITED

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Material Safety Data Sheet (MSDS)

Aluminum oxide or Alumina (Al_2O_3) Nanoparticles:

1. Identification of substance:

- * Product name: Aluminum Oxide (Al_2O_3) powder - Alpha
- * Stock#: NWNP1406-01

* Manufacturer / Supplier:

Nano Wings Pvt Ltd
Regd. Office and R&D Centre,
10-1-96, Mamillaguda, Khammam – 507001, INDIA
Ph.No: +91-8742-232794; info@nanowings.co.in

2. Composition / Data on Components:

- * CAS#: 1344-28-1
- * α - Alumina (Al_2O_3); Purity: 99%

3. Hazards Identification & Description:

- * Hazardous – Xi Irritant
- * Danger to man and environment – R 37 Irritating to respiratory system.

4. First Aid measures:

- * **Inhalation** – Move to fresh air. If required, provide artificial respiration. Keep patient warm.
- * **Skin contact** - Immediately wash with water and soap and rinse thoroughly.
- * **Eye contact** - Rinse opened eye for several minutes under running water
- * NEVER swallow.
Seek immediate medical advice in all the above events.

5. Fire fighting measures:

- * Suitable extinguishing agents - Product is not flammable. Use fire fighting measures that suit the surrounding fire.
- * For safety reasons unsuitable extinguishing agents Halogenated extinguisher.
- * Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.

6. Accidental release measures:

- * Use proper personal protective equipment as indicated in Section 8.

* Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Scoop up with a non-sparking tool, then place into a suitable container for disposal. Avoid generating dusty conditions. Remove all sources of ignition.

7. Handling and Storage:

* Information for safe handling:

Keep the container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

* Information about protection against explosions and fires:

The product is not flammable therefore, NO special requirement.

* Storage requirements to be met by storerooms and receptacles:

No special requirements.

* Information about storage in one common storage facility:

Do not store together with acids and alkalis.

8. Personal protective equipment & measures:

* Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

* Eye protection: Safety glasses

* Skin protection: Nitrile gloves and protective clothing such as cotton lab coat.

* Body protection: Protective work clothing.

* Ventilation: An exhaust system is recommended.

* The usual precautionary measures for handling chemicals should be followed.

* Use adequate general or local explosion-proof ventilation to keep airborne levels to acceptable levels.

9. Toxicological information

LD50/LC50:

LD50 Oral - Rat - > 10,000 mg/kg

LC50 Inhalation - Rat - 4 h - > 2.6 mg/L

Carcinogenicity:

CAS# 1344-28-1: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found

Teratogenicity: No information found Reproductive Effects: No information found

Mutagenicity: No information found

Neurotoxicity: No information found

Other Studies: Toxicological information on Aluminum oxide may be found at the website of the International Council on Nanotechnology at <http://icon.rice.edu/>

10. Product description – Physical and Chemical Properties:

Color: White

Form: Powder

Odor: Oderless

Purity: 99%,

Average Particle Size (APS): 50-150 nm – As per SEM

Specific Surface Area (SSA): 75 m²/g (BET)
Morphology: nearly Spherical
Crystallographic Structure: α (alpha) - (AS per PXRD)
Crystallite size: 10-20 nm (AS per PXRD)
Melting Point: 2045°C
Boiling Point: 2980°C

11. Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid:

Dust generation,
moisture,
excess heat.

Incompatibilities with Other Materials:

Strong acids,
Strong bases,
Chlorine trifluoride,
Ethylene oxide,
Halogenated hydrocarbon,
Oxygen difluoride,
Sodiumnitrate,
Vinyl compounds.

Hazardous decomposition products formed under fire conditions: Aluminum oxide fume

Other decomposition products - No data available

12. Ecological Information Eco-toxicity:

No toxicity at the limit of solubility.

BOD5 and COD: Not available.

13. Disposal Considerations Waste Disposal:

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.

Disposal considerations/Recommendation:

Consult state, local or national regulations to ensure proper disposal.

Disposal must be made according to official regulations.

14. Transport information

Not a hazardous material for transportation.

* Hazard class: None

* ADR/RID class: None

* IMDG Class: None

* ICAO/IATA Class: None

* Transport/Additional information: Not dangerous according to the above specifications.

15. Regulatory Information:

CAS#1344-28-1 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b None of the chemicals are listed under TSCA Section 12b.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

16. Other Information

Label Precautions: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Avoid breathing dust or vapors. Keep container closed. Use only with adequate ventilation.

Label First Aid: If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, seek medical attention.

Product Use: Laboratory Reagent.

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