

Section 1: Identification

PRODUCT IDENTIFIER: NANO and NANO2 Alumina Slurry

CHEMICAL FAMILY: Abrasive

EMERGENCY PHONE: CHEMTREC 800-424-9300 (US) Day or night
International call collect CHEMTREC 202-483-7616
Customer No. 16568

MANUFACTURER: PACE Technologies
3601 E. 34th St., Tucson, AZ 85718S
Tucson, Arizona USA
Phone: +1 520-882-6598
FAX: +1 520-882-6598

Section 2: Hazard(s) Identification

GHS CLASIFICATION:	Not a hazardous substance or mixture
PICTOGRAM(s):	N/A
SIGNAL WORD:	N/A
HAZARD STATEMENTS:	N/A
PRECAUTIONARY STATEMENTS:	P261-Avoid breathing dust/fume/gas/mist/vapors/spray. P264-Wash hands thoroughly after handling. P337-P313-IF eye irritation persists: Get medical advice/attention. P501- Dispose of contents/container to Federal, State and Local Regulations

Section 3: Composition/Information on Ingredients

CHEMICAL	CAS NUMBER	% PRESENT
Propylene glycol	000057-55-6	50-90
Aluminum Oxide	1344-28-1	10-50

Ingredients are listed on the TSCA Inventory of Chemical Substances. Those not identified are non-hazardous.

Section 4: First-Aid Measures

- EYES:** Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention if symptoms persist.
- SKIN:** Wash with soap and water. If skin irritation or an allergic skin reaction develops, get medical attention.
- INHALATION:** If symptomatic, move to fresh air. Get medical attention if symptoms persist.
- INGESTION:** Material is of sufficiently low toxicity that inducing vomiting should not be necessary.

Section 5: Fire-Fighting Measures

- EXTINGUISHING MEDIA:** Water spray, Dry chemical, CO2, alcohol foam.
- SPECIAL FIRE FIGHTING PROCEDURES:** Wear self-contained breathing apparatus and protective clothing.
- HAZARDOUS COMBUSTION PRODUCTS:** Carbon dioxide, carbon monoxide
- UNUSUAL FIRE AND EXPLOSION HAZARDS** None

Section 6: Accidental Release Measures

- STEPS TO TAKE IF MATERIAL IS SPILLED OR RELEASED:** Absorb spill with vermiculite or other inert material, then place in a container for chemical waste
- For Large Spills: Flush spill area with water spray. Prevent runoff from entering drains, sewers, or streams.

Section 7: Handling and Storage

- PERSONAL PRECAUTIONARY MEASURES:** No special precautionary measures should be needed under anticipated conditions of use.

PREVENTION OF FIRE AND EXPLOSION:

Keep from contact with oxidizing materials.

STORAGE

Keep container closed.

Section 8: Exposure Controls/ Personal Protection

EXPOSURE LIMITS:

ACGIH threshold Limit Value (TLV): not established

OSHA (USA) Permissible Exposure Limit (PEL, 1989 Table Z-1-A values or section-specific standards): not established

AIHA Workplace Environmental Exposure Level (WEEL): propylene glycol: 500 ppm TWA, total: 10 mg/m³ TWA, aerosol only

VENTILATION:

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

RESPIRATORY PROTECTION:

If engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator must be worn. Respirator type: mist; organic vapor. If respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998.

EYE PROTECTION:

It is a good industrial hygiene practice to minimize eye contact.

SKIN PROTECTION:

It is a good industrial hygiene practice to minimize skin contact.

RECOMMENDED DECONTAMINATION FACILITIES:

Eye bath, washing facilities

Section 9: Physical and Chemical Properties

PHYSICAL FORM:	Viscous liquid
BOILING POINT:	187.3°C (369 °F)

MELTING POINT:	-60°C (-76°F)
SPECIFIC GRAVITY (H2O = 1)	variable
COLOR	White
ODOR	Mild
EVAPORATION RATE (BUTYL ACETATE = 1)	0.005
VAPOR PRESSURE @ 20 C	0.106 mbar (0.08 mm Hg)
VAPOR DENSITY (air=1)	2.6
pH (concentration, unless specified)	Not available
Octanol/Water Partition Coefficient	P=0.12
Flash Point (Tag closed cup)	101°C (214°F)
Lower Flammable Limit at 163°C (325°F)	2.35 volume %
Upper Flammable Limit at 174°C (423°F)	13.7 volume %

Section 10: Stability and Reactivity

STABILITY:	Stable.
INCOMPATIBLE MATERIALS:	Material can react with strong oxidizing agents.
HAZARDOUS POLYMERIZATION	Will not occur.

Section 11: Toxicological Information

EFFECTS OF EXPOSURE:

INHALATION:	Low hazard for usual industrial handling or commercial handling by trained personnel.
EYES:	Low hazard for usual industrial handling or commercial handling by trained personnel.
SKIN:	This material has a low potential to cause allergic skin reactions; however, cases of human skin sensitization have been reported.
INGESTION:	Expected to be a low ingestion hazard.

ACCUTE TOXICITY DATA:	Oral LD-50 (rat): 21.0-33.7 g/kg Oral LD-50 (mouse): 23.9-31.8 g/kg Oral LD-50 (guinea pig): 18.4-19.6 g/kg Oral LD-50 (rabbit): 15.7-19.2 g/kg Inhalation LC-50 (rat): >105 ppm/8 hour(s) (highest concentration obtainable) Dermal LD-50 (rabbit): 20.8 g/kg Skin irritation (guinea pig): none Skin irritation (rabbit): none Skin sensitization (human): slight Eye irritation (rabbit): slight
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Definitions for the following section(s): LOEL = lowest-observed-effect level,

NOAEL = no observed-adverse-effect level, NOEL = no-observed-effect level.

Subchronic Toxicity Data: Oral study (140 days, rat): NOEL = 13200 mg/kg/day

Chronic Toxicity Data:

Oral study (2 years, dog): NOEL = 2000 mg/kg/day

Inhalation study (12-18 months, rat): NOEL = 65.8-100 ppm/day (highest concentration obtainable)

Carcinogenicity Data: Oral study (2 years, dog): NOEL = 2500 mg/kg/day

Reproductive Toxicity Data: Oral study (mouse): NOEL for maternal/paternal toxicity = 10100 mg/kg/day (highest dose tested); NOEL for maternal/ paternal fertility = 10100 mg/kg/day (highest dose tested); NOEL for ebyro/fetotoxicity = 10100 mg/kg/day (highest dose tested).

Mutagenicity/Genotoxicity Data: Salmonella typhirmurium assay (Ames test): negative (+/- activation)

Section 12: Ecological Information

Introduction: This environmental effects summary is written to assist in addressing emergencies created by an accidental spill which might occur during the shipment of this material, and, in general, it is not meant to address discharges to sanitary sewers or publicly owned treatment works. Data for this material have been used to estimate its environmental impact.

It has the following properties: a high biochemical oxygen demand and a potential to cause oxygen depletion in aqueous systems, a low potential to affect aquatic organisms, a low potential to persist in the environment, a low potential to bioconcentrate. After dilution with a large amount of water, followed by secondary waste treatment, this material is not expected to cause adverse environmental effects.

Oxygen Demand Data:

ThOD: 1.68 g oxygen/g

COD: 1.63 g oxygen/g

BOD-5 1.08 g oxygen/g

BOD-20: 1.225 g oxygen/g

Acute Aquatic Effects Data:

24-h LC-50 (goldfish): >5000 mg/l

48-h LC-50 (guppy): >10000 mg/l

96-h LC-50 (rainbow trout): >10000 mg/l

96-h LC-50 (bluegill sunfish): 1700 mg/l

96-h LC-50 (tidewater silverside): 650 mg/l

Section 13: Disposal Considerations

Discharge, treatment, or disposal may be subject to federal, state, or local laws. Incinerate.

Section 14: Transportation Information

DOT (CFR49): NOT REGULATED.

IATA (air): NOT REGULATED.

IMDG (ocean): NOT REGULATED.

HAZARD CLASSIFICATION: NON-HAZARDOUS.

PACKING GROUP: NOT REGULATED.

UN/NA CODE: NOT REGULATED.

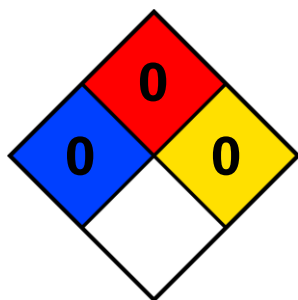
Section 15: Regulatory Information

- This document has been prepared in accordance with the MSDS requirements of the OSHA Hazard Communication Standard 29 DGR 1910.1200.
- OSHA Classification: nonhazardous
- California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986): material(s) known to the State to cause cancer: none known to Eastman)
- California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986): material(s) known to the State to cause adverse reproductive effects: none known to Eastman)
- This document has been prepared in accordance with the MSDS requirements of the WHMIS (Canada) Controlled Products Regulation.
- WHNIS (Canada) Status: non-controlled
- WHMIS (Canada) Hazard Classification: not applicable
- Carcinogenicity Classification (components present at 0.1% or more):
 - International Agency for Research on Cancer (IARC): not listed
 - American Conference of Governmental Industrial Hygienists (ACGIH): no listed
 - National Toxicology Program (NTP): not listed
 - Occupational Safety and Health Administration (OSHA): not listed

- Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372: none
- SARA (USA) Sections 311 and 312 hazard classification(s): not applicable
- US Toxic Substances Control Act (TSCA): This product is listed on the TSCA inventory. Any impurities present in the product are exempt from listing.
- Canadian Environmental Protection Act (CEPA) and Domestic Substances List (DSL): This product is listed on the DSL. Any impurities present in this product are exempt from listing.
- European Inventory of Existing Commercial Chemical Substances (EINECS): this product is listed on EINECS. EINECS Number: 2003380
- Australian Inventory of Chemical Substances (AICS) and National Industrial Chemicals Notification and Assessment Scheme (NICNAS): This product is listed on AICS or otherwise complies with NICNAS.
- Japanese Handbook of Existing and New Chemical Substances: This product is listed in the Handbook or has been approved in Japan by new substance notification.
- Korean Toxic Substances Control Act: This product is listed on the Korean inventory or otherwise complies with the Korean Toxic Substances Control Act. ECL Number: 2-1420

Section 16: Other Information

16.1 NFPA 704



Top, Flammability: 0 – Minimal Hazard

Left, Health Hazard: 0 – Minimal Hazard

Right, Reactivity: 0 – Minimal Hazard

Bottom, Special Notice: N/A

Label Statements:

LOW HAZARD FOR USUAL INDUSTRIAL OR COMMERCIAL HANDLING BY TRAINED PERSONNEL

Get medical attention if symptoms occur.

CAUTION: FOR MANUFACTURING, PROCESSING OR REPACKING BY TRAINED PERSONNEL

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