

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER: PACE Technologies
3601 E. 34th St.
Tucson, AZ 85713

INFORMATION PHONE: 520-882-6598

EMERGENCY PHONE: CHEMTREC 800-424-9300 (US) Day or night
International call collect CHEMTREC 202-483-7616

TRADE NAME: Nanometer 0.05 micron Alumina Slurry

CHEMICAL FAMILY: Ceramic

HMS RATING: HEALTH: 0 FLAMMABILITY: 0 REACTIVITY: 0

HAZARD RATING:

LEAST: 0 SLIGHT: 1 MODERATE: 2 HIGH: 3 EXTREME: 4

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

| CHEMICAL NAME | APPROX % | COMMON NAME | REG* (Y/N) | CAS # | P.E.L. (mg/m ³) | TLV (mg/m ³) | CARCIN. (Y/N) |
|--------------------------------|-----------|----------------|------------|-----------|-----------------------------|--------------------------|---------------|
| Al ₂ O ₃ | 10-30 min | Alumina | Y | 1344-28-1 | 10 | 10 | N |
| SiO ₂ | 0.6-1.0 | Silicate Glass | Y | 7631.86-9 | 6 | 10 | N |
| Water | 70-90 | Water | N | 7732-16-5 | None | None | N |

** Subject to EPA section 313 reporting SARA 40 CFR part 372
NE = None Established

Product formulation is Proprietary
No ingredients are known to be hazardous under normal usage.

SECTION 3. HAZARDS IDENTIFICATION

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| EYE CONTACT: | May cause irritation. |
| SKIN CONTACT: | Repeated or prolonged skin contact may cause irritation. |
| INHALATION: | Vapor and mist may irritate nose and throat. Prolonged inhalation may cause dizziness. |
| INGESTION: | May cause gastrointestinal irritation. Nausea and vomiting may occur. |
| PRIMARY ROUTE(S) OF ENTRY: | Inhalation at high temperatures, eye contact, skin contact. |
| TARGET ORGANS: | Respiratory passages at high temperatures, eyes, skin. |
| MEDICAL CONDITIONS AGGRAVATED BY LONG-TERM EXPOSURE: | Individuals with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of chemical. |
| CARCINOGENICITY: | IARC, NTP, and OSHA do not list this product or its ingredients as carcinogens. |

SECTION 4. FIRST AID MEASURES

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| EYE CONTACT: | Flush thoroughly with water for at least 15 minutes. Get immediate medical attention. |
| SKIN CONTACT: | Remove contaminated clothing and shoes. Wash exposed area with soap and water. Get medical attention if symptoms persist. |

INHALATION: No known harmful effects. If symptoms develop, remove affected person from source of exposure into fresh air. Get medical attention.

INGESTION: Get immediate medical attention. Do not induce vomiting unless instructed to do so by a physician. Give large quantities of water or milk.

SECTION 5. FIRE-FIGHTING MEASURES

FLASH POINT: N/A

FLASH POINT METHODS: N/A

LOWER FLAMMABLE LIMIT (LFL): N/A

UPPER FLAMMABLE LIMIT (UFL): N/A

EXTINGUISHING MEDIA: CO₂, Foam, Dry Chemical, Water Spray

UNUSUAL FIRE OR EXPLOSION HAZARDS: None

HAZARDOUS COMBUSTION PRODUCTS: Specific to type of material involved in fire.

FIRE-FIGHTING INSTRUCTIONS: Wear a NIOSH approved positive pressure self-contained breathing apparatus with full protective clothing. Do not release runoff from fire control methods to sewers or waterways.

FIRE-FIGHTING EQUIPMENT: Fire may produce toxic thermal decomposition products. Wear a self-contained breathing apparatus (SCBA) with a full face-piece operated in pressure-demand or positive-pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- SMALL SPILLS:** Isolate area and deny entry. Ventilate area of leak or spill. Small spill can be picked up with vermiculite or other absorbent, noncombustible material. Properly protected personnel should flush spill with plenty of water, taking care not to splash personnel.
- LARGE SPILLS:** Notify appropriate personnel and implement facility emergency response plan. Evacuate nonessential personnel, and isolate area. Cleanup personnel should wear fully protective equipment for skin and eye contact.
- CONTAINMENT:** For large spills, dike far ahead of liquid spill for later disposal. Do not release directly into sewers or waterways. Wash walking surfaces thoroughly to reduce slipping hazard.
- CLEANUP:** Absorb spilled liquid with non-reactive absorbent material. Place clean-up material in appropriate disposal containers and dispose of according to local, state and federal requirements.
- REGULATORY REQUIREMENT:** Any release to the environment of this product may be subject to federal, state, and/or local reporting requirements. Check with appropriate agencies.

SECTION 7. HANDLING AND STORAGE

- HANDLING PRECAUTIONS:** Exercise ordinary care in handling industrial lubricants. Avoid contamination of cigarettes or other tobacco products. Wash hands thoroughly before eating or smoking. Remove contaminated clothing and wash before reuse.
- Users should be alert to the possibility that very small percentages of the population may display unexpected allergic reactions to otherwise innocuous industrial lubricants or raw materials.
- STORAGE REQUIREMENTS:** Do not store in open or unlabeled containers. Store in well ventilated, properly drained / contained site, away from heat, out of the sun, and away from combustibles and reactive chemicals. Use only approved containers and protect containers from damage and keep material from freezing.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- EYE PROTECTION:** Avoid eye contact. Wear safety glasses or chemical goggles in accordance with OSHA 29 CFR 1910.133.
- SKIN PROTECTION:** Avoid skin contact. Wear chemical protective gloves. Depending upon conditions of use, additional protection may be necessary such as a face shield, apron, etc.
- VENTILATION:** Local ventilation is generally not necessary under normal conditions of use with adequate general ventilation. Ventilation and other forms of engineering controls are the preferred means for controlling chemical exposures.
- RESPIRATORY PROTECTION:** Avoid breathing in mist. Respiratory protection is generally not necessary under normal conditions of use with adequate general ventilation.
- SAFETY STATIONS:** Make emergency eyewash stations, safety / quick-drench showers, and washing facilities available in work area.
- OTHER PRECAUTIONARY INFORMATION:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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| BOILING POINT: 100°C (of water) | MELTING POINT: 2000°C for powder | SPECIFIC GRAV.: about 1.2-1.5 |
| VAPOR PRESSURE: Water | VOLATILE BY VOL.: 75-85% | VAPOR DENSITY: N/A |
| EVAPORATION RATE: Water | WATER SOLUBLE.: Soluble | ORGANIC SOLVENT SOL.: Insoluble |
| pH: 9-11 | APPEARANCE & ODOR: White cloudy liquid solution. | FLASH POINT.: N/A |

SECTION 10. STABILITY AND REACTIVITY

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| STABILITY: | Stable at room temperature in closed containers under normal storage and handling conditions. |
| POLYMERIZATION: | This product will not undergo hazardous polymerization. |
| CHEMICAL INCOMPATIBILITIES: | Strong oxidizing materials, hypochlorites, chlorine. |
| HAZARDOUS DECOMPOSITION PRODUCTS: | Steam, CO ₂ , CO and unidentified organic compounds in fumes and smoke may be formed during combustion. |
| CONDITIONS TO BE AVOIDED: | Strong acids and bases. Heat source. |

SECTION 11. TOXICOLOGICAL INFORMATION

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| EYE EFFECT: | Avoid eye contact. Wear safety glasses or chemical goggles in accordance with OSHA 29 CFR 1910.133. |
| SKIN EFFECT: | Practically non-irritating. |
| REPRODUCTIVE: | Not reported. |
| INGESTION EFFECT: | Not reported. |
| ACUTE INHALATION EFFECTS: | Not reported. |
| ACUTE ORAL EFFECTS: | N/A |

CHRONIC EFFECTS: Not reported.

CARCINOGENICITY: Not reported.

MUTAGENICITY: Not reported.

TERATOGENICITY: Not reported.

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICITY:: N/A

SOIL ABSORPTION / MOBILITY Not available.

DEGRADABILITY: Liquid portion is biodegradable.

ENVIRONMENTAL FATE AND EFFECTS: Not available.

CONDITIONS TO BE AVOIDED: N/A

SECTION 13. DISPOSAL CONSIDERATIONS

DISPOSAL: Contact a licensed waste-disposal contractor for detailed recommendations. Follow applicable Federal, State, and Local regulations.

CONTAINER DISPOSAL: Rinse three times with an appropriate solvent or water. Dispose or recycle the empty container.

DISPOSAL REGULATORY Many states classify waste lubricants as "hazardous", which

REQUIREMENTS: means disposal only by a licensed firm. Follow applicable Federal, state, and local regulations.

WASTE DISPOSAL METHOD: Standard landfill methods consistent with applicable Federal, State, and local law

SECTION 14. TRANSPORT INFORMATION

DOT TRANSPORTATION DATA (49 CFR 172.101): Not regulated.

This product meets transportation requirements of the US Department of Transportation (DOT), ICAO and IATA special provision A45 and is classified as non-dangerous goods.

SECTION 15. REGULATORY INFORMATION

TSCA: All components of this product are listed on the TSCA inventory.

EPA Regulations:

SARA 311/312 Hazard Class (40 CFR 370)

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| Immediate (Acute) Health Hazard: | No |
| Sudden Release of Pressure Hazard: | No |
| Reactive Hazard: | No |
| Delayed (Chronic) Health Hazard: | No |
| Fire Hazard: | No |

SARA 313 Toxic Chemicals (40 CFR 372.65) No ingredients listed

SARA Extremely Hazardous Substances (40 CFR 355) No ingredients listed

CERCLA Hazardous Substances (40 CFR 302) No ingredients listed

OSHA Regulations:

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| Air contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): | No ingredients listed. |
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SECTION 16. OTHER INFORMATION**FOR COMPANY USE**

THE INFORMATION AND RECOMMENDATIONS SET FORTH HEREIN ARE TAKEN FROM SOURCES BELIEVED TO BE ACCURATE AS OF THE DATE HEREON; HOWEVER PACE TECHNOLOGIES MAKES NO WARRANTY, EXPRESS OR IMPLIED WITH RESPECT TO THE ACCURACY OF THE INFORMATION OR THE SUITABILITY OF THE RECOMMENDATIONS, AND ASSUMES NO LIABILITY TO ANY USER THEREOF.

DATE PREPARED: 5/4/2009
