

SAFETY DATA SHEET

Prepared to U.S. OSHA and the Global Harmonization Standard

DATE OF PREPARATION: April 22, 2005
DATE OF REVISION: September 11, 2017

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY UNDERTAKING

IDENTIFICATION of the SUBSTANCE or PREPARATION:

TRADE NAME:

NOVUS PLASTIC POLISH #2

SYNONYMS:

Fine Scratch Remover, NOVUS No 2

PRODUCT CODE:

7030, 7032, 7033, 7072, 7300, 7303, PC-22, PC20, PC-208

RELEVANT USES of the SUBSTANCE:

Clean and Restore Plastic Surfaces

USES ADVISED AGAINST:

Other than Relevant Use, Including Glass Polishing

COMPANY/UNDERTAKING IDENTIFICATION:

NOVUS, INC.

2. HAZARD IDENTIFICATION

This product has been classified per OSHA's Hazard Communication Standard (29CFR §1910.1200). This is a self-classification.

GHS CLASSIFICATION:

Not classified as Carcinogen 1A or STOT RE 1 as contributory chemical, Silica: Crystalline, quartz, is bound in finished product form and is not expected to be released in respirable fraction under normal use and conditions.

Skin Irritation Category 2
Eye Irritation Category 2A
Skin Sensitizer, Category 1B

GHS LABEL ELEMENTS:

Signal Word: Warning

Hazard Statements:

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H317: May cause an allergic skin reaction.

Precautionary Statements:

Prevention:

P261: Avoid breathing vapors/spray.

P264: Wash thoroughly after handling.

P272: Contaminated clothing must not be allowed out of the workplace.

P280: Wear protective gloves and eye protection.

Response:

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313: If eye irritation persists: Get medical advice/attention.

P302 + P352: IF ON SKIN: Wash with plenty of soap and water.

2. HAZARD IDENTIFICATION, continued

Precautionary Statements (continued):

- P332 + P313: If skin irritation occurs, get medical attention.
- P362: Take off contaminated clothing and wash it before reuse.
- P321: Specific treatment (remove from exposure and treat symptoms).

Storage:

None.

Disposal:

P501: Dispose of contents/containers in accordance with all local, regional, national and international regulations.

Hazard Symbols/Pictograms: GHS07



3. COMPOSITION and INFORMATION ON INGREDIENTS

SUBSTANCE or MIXTURE:

Mixture

CHEMICAL NAME/CLASS:

Aqueous Silica/Hydrocarbon Mixture

Chemical Name	CAS #	W/W %	GHS Classification Hazard Statement and Pictogram Codes
Odorless Mineral Spirits	64742-48-9	7-13%	Due to the fact that this Mineral Spirits contains less than 0.1% benzene or other aromatic, H350 and H340 are not applicable. Classification: Flammable Liquid Category 3, Aspiration Toxicity Category 1 Hazard Statement Codes: H226, H304 Hazard Pictograms: GHS02, GHS08
Polydimethyl Siloxane	63148-62-9	4-8%	Classification: Not Applicable
Flux-Calcined Diatomaceous Earth/ Crystalline Silicas Mixture	68855-54-9	3-7%	SELF CLASSIFICATION Classification: Carcinogenic, Category 1A, Specific Target Organ Toxicity – Repeated Exposure Category 1 Hazard Statement Codes: H350, H372 Hazard Pictograms: GHS08
	14464-46-1 14808-60-7	0-4.1%	
Morpholine	110-91-8	<3%	Classification: Flammable Liquid Category 3, Acute Inhalation Toxicity Category 4, Acute Dermal Toxicity Category 4, Acute Oral Toxicity Category 4, Skin Corrosion Category 1B Hazard Statement Codes: H226, H332, H312, H302, H314 Hazard Pictograms: GHS02, GHS05, GHS07
Oleic Acid	112-80-1	1-5%	SELF CLASSIFICATION Classification: Skin Irritation Category 2 Hazard Statement Codes: H315 Hazard Pictograms: GHS07
Diatomaceous Earths/Crystalline Silicas Mixture	61790-53-2	1-5%	SELF CLASSIFICATION Classification: Carcinogenic, Category 1A, Specific Target Organ Toxicity – Repeated Exposure Category 1 Hazard Statement Codes: H350, H372 Hazard Pictograms: GHS08
	14464-46-1 14808-60-7	0-0.25%	
Sulisobenzene	4065-45-6	0.1	MANUFACTURER CLASSIFICATION Classification: Skin Irritation, Category 2, Eye Irritation, Category 2A, Skin Sensitization, Category 1B Hazard Statement Codes: H319, H315, H317 Hazard Pictograms: GHS07
Water	7732-18-5	Balance	Classification: Not applicable.

4. FIRST-AID MEASURES

DESCRIPTION OF FIRST AID MEASURES: Contaminated individuals must be taken for medical attention if any adverse effects occur. Take a copy of label and SDS to health professional with victim.

SKIN EXPOSURE: If this product contaminates the skin, begin decontamination with running water. Minimum flushing is for 20 minutes. The contaminated individual must seek medical attention if any adverse effects occur after flushing.

EYE EXPOSURE: If this product enters the eyes, open contaminated individual's eyes while under gently running water. Use sufficient force to open eyelids. Have contaminated individual "roll" eyes. Minimum flushing is for 20 minutes. Contaminated individual must seek medical attention if adverse effect continues after flushing.

4. FIRST-AID MEASURES, continued

INHALATION: If mists or sprays of this product are inhaled, remove victim to fresh air. The contaminated individual must seek medical attention if any adverse effects occur.

INGESTION: If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow. If victim is convulsing, maintain an open airway and obtain immediate medical attention.

MOST IMPORTANT SYMPTOMS/EFFECTS (ACUTE & CHRONIC): See Sections 2 (Hazard Identification) and 11 (Toxicological Information) for description of possible health effects from exposure to this product.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin disorders, respiratory conditions, and central nervous system conditions may be aggravated by prolonged overexposure to this product.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT IF NEEDED: Treat symptoms and eliminate overexposure.

5. FIRE-FIGHTING MEASURES

FIRE EXTINGUISHING MEDIA: Use extinguishing material suitable to the surrounding fire, including halon, carbon dioxide, dry chemical, ABC class.

UNSUITABLE FIRE EXTINGUISHING MEDIA: None known.

SPECIAL HAZARDS ARISING FROM THE SUBSTANCE: This product presents a moderate eye and skin-contact hazard to firefighters. This material must be substantially preheated before ignition to occur. When involved in a fire, this material may decompose and produce irritating vapors and toxic gases (including silicon, nitrogen and carbon oxides).

Explosion Sensitivity to Mechanical Impact: Not applicable.

Explosion Sensitivity to Static Discharge: Vapors may be sensitive to static discharge if water has evaporated.

SPECIAL PROTECTIVE ACTIONS FOR FIRE-FIGHTERS: Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Chemical resistant clothing may be necessary. Move containers from fire area if it can be done without risk to personnel. Water spray can be used to cool fire-exposed containers. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas. Rinse contaminated equipment thoroughly with soapy water before returning such equipment to service.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS AND EMERGENCY PROCEDURES: Proper protective equipment should be used. In the event of a spill, clear the area and protect people. Eliminate all sources of ignition before cleanup begins. Use non-sparking tools. The atmosphere must have levels of components lower than those listed in Section 8, (Exposure Controls and Personal Protective Equipment) if applicable, and have at least 19.5 percent oxygen before personnel can be allowed into the area without Self-Contained Breathing Apparatus (SCBA).

PERSONAL PROTECTIVE EQUIPMENT: Use proper protective equipment and non-sparking tools and equipment.

Small Spills: Wear rubber gloves, splash goggles, and appropriate body protection.

Large Spills: Not applicable due to size of containers.

METHODS FOR CLEAN-UP AND CONTAINMENT: Avoid allowing contact with water on spilled substance or inside containers.

Small Spills: Absorb spilled material with polypads or other suitable, non-reacting sorbent, avoiding generation of aerosols, wearing gloves, goggles and apron. Place spilled material in appropriate container for disposal, sealing tightly. Remove all residue before decontamination of spill area.

Large Spills: Not applicable due to size of containers.

All Spills: Place all spill residue in a double plastic bag or other containment and seal. Decontaminate the area thoroughly. Do not mix with wastes from other materials. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations). For spills on water, contain, minimize dispersion and collect. Dispose of recovered material and report spill per regulatory requirements.

ENVIRONMENTAL PRECAUTIONS: Avoid release to the environment. Run-off water may be contaminated by other materials and should be contained to prevent possible environmental damage.

REFERENCE TO OTHER SECTIONS: See information in Section 8 (Exposure Controls – Personal Protection) and Section 13 (Disposal Considerations) for additional information.

7. HANDLING and STORAGE

TECHNICAL MEASURES:

See Ventilation and Engineering Controls in Section 8.

PRECAUTIONS FOR SAFE HANDLING: All employees who handle this material should be trained to handle it safely. Keep container tightly closed when not in use. As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately.

CONDITIONS FOR SAFE STORAGE: Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Storage areas should be made of fire resistant materials. Empty containers may contain residual product; therefore, empty containers should be handled with care.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

EXPOSURE LIMITS:

OCCUPATIONAL/WORKPLACE EXPOSURE LIMITS/GUIDELINES:

CHEMICAL NAME	CAS #	EXPOSURE LIMITS IN AIR							
		ACGIH-TLVs		OSHA-PELs		NIOSH-RELS		NIOSH	OTHER
		TWA mg/m ³	STEL mg/m ³	TWA mg/m ³	STEL mg/m ³	TWA mg/m ³	STEL mg/m ³	IDLH mg/m ³	
Amorphous Silica	68855-54-9	NE	NE	NE	NE	NE	NE	NE	NE
Crystalline Silica	14808-60-7	NE	NE	As of June 23, 2016, the PEL is 0.005mg/m ³ (respirable dust). There is no STEL established.		0.005 (resp. dust) See Pocket Guide Append. A		50	Canada (AB) TWA=0.025mg/m ³ (ON) TWA=0.1mg/m ³ (SK) TWA=0.05mg/m ³
Crystalline Silica, Cristobalite	14464-46-1	0.025 (resp. fract.)	NE	As of June 23, 2016, the PEL is 0.005mg/m ³ (respirable dust). There is no STEL established.		0.005 (resp. dust) See Pocket Guide Append. A		25	Canada (AB) TWA=0.025mg/m ³ (ON, SK) TWA=0.05mg/m ³
Diatomaceous Earth	61790-53-2	NE	NE	20 mppcf 6 (vacated 1989 PEL)	or 80 mg/m ³ % SiO ₂ + 2	6	NE	NE	Canada (SK, respirable) TWA=3mg/m ³ STEL = 6mg/m ³
Mineral Spirits	64742-48-9	NE	NE	NE	NE	NE	NE	NE	Novus OEL: TWA = 500 ppm
Morpholine	110-91-8	70 (skin)	Skin	70 (skin)	Skin	70 (skin)	105 (skin)	NE	Canada (AB, ON, YK) TWA = 20ppm (71mg/m ³) (SK, YK) STEL = 30ppm
Sulisobenzene	4065-45-6	NE	NE	NE	NE	NE	NE	NE	NE
Oleic Acid	112-80-1	NE	NE	NE	NE	NE	NE	NE	NE
Polydimethyl Siloxane	63148-62-9	NE	NE	NE	NE	NE	NE	NE	NE

NE = Not Established.

See Section 16 for Definitions of Terms Used.

CONTROL PARAMETERS:

BIOLOGICAL EXPOSURES INDICES (BEIs): Currently, there are no ACGIH Biological Exposure Indices (BEIs) determined for the components of this product.

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation. Use a mechanical fan or vent area to outside. Use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits provided in this section, if applicable. Use a non-sparking, grounded, explosion-proof ventilation system separate from other exhaust ventilation systems. Exhaust system in manner consistent with prevention of release to atmosphere. An eyewash and safety shower should be readily accessible.

ENVIRONMENTAL EXPOSURE CONTROLS: Refer to Sections 6, 7 and 13 for information on controlling exposure to this product to the environment.

PROTECTIVE EQUIPMENT: The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132, including U.S. Federal OSHA Respiratory Protection (29 CFR 1910.134), OSHA Eye Protection 29 CFR 1910.133, OSHA Hard Protection 29 CFR 1910.138, OSHA Foot Protection 29 CFR 1910.136 and OSHA Body Protection 29 CFR 1910.132), and equivalent standards of Canada (including CSA Respiratory Standard Z94.4-02, Z94.3-M1982, *Industrial Eye and Face Protectors* and CSA Standard Z195-02, *Protective Footwear*). Please reference applicable regulations and standards for relevant details.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION, continued

PROTECTIVE EQUIPMENT, continued:

RESPIRATORY PROTECTION: None required under normal conditions of use. If necessary, use only respiratory protection authorized in appropriate regulations to assist in equipment selection. The following are NIOSH respiratory protection guidelines for crystalline silica, in the event that this product creates residual dusts. These guidelines are given to assist in selection of respiratory protective equipment.

CRYSTALLINE SILICA

CONCENTRATION RESPIRATORY PROTECTION

Up to 0.5 mg/m³: Any Air-Purifying Respirator with a high-efficiency particulate filter.

Up to 1.25 mg/m³: Any Powered, Air-Purifying Respirator (PAPR) with a high-efficiency particulate filter, or any Supplied-Air Respirator (SAR) operated in a continuous-flow mode.

Up to 2.5 mg/m³: Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any PAPR with a tight-fitting facepiece and a high-efficiency particulate filter.

Up to 25 mg/m³: Any SAR operated in a pressure-demand or other positive-pressure mode.

EYE PROTECTION: Use approved safety goggles or safety glasses. If necessary, refer to appropriate regulations to assist in equipment selection.

HAND PROTECTION: Wear butyl rubber, Teflon™, Barricade™, Chemrel™, nitrile or similar gloves for routine industrial use. Use triple gloves for spill response, as stated in Section 6 (Accidental Release Measures) of this SDS. If necessary, refer to applicable regulations and standards.

BODY PROTECTION: Use body protection appropriate for task. If necessary, refer to appropriate regulations to assist in equipment selection.

HYGIENE: See Section 7.

9. PHYSICAL and CHEMICAL PROPERTIES

PHYSICAL STATE: Viscous liquid.

COLOR: Opaque, tan.

MOLECULAR FORMULA: Mixture.

MOLECULAR WEIGHT: Mixture.

ODOR: Hydrocarbon.

ODOR THRESHOLD: Not established.

pH: 8.5-9.

MELTING/FREEZING POINT: Not established.

BOILING POINT: Not established.

FLASH POINT (Pensky-Martens Closed Tester): >93.3°C (200°F).

EVAPORATION RATE (nBuAc = 1): Not established; based on ingredients the comparative evaporation rate is expected to be <1.

FLAMMABLE LIMITS (in air by volume, %): Not established.

VAPOR PRESSURE, mm Hg @ 50°C: Not established.

RELATIVE VAPOR DENSITY (air = 1): Not established; based on ingredients the relative vapor density is expected to be >1.

SPECIFIC GRAVITY (23°C, water = 1): 1.01

9. PHYSICAL and CHEMICAL PROPERTIES, continued

SOLUBILITY: Soluble in water, except for inorganic ingredients.

COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not established.

AUTOIGNITION TEMPERATURE: Not established.

VISCOSITY (cP): ~7000-9000

10. STABILITY and REACTIVITY

REACTIVITY: Not considered a reactivity hazard.

CHEMICAL STABILITY: Stable under typical, environmental conditions in a workplace in the absence of contaminants.

DECOMPOSITION PRODUCTS: *Combustion*: Silicon, nitrogen and carbon oxides. *Hydrolysis*: None known.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong oxidizers, strong acids, strong bases.

POSSIBILITY OF HAZARDOUS REACTIONS: None known.

CONDITIONS TO AVOID: Exposure to incompatible chemicals, high temperatures, water-reactive materials.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity : Not classified

Sulisobenzone (4065-45-6)

LD50 oral rat	3530 mg/kg
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Morpholine (110-91-8)

LD50 oral rat	1050 mg/kg
LD50 dermal rat	310 - 810 mg/kg
LC50 inhalation rat (ppm)	8000 ppm 8 h
ATE CLP (oral)	1050.000 mg/kg bodyweight
ATE CLP (dermal)	310.000 mg/kg bodyweight
ATE CLP (dust,mist)	1.500 mg/l/4h

Silica: Crystalline, quartz (14808-60-7)

LD50 oral rat	500 mg/kg
ATE CLP (oral)	500.000 mg/kg bodyweight

Skin corrosion/irritation : Causes skin irritation.
pH: 8.5 - 9

Serious eye damage/irritation : Causes serious eye irritation.
pH: 8.5 - 9

Respiratory or skin sensitisation : May cause an allergic skin reaction.

Germ cell mutagenicity : Not classified

11. TOXICOLOGICAL INFORMATION (Continued)

Carcinogenicity : Not classified (Test data shows no respirable fraction released under normal application)

Silica, cristobalite (14464-46-1)	
IARC group	1 - Carcinogenic to humans

Silica: Crystalline, quartz (14808-60-7)	
IARC group	1 - Carcinogenic to humans
The International Agency for Research on Cancer (IARC) has classified "silica dust, crystalline, in the form of quartz or cristobalite" as carcinogenic to humans (group 1). However these warnings refer to crystalline silica dusts and do not apply to the product containing crystalline silica as a naturally occurring, bound impurity. As such, we have not classified this product as a carcinogen but recommend that users avoid inhalation of product in a dust form.	

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified (Test data shows no respirable fraction released under normal use and conditions)

Aspiration hazard : Not classified

Symptoms/effects after inhalation : May cause respiratory irritation.

Symptoms/effects after skin contact : May cause an allergic skin reaction. Causes skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : May cause gastrointestinal irritation.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ECOTOXICITY: This product has not been tested for ecotoxicity. The following are aquatic toxic data for some components of this product.

MORPHOLINE:

LC₅₀ (bluegill) 96 hours = 350 mg/L
LC₅₀ (daphnia) 24 hours = 100 mg/L
EC₅₀ (Daphnia magna) 24 hours = 119 mg/L (immobilization)

OLEIC ACID:

LC₅₀ (*Pimephales promelas* Fathead minnow, juvenile 4-8 wk, length 1.1-3.1 cm) 96 hours = 205,000 µg/L; Conditions: freshwater, static, 18-22°C, dissolved oxygen < or = 4.0 mg/L

PERSISTENCE AND BIODEGRADABILITY: This product has not been tested for persistence or biodegradability. The following information is available for some components.

MORPHOLINE:

If released to soil, this compound may volatilize from dry soil surfaces, but not from moist soil. This material in soil will move with soil moisture and is expected to leach out extensively. Based on screening test results, biodegradation may be significant, but only after a long adaptation period. When released to natural waters this material will not tend to bio-concentrate, volatilize, or sorb to sediment or organic particulate matter in the water column. While morpholine is biodegradable in screening tests, it is unlikely that significant morpholine degradation would occur because of the long lag period required. This compound reacts with photochemically-produced hydroxyl radicals in the atmosphere resulting in an estimated half-life of 2.6 hrs.

OLEIC ACID:

If released to air, a vapor pressure of 5.46X10⁻⁷ mm Hg at 25°C indicates this compound will exist in both the vapor and particulate phases in the atmosphere. Vapor-phase material will be degraded in the atmosphere by reaction with ozone; half-lives of about 2.1 and 1.4 hours for the cis- and trans- isomers, respectively, are calculated for this reaction. Particulate-phase oleic acid will be removed from the atmosphere by wet or dry deposition. This compound does not contain chromophores that absorb at wavelengths > 290 nm and therefore is not expected to be susceptible to direct photolysis by sunlight. If released to soil, non-dissociated material is expected to have no mobility based upon an estimated K_{oc} of 340,000. The pK_a of oleic acid is 5.02, indicating that this compound will exist almost entirely in anion form in the environment and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts. Biodegradation is expected to be an important fate process in soil based on half-lives of 0.2 and 0.66 days in screening tests. If released into water, this compound (if in non-dissociated form) is expected to adsorb to suspended solids and sediment based upon the estimated K_{oc}. This material was biodegraded 25-30% in the water column in field studies. Based upon the pK_a this material will exist almost entirely in the anion form at pH values of 5 to 9 and therefore volatilization from water surfaces is not expected to be an important fate process. Hydrolysis is not expected to be an important environmental fate process since this compound lacks functional groups that hydrolyze under environmental conditions.

BIO-ACCUMULATION POTENTIAL: This product has not been tested for bio-accumulation potential. The following is information for some components.

MORPHOLINE:

Because this compound is miscible with water and has a very low measured octanol/water partition coefficient, log K_{ow} -0.86, its tendency to bio-concentrate in aquatic organisms should be extremely low. An experimentally determined BCF for morpholine was < 2.8.

OLEIC ACID:

An estimated BCF of 10 was calculated in fish for this compound, using a log K_{ow} of 7.64 and a regression-derived equation. According to a classification scheme, this BCF suggests the potential for bio-concentration in aquatic organisms is low.

12. ECOLOGICAL INFORMATION, continued

MOBILITY: This product has not been tested for mobility in soil. The following information is available for some components.

MORPHOLINE:

Using a measured log octanol/water partition coefficient (log K_{ow}) of -0.86 and a regression equation, the estimated K_{oc} for this compound is 8. The K_{oc} estimated from molecular structure is 5. According to a suggested classification scheme, this estimated K_{oc} suggests that this compound is highly mobile in soil.

OLEIC ACID:

The K_{oc} of undissociated oleic acid is estimated as 340,000, using a log K_{ow} of 7.64 and a regression-derived equation. According to a classification scheme, this estimated K_{oc} value suggests that this compound is expected to be immobile in soil. The pK_a of oleic acid is 5.02, indicating that this compound will exist almost entirely in anion form in the environment and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts.

OTHER ADVERSE EFFECTS: Components of this product are not listed as having ozone depletion potential.

ENVIRONMENTAL EXPOSURE CONTROLS: Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHODS: It is the responsibility of the generator to determine at the time of disposal whether the product meets the criteria of a hazardous waste per regulations of the area in which the waste is generated and/or disposed of. Waste disposal must be in accordance with all appropriate regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority. Shipment of wastes must be done with appropriately permitted and registered transporters.

DISPOSAL CONTAINERS: Waste materials must be placed in and shipped in impermeable containers (such as poly or metal waste pails or drums). Permeable cardboard containers are not appropriate and should not be used. Ensure that any required marking or labeling of the containers be done to all applicable regulations.

PRECAUTIONS TO BE FOLLOWED DURING WASTE HANDLING: Wear proper protective equipment when handling waste materials.

U.S. EPA WASTE NUMBER: Not applicable.

14. TRANSPORTATION INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION REGULATIONS: This product is NOT classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101.

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This product is NOT considered as Dangerous Goods, per regulations of Transport Canada.

INTERNATIONAL AIR TRANSPORT ASSOCIATION DESIGNATION: This material is NOT considered as dangerous goods, per rules of IATA.

INTERNATIONAL MARITIME ORGANIZATION (IMO): This product is NOT considered as dangerous goods, per rules of the IMO.

ENVIRONMENTAL HAZARDS: This product does not meet the criteria of environmentally hazardous according to the criteria of the UN Model Regulations (as reflected in the IMDG Code, ADR, RID, and ADN); components are not specifically listed in Annex III under MARPOL 73/78.

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: The components of this product are NOT subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for this product. The default Federal SDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Not applicable.

U.S. TSCA INVENTORY STATUS: The components of this product listed are listed on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

15. REGULATORY INFORMATION, continued

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): The Crystalline Silica (if present as airborne particles of respirable size) in this product is on the California Proposition 65 lists. However, when this product is used as directed, airborne particles of respirable size are not created.

ADDITIONAL CANADIAN REGULATIONS:

CANADIAN DSL INVENTORY: The components of this product listed by CAS # in Section 3 (Composition and Information on Ingredients) are listed on the DSL Inventory.

CANADIAN ENVIRONMENTAL PROTECTION AGENCY (CEPA) PRIORITY SUBSTANCES LISTS: No component of this product is on the Priority Substances Lists.

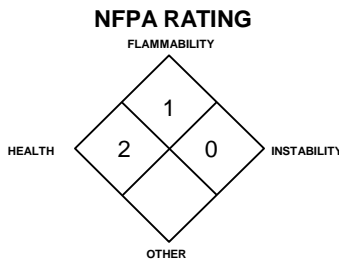
16. OTHER INFORMATION

REFERENCES AND DATA SOURCES: Contact the supplier for information.



METHODS OF EVALUATING INFORMATION FOR THE PURPOSE OF CLASSIFICATION: Bridging principles were used to classify this product.

REVISION DETAILS:

April 2012: Review and update entire SDS to comply with EU CLP 1272: 2008 and GHS.
 October 2012: Review and update to comply with OSHA's revised Hazard Communication Standard.
 October 2015: Review and update as necessary.
 June 2017: Review and update with newly revised GHS Classification information.
 September 2017: Adjust State regulatory information (CA Proposition 65).



Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate
 3 = Serious 4 = Severe

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM			
HEALTH HAZARD		(BLUE)	2*
FLAMMABILITY HAZARD		(RED)	1
PHYSICAL HAZARD		(YELLOW)	0
PROTECTIVE EQUIPMENT			
EYES	RESPIRATORY	HANDS	BODY
	SEE SECTION 8		SEE SECTION 8
For Routine Industrial Use and Handling Applications			

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate
 3 = Serious 4 = Severe * = Chronic hazard

DEFINITION OF TERMS

A large number of abbreviations and acronyms appear on a SDS. Some of these which are commonly used include the following:

CAS #: This is the Chemical Abstract Service Number that uniquely identifies each constituent.

EXPOSURE LIMITS IN AIR:

BEI - ACGIH Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

CEILING LEVEL: The concentration that shall not be exceeded during any part of the working exposure.

IDLH-Immediately Dangerous to Life and Health: This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury.

LOQ: Limit of Quantitation.

MAK: Federal Republic of Germany Maximum Concentration Values in the workplace.

NE: Not Established. When no exposure guidelines are established, an entry of NE is made for reference.

NIC: Notice of Intended Change.

NIOSH CEILING: The exposure that shall not be exceeded during any part of the workday. If instantaneous monitoring is not feasible, the ceiling shall be assumed as a 15-minute TWA exposure (unless otherwise specified) that shall not be exceeded at any time during a workday.

NIOSH RELs: NIOSH's Recommended Exposure Limits.

PEL-Permissible Exposure Limit: OSHA's Permissible Exposure Limits. This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL that was vacated by Court Order.

SKIN: Used when there is a danger of cutaneous absorption.

STEL-Short Term Exposure Limit: Short Term Exposure Limit, usually a 15-minute time-weighted average (TWA) exposure that should not be exceeded at any time during a workday, even if the 8-hr TWA is within the TLV-TWA, PEL-TWA or REL-TWA.

STEV - Short Term Exposure Value.

TLV-Threshold Limit Value: An airborne concentration of a substance that represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour.

TWA-Time Weighted Average: Time Weighted Average exposure concentration for a conventional 8-hr (TLV, PEL) or up to a 10-hr (REL) workday and a 40-hr workweek.

TWAEV: Time Weighted Average Exposure Value.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS: This rating system was developed by the National Paint and Coating Association and has been adopted by industry to identify the degree of chemical hazards

HEALTH HAZARD:

0 (Minimal Hazard): No significant health risk, irritation of skin or eyes not anticipated. *Skin Irritation:* Essentially non-irritating. PII or Draize = "0". *Eye Irritation:* Essentially non-irritating, or minimal effects which clear in < 24 hours [e.g. mechanical irritation]. Draize = "0". *Oral Toxicity LD₅₀ Rat:* < 5000 mg/kg. *Dermal Toxicity LD₅₀ Rat or Rabbit:* < 2000 mg/kg. *Inhalation Toxicity 4-hrs LC₅₀ Rat:* < 20 mg/L.; **1 (Slight Hazard):** Minor reversible injury may occur; slightly or mildly irritating. *Skin Irritation:* Slightly or mildly irritating. *Eye Irritation:* Slightly or mildly irritating. *Oral Toxicity LD₅₀ Rat:* > 500-5000 mg/kg. *Dermal Toxicity LD₅₀ Rat or Rabbit:* > 1000-2000 mg/kg. *Inhalation Toxicity LC₅₀ 4-hrs Rat:* > 2-20 mg/L. **2 (Moderate Hazard):** Temporary or transitory injury may occur. *Skin Irritation:* Moderately irritating; primary irritant; sensitizer. PII or Draize > 0, < 5. *Eye Irritation:* Moderately to severely irritating and/or corrosive; reversible corneal opacity; corneal involvement or irritation clearing in 8-21 days. Draize > 0, ≤ 25. *Oral Toxicity LD₅₀ Rat:* > 50-500 mg/kg. *Dermal Toxicity LD₅₀ Rat or Rabbit:* > 200-1000 mg/kg. *Inhalation Toxicity LC₅₀ 4-hrs Rat:* > 0.5-2 mg/L. **3 (Serious Hazard):** Major injury likely unless prompt action is taken and medical treatment is given; high level of toxicity; corrosive. *Skin Irritation:* Severely irritating and/or corrosive; may destroy dermal tissue, cause skin burns, dermal necrosis. PII or Draize > 5-8 with destruction of tissue. *Eye Irritation:* Corrosive, irreversible destruction of ocular tissue; corneal involvement or irritation persisting for more than 21 days. Draize > 80 with effects irreversible in 21 days. *Oral Toxicity LD₅₀ Rat:* > 1-50 mg/kg. *Dermal Toxicity LD₅₀ Rat or Rabbit:* > 20-200 mg/kg. *Inhalation Toxicity LC₅₀ 4-hrs Rat:* > 0.05-0.5 mg/L.; **4 (Severe Hazard):** Life-threatening; major or permanent damage may result from single or repeated exposure. *Skin Irritation:* Not appropriate. Do not rate as a "4", based on skin irritation alone. *Eye Irritation:* Not appropriate. Do not rate as a "4", based on eye irritation alone. *Oral Toxicity LD₅₀ Rat:* ≤ 1 mg/kg. *Dermal Toxicity LD₅₀ Rat or Rabbit:* ≤ 20 mg/kg. *Inhalation Toxicity LC₅₀ 4-hrs Rat:* ≤ 0.05 mg/L).

FLAMMABILITY HAZARD:

0 (Minimal Hazard)-Materials that will not burn in air when exposure to a temperature of 815.5°C [1500°F] for a period of 5 minutes.; **1 (Slight Hazard)-Materials** that must be pre-heated before ignition can occur. Material require considerable pre-heating, under all ambient temperature conditions before ignition and combustion can occur, Including: Materials that will burn in air when exposed to a temperature of 815.5°C (1500°F) for a period of 5 minutes or less; Liquids, solids and semisolids having a flash point at or above 93.3°C [200°F] (e.g. OSHA Class IIIB, or; Most ordinary combustible materials [e.g. wood, paper, etc.]; **2 (Moderate Hazard)-Materials** that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Materials in this degree would not, under normal conditions, form hazardous atmospheres in air, but under high ambient temperatures or moderate heating may release vapor in sufficient quantities to produce hazardous atmospheres in air, Including: Liquids having a flash-point at or above 37.8°C [100°F]; Solid materials in the form of coarse dusts that may

burn rapidly but that generally do not form explosive atmospheres; Solid materials in a fibrous or shredded form that may burn rapidly and create flash fire hazards (e.g. cotton, sisal, hemp; Solids and semisolids that readily give off flammable vapors.); **3 (Serious Hazard)- Liquids and solids** that can be ignited under almost all ambient temperature conditions. Materials in this degree produce hazardous atmospheres with air under almost all ambient temperatures, or, unaffected by ambient temperature, are readily ignited under almost all conditions, including: Liquids having a flash point below 22.8°C [73°F] and having a boiling point at or above 38°C [100°F] and below 37.8°C [100°F] [e.g. OSHA Class IB and IC]; Materials that on account of their physical form or environmental conditions can form explosive mixtures with air and are readily dispersed in air [e.g., dusts of combustible solids, mists or droplets of flammable liquids]; Materials that burn extremely rapidly, usually by reason of self-contained oxygen [e.g. dry nitrocellulose and many organic peroxides]); **4 (Severe Hazard)-Materials** that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air, and which will burn readily, including: Flammable gases; Flammable cryogenic materials; Any liquid or gaseous material that is liquid while under pressure and has a flash point below 22.8°C [73°F] and a boiling point below 37.8°C [100°F] [e.g. OSHA Class IA; Material that ignite spontaneously when exposed to air at a temperature of 54.4°C [130°F] or below [e.g. pyrophoric].

PHYSICAL HAZARD:

0 (Water Reactivity): Materials that do not react with water. *Organic Peroxides:* Materials that are normally stable, even under fire conditions and will not react with water.

Explosives: Substances that are Non-Explosive. *Unstable Compressed Gases:* No Rating. *Pyrophorics:* No Rating. *Oxidizers:* No "0" rating allowed. *Unstable Reactives:* Substances that will not polymerize, decompose, condense or self-react.;**1 (Water Reactivity):** Materials that change or decompose upon exposure to moisture. *Organic Peroxides:* Materials that are normally stable, but can become unstable at high temperatures and pressures. These materials may react with water, but will not release energy. *Explosives:* Division 1.5 & 1.6 substances that are very insensitive explosives or that do not have a mass

explosion hazard. *Compressed Gases:* Pressure below OSHA definition. *Pyrophorics:* No Rating. *Oxidizers:* Packaging Group III; *Solids:* any material that in either concentration tested, exhibits a mean burning time less than or equal to the mean burning time of a 3:7 potassium bromate/cellulose mixture and the criteria for Packing Group I and II are not met. *Liquids:* any material that exhibits a mean pressure rise time less than

or equal to the pressure rise time of a 1:1 nitric acid (65%)/cellulose mixture and the criteria for Packing Group I and II are not met. *Unstable Reactives:* Substances that may decompose, condense or self-react, but only under conditions of high temperature and/or pressure and have little or no potential to cause significant heat generation or explosive hazard. Substances that readily undergo hazardous polymerization in the absence of inhibitors.; **2 (Water Reactivity):** Materials that may react violently with water. *Organic Peroxides:* Materials that, in themselves, are normally unstable and will readily undergo violent chemical change, but will not detonate. These materials may also react violently with water. *Explosives:* Division 1.4 – Explosive substances where the explosive effect are largely confined to the package and no projection of fragments of appreciable size or range are expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package. *Compressed Gases:* Pressurized and meet OSHA definition but < 514.7 psi absolute at 21.1°C (70°F) [500 psig]. *Pyrophorics:* No Rating. *Oxidizers:* Packaging Group II *Solids:* any material that, either in concentration tested, exhibits a mean burning time of less than or equal to the mean burning time of a 2:3 potassium bromate/cellulose mixture and the criteria for Packing Group I are not met. *Liquids:* any material that exhibits a mean pressure rise time less than or equal to the pressure rise of a 1:1 aqueous sodium chlorate solution (40%)/cellulose mixture and the criteria for Packing Group I are not met. *Reactivities:* Substances that may polymerize, decompose, condense, or self-react at ambient temperature and/or pressure, but have a low potential for significant heat generation or explosion. Substances that readily form peroxides upon exposure to air or oxygen at room temperature); **3 (Water Reactivity):** Materials that may form explosive reactions with water. *Organic Peroxides:* Materials that are capable of detonation or explosive reaction, but require a strong initiating source, or must be heated under confinement before initiation; or materials that react explosively with water. *Explosives:* Division 1.2 – Explosive substances that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but do not have a mass explosion hazard. *Compressed Gases:* Pressure ≥ 514.7 psi absolute at 21.1°C (70°F) [500 psig]. *Pyrophorics:* No Rating. *Oxidizers:* Packaging Group I *Solids:* any material that, in either concentration tested, exhibits a mean burning time less than the mean burning time of a 3.:2 potassium bromate/cellulose mixture. *Liquids:* Any material that spontaneously ignites when mixed with cellulose in a 1:1 ratio, or which exhibits a mean pressure rise time less than the pressure rise time of a 1:1 perchloric acid (50%)/cellulose mixture. *Unstable Reactives:* Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a moderate potential to cause significant heat generation or explosion.);**4 (Water Reactivity):** Materials that react explosively with water without requiring heat or confinement. *Organic Peroxides:* Materials that are readily capable of detonation or explosive decomposition at normal temperature and pressures. *Explosives:* Division 1.1 & 1.2-explosive substances that have a mass explosion hazard or have a projection hazard. A mass explosion is one that affects almost the entire load instantaneously. *Compressed Gases:* No Rating. *Pyrophorics:* Add to the definition of Flammability "4". *Oxidizers:* No "4" rating. *Unstable Reactives:* Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a high potential to cause significant heat generation or explosion).

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS:

HEALTH HAZARD: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure could cause death or major residual injury).

FLAMMABILITY HAZARD: **0** Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. **1** Materials that must be preheated before ignition can occur. Materials in this degree require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. **2** Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Materials in this degree would not under normal conditions form hazardous atmospheres with air, but under high ambient temperatures or under moderate heating could release vapor in sufficient quantities to produce hazardous atmospheres with air. **3** Liquids and solids that can be ignited under almost all ambient temperature conditions. Materials in this degree produce hazardous atmospheres with air under almost all ambient temperatures or, though unaffected by ambient temperatures, are readily ignited under almost all conditions. **4** Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air and will burn readily.

INSTABILITY HAZARD: **0** Materials that in themselves are normally stable, even under fire conditions. **1** Materials that in themselves are normally stable, but that can become unstable at elevated temperatures and pressures. **2** Materials that readily undergo violent chemical change at elevated temperatures and pressures. **3** Materials that in themselves are capable of detonation or explosive decomposition or explosive reaction, but that require a strong initiating source or that must be heated under confinement before initiation. **4** Materials that in themselves are readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures.

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). **Flash Point** - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. **Autoignition Temperature:** The minimum temperature required to initiate combustion in air with no other source of ignition. **LEL** - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. **UEL** - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Human and Animal Toxicology: Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD₅₀** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC₅₀** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m³** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TD₀₁**, **LDLo**, and **LD₀₁**, or **TC**, **TC₀₁**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **Cancer Information:** The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. **Other Information:** **BEI** - ACGIH Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

ECOLOGICAL INFORMATION:

EC is the effect concentration in water. **BCF** = Bioconcentration Factor, which is used to determine if a substance will concentrate in lifeforms which consume contaminated plant or animal matter. **TL_m** = median threshold limit; Coefficient of Oil/Water Distribution is represented by **log K_{ow}** or **log K_{oc}** and is used to assess a substance's behavior in the environment.

REGULATORY INFORMATION:**U.S. and CANADA:**

ACGIH: American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits.

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Superfund Amendments and Reauthorization Act (**SARA**); the Canadian Domestic/Non-Domestic Substances List (**DSL/NDL**); the U.S. Toxic Substance Control Act (**TSCA**); Marine Pollutant status according to the **DOT**; the Comprehensive Environmental Response, Compensation, and Liability Act (**CERCLA or Superfund**); and various state regulations. This section also includes information on the precautionary warnings which appear on the material's package label. **OSHA** - U.S. Occupational Safety and Health Administration.