EMSEAL Safety Data Sheet
Product Package

Horizontal Colorseal

120619a

Safety Data Sheet
HORIZONTAL COLORSEAL

EMSEAL Joint Systems, Ltd.
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www.emseal.com

Preparation Date March 15, 2015 **Revision Date** March 13, 2019

1. Identification of the Substance / Preparation

Product identifier	**HORIZONTAL COLORSEAL**
Other identifier or names	COH Foam
UN ID number	None
Manufacturer Address	EMSEAL, LLC 111 Royal Group Crescent Woodbridge, ON L4H X9 Canada
Company Phone	(508) 836-0280 M-F 9am - 5pm
Emergency Phone	CHEMTREC (800) 424-9300 (24 Hours)

2. Hazardous Indentification

Hazardous Classification	This product is not classified as hazardous when used as intended.
Signal Word	None
Pictograms	None
Emergency Overview:	No emergency requirements.

3. Composition / Information on Ingredients

EMSEAL HORIZONTAL COLORSEAL is composed of polyurethane foam impregnated with a proprietary solid acrylic polymer bonded to a fully cured silicone sealant. It is classified as Non-Hazardous.

NOTE: Silicone facing is fully cured. The composition of the silicone in its liquid state is comprised of the following:

Chemical Name	*CAS #*	*% by Weight*
Titanium Dioxide	13463-67-7	1 - 5
Methylvinyl bis(N-thylacetamido) silane	87855-59-2	1 - 5
Antimony nickel titanium oxide yellow	8007-18-9	1 - 5
Dimethyl, methylhydrogen siloxane, dehydrogenated reaction with hydroxydiethylamine	68952-53-4	1 - 5
Carbon black	1333-86-4	0.1 - 1
Quartz	14808-60-7	0.1 - 1
Cobalt titinate green spinel	68186-85-6	0.1 - 1
N-ethylacetamide	625-50-3	0.1 - 1
Octamethylcyclotetrasiloxane	556-67-2	0.1 - 1

4. First Aid Measures

4.1 EYES:	Flush with water for at least 15 minutes, and call physician if problems persist.
4.2 SKIN:	Product may leave a sticky residue, and mild irritation if prolonged exposure. Scrub with soapy water until adhesive is removed.
4.3 INGESTION:	Do not eat – call physician if ingested.

5. Fire-fighting Measures

5.2 FLAMMABILITY:	Slight. Material can support an open flame or smoldering ignition. The foam can melt while burning which can contribute fire to spread.
5.2 FLASH POINT:	Unknown.
5.3 AUTO-IGNITION TEMPERATURE:	Unknown.
5.4 EXTINGUISHING MEDIA:	Large volumes of water, or ABC chemical may be appropriate for initial control or small volumes of impregnated foam.
5.5 HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon di/mon oxides will be formed as well as other noxious and toxic fumes upon combustion – do not breath combustion products.

6. Accidental Release Measures

If material is unusable pick up pieces and dispose of in accordance with local regulations; material and all components are non-toxic and normal landfill will most often be acceptable.

7. Handling and Storage

Store in original packaging below 35°C. There are no special handling instructions.

8. Exposure Controls / Personal Protection

8.1 RESPIRATORY PROTECTION:	Not required
8.2 EYE PROTECTION:	Not required
8.3 SKIN PROTECTION:	Gloves of any material are suitable if desired, but not required. No other protection is required.

9. Physical and Chemical Properties

9.1 APPEARANCE:	Dark grey / charcoal colored foam and colored silicone with product identifying packaging.
9.2 ODOR:	Slight characteristic odor.
9.3 PERCENT SOLIDS BY WEIGHT:	100%
9.4 PHYSICAL STATE:	Solid
9.5 PERCENT VOLATILE:	<1% wt/wt
9.6 DENSITY:	0.4g/cm3
9.7 DECOMPOSITION:	> 300°C
9.8 SOLUBILITY IN WATER:	None

10. Stability and Reactivity

Stable under normal conditions – avoid temperatures in excess of 300°C, strong acids and bases, and open flame.

11. Toxicological Information

Unknown.

12. Ecological Information

Unknown

13. Disposal Considerations

No known hazard. Dispose of in accordance with local regulations; material and all components are non-toxic and disposal in normal landfill will most often be acceptable.

14. Transportation Information

Not hazardous – safe for non-hazardous shipping.

15. Regulatory Information

Unknown.

16. Other Information

No other information provided.

Northern Manufacturing Construction Grade Epoxy Part A

Revision Date 12/05/2019 Print Date 12/05/2019

1. Identification

Product name	:	Northern Manufacturing Construction Grade Epoxy Part A
Supplier	:	Northern Manufacturing 111 Royal Group Crescent, Unit NM Woodbridge, ON L4H 1X9 Canada
Telephone	:	416-740-2090 (8AM - 5PM EST) (M-F)
Emergency telephone	:	Chemtrec 1-800-424-9300 (24 Hours)
Recommended use of the chemical and restrictions on use	:	For further information, refer to product data sheet.

2. Hazards identification

GHS Classification

Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2A	H319: Causes serious eye irritation.
Skin sensitization, Category 1	H317: May cause an allergic skin reaction.
Carcinogenicity, Category 1A (Inhalation)	H350i: May cause cancer by inhalation.
Specific target organ systemic toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.
Specific target organ systemic toxicity - repeated exposure, Category 1, Lungs	H372: Causes damage to organs through prolonged or repeated exposure.

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H350i May cause cancer by inhalation.
H372 Causes damage to organs (Lungs) through prolonged or

repeated exposure.

Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ eye protection/ face protection.
P281 Use personal protective equipment as required.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

See Section 11 for more detailed information on health effects and symptoms.
There are no hazards not otherwise classified that have been identified during the classification process.
There are no ingredients with unknown acute toxicity used in a mixture at a concentration >= 1%.

3. Composition/information on ingredients

Hazardous ingredients

Chemical name	CAS-No.	Concentration (%)
Quartz (SiO2)	14808-60-7	>= 25 - < 50 %
bisphenol-A-(epichlorhydrin) epoxy resin	25068-38-6	>= 10 - < 20 %
oxirane, mono[(C12-14-alkyloxy)methyl]derivatives	68609-97-2	>= 5 - < 10 %

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

If inhaled	:	Move to fresh air. Consult a physician after significant exposure.
In case of skin contact	:	Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. If symptoms persist, call a physician.
In case of eye contact	:	Immediately flush eye(s) with plenty of water. Remove contact lenses. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting without medical advice. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. Obtain medical attention.
Most important symptoms and effects, both acute and delayed	:	irritant effects sensitizing effects carcinogenic effects Cough Respiratory disorder Allergic reactions Excessive lachrymation Erythema Dermatitis See Section 11 for more detailed information on health effects and symptoms. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause respiratory irritation. May cause cancer by inhalation. Causes damage to organs through prolonged or repeated exposure.
Protection of first-aiders	:	Move out of dangerous area. Consult a physician. Show this material safety data sheet to the doctor in attendance.
Notes to physician	:	Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Specific extinguishing methods	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Deny access to unprotected persons.
Environmental precautions	:	Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

7. Handling and storage

Advice on safe handling	:	Avoid exceeding the given occupational exposure limits (see section 8). Do not get in eyes, on skin, or on clothing. For personal protection see section 8. Persons with a history of skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. Smoking, eating and drinking should be prohibited in the application area. Follow standard hygiene measures when handling chemical products.
Conditions for safe storage	:	Prevent unauthorized access. Store in original container. Keep in a well-ventilated place. Observe label precautions. Store in accordance with local regulations.
Materials to avoid	:	No data available

8. Exposure controls/personal protection

Component	CAS-No.	Basis **	Value	Exposure limit(s)* / Form of exposure
Quartz (SiO2)	14808-60-7	OSHA Z-3	TWA	10 mg/m3 / %SiO2+2 respirable
		OSHA Z-3	TWA	250 mppcf / %SiO2+5 respirable
		OSHA P0	TWA	0.1 mg/m3 Respirable fraction
		ACGIH	TWA	0.025 mg/m3 Respirable fraction
		OSHA Z-1	TWA	0.05 mg/m3 Respirable dust

*The above mentioned values are in accordance with the legislation in effect at the date of the release of this safety data sheet.

****Basis**
ACGIH. Threshold Limit Values (TLV)
OSHA P0. Table Z-1, Limit for Air Contaminat (1989 Vacated Values)
OSHA P1. Permissible Exposure Limits (PEL), Table Z-1, Limit for Air Contaminant
OSHA P2. Permissible Exposure Limits (PEL), Table Z-2
OSHA Z3. Table Z-3, Mineral Dust

Engineering measures : Use of adequate ventilation should be sufficient to control worker exposure to airborne contaminants. If the use of this product generates dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Personal protective equipment

Respiratory protection : Use a properly fitted NIOSH approved air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used.

Hand protection Remarks	:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Eye protection	:	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
Hygiene measures	:	Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas. Wash thoroughly after handling.

9. Physical and chemical properties

Appearance	:	paste
Color	:	white
Odor	:	aromatic
Odor Threshold	:	No data available
Flash point	:	> 212 °F (> 100 °C)
Ignition temperature	:	No data available
Decomposition temperature	:	No data available
Lower explosion limit (Vol%)	:	No data available
Upper explosion limit (Vol%)	:	No data available
Flammability (solid, gas)	:	No data available
Oxidizing properties	:	No data available
pH	:	Note: Not applicable
Melting point/range / Freezing point	:	No data available
Boiling point/boiling range	:	No data available
Vapor pressure	:	0.01 mmHg (0.01 hpa)
Density	:	1.99 g/cm3

Water solubility	:	Note: insoluble
Partition coefficient: n-octanol/water	:	No data available
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	> 20.5 mm2/s
Relative vapor density	:	No data available
Evaporation rate	:	No data available
Burning rate	:	No data available
Volatile organic compounds (VOC) content	:	5 g/l A+B Combined

10. Stability and reactivity

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	The product is chemically stable.
Possibility of hazardous reactions	:	Stable under recommended storage conditions.
Conditions to avoid	:	No data available
Incompatible materials	:	No data available

11. Toxicological information

Acute toxicity

Not classified based on available information.

Components:

bisphenol-A-(epichlorhydrin) epoxy resin:

Acute oral toxicity	:	LD50 Oral (Rat): > 5,000 mg/kg
Acute dermal toxicity	:	LD50 Dermal (Rabbit): > 20,000 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitization

Skin sensitization: May cause an allergic skin reaction.
Respiratory sensitization: Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT-single exposure

May cause respiratory irritation.

STOT-repeated exposure

Causes damage to organs (Lungs) through prolonged or repeated exposure.
Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Aspiration toxicity

Not classified based on available information.

Carcinogenicity

May cause cancer by inhalation.

IARC	Group 1: Carcinogenic to humans	
	Quartz (SiO2)	14808-60-7
	Group 2B: Possibly carcinogenic to humans	
	titanium dioxide	13463-67-7
NTP	Known to be human carcinogen	
	Quartz (SiO2)	14808-60-7

Titanium dioxide (13463-67-7)

In lifetime inhalation studies of rats, airborne respirable-size titanium dioxide particles have seen shown to cause an increase in lung tumors at concentrations associated with substantial particle lung burdens and consequential pulmonary overload and inflammation. The potential for these adverse health effects appears to be closely related to the particle size and the amount of the exposed surface area that comes into contact with the lung. However, tests with other laboratory aninals such as mice and hamsters, indicate that rats are significantly more susceptible to the pulmonary overload and inflammation that cause lung cancer. Epidemiology studies do no suggest an increased risk of cancer in humans from occupational exposure to titanium dioxide. Titanium dioxide has been characterized by IARC as possibly carcinogenic to humans (Group 2B) through inhalation (not ingestion). It has not been characterized as a potential carcinogen by either NTP or OSHA.

12. Ecological information

Other information	Do not empty into drains; dispose of this material and its container in a safe way. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Component:

bisphenol-A-(epichlorhydrin) epoxy	25068-38-6	Toxicity to fish: LC50

resin	Species: Oncorhynchus mykiss (rainbow trout) Dose: 2 mg/l Exposure time: 96 h Toxicity to daphnia and other aquatic invertebrates: EC50 Species: Daphnia magna (Water flea) Dose: 1.8 mg/l Exposure time: 48 h

13. Disposal considerations

Disposal methods

Waste from residues	:	Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT
Not dangerous goods
IATA
Not dangerous goods
IMDG
Not dangerous goods

Special precautions for user
No data available

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

15. Regulatory information

TSCA list	:	All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA304 Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Chronic Health Hazard
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

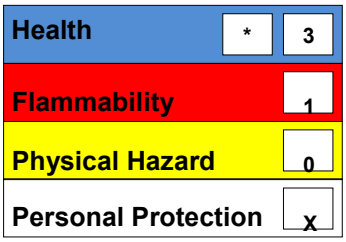
Ozone-Depletion Potential This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

California Prop 65 ⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov

16. Other information

HMIS Classification



Caution: HMIS® rating is based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® rating is not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® rating is to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). Please note HMIS® attempts to convey full health warning information to all employees.

Notes to Reader

Revision Date 12/05/2019

Material number: 577437

Northern Manufacturing Construction Grade Epoxy Part B

Revision Date 12/05/2019 Print Date 12/05/2019

1. Identification

Product name	:	Northern Manufacturing Construction Grade Epoxy Part B
Supplier	:	Northern Manufacturing 111 Royal Group Crescent, Unit NM Woodbridge, ON L4H 1X9 Canada
Telephone	:	416-740-2090 (8AM - 5PM EST) (M-F)
Emergency telephone	:	Chemtrec 1-800-424-9300 (24 Hours)
Recommended use of the chemical and restrictions on use	:	For further information, refer to product data sheet.

2. Hazards identification

GHS Classification

Skin corrosion, Category 1B	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Skin sensitization, Category 1	H317: May cause an allergic skin reaction.
Carcinogenicity, Category 1A (Inhalation)	H350i: May cause cancer by inhalation.
Specific target organ systemic toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.
Specific target organ systemic toxicity - repeated exposure, Category 1, Lungs	H372: Causes damage to organs through prolonged or repeated exposure.

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H350i May cause cancer by inhalation.
H372 Causes damage to organs (Lungs) through prolonged or repeated exposure.

Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P281 Use personal protective equipment as required.
Response:
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P310 Immediately call a POISON CENTER/doctor.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Warning : Reports have associated repeated and prolonged exposure to some of the chemicals in this product with permanent brain,liver, kidney and nervous system damage. Intentional misuse by deliberate concentration and inhalation of vapors may be harmful or fatal.

See Section 11 for more detailed information on health effects and symptoms.
There are no hazards not otherwise classified that have been identified during the classification process.
There are no ingredients with unknown acute toxicity used in a mixture at a concentration >= 1%.

3. Composition/information on ingredients

Hazardous ingredients

Chemical name	CAS-No.	Concentration (%)
Quartz (SiO2)	14808-60-7	>= 25 - < 50 %
N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine	10563-29-8	>= 3 - < 5 %
m-phenylenebis(methylamine)	1477-55-0	>= 1 - < 2 %
Benzyl alcohol	100-51-6	>= 1 - < 2 %
salicylic acid	69-72-7	>= 1 - < 2 %
triethylenetetramine	112-24-3	>= 0.1 - < 1 %

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

If inhaled : Move to fresh air.
Consult a physician after significant exposure.

In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of water.
Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.

If swallowed : Clean mouth with water and drink afterwards plenty of water.
Do not induce vomiting without medical advice.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
Take victim immediately to hospital.

Most important symptoms and effects, both acute and delayed : Health injuries may be delayed.
corrosive effects
irritant effects
sensitizing effects
carcinogenic effects

Cough
Respiratory disorder
Allergic reactions
Dermatitis
See Section 11 for more detailed information on health effects and symptoms.

May cause an allergic skin reaction.
Causes serious eye damage.

May cause respiratory irritation.
May cause cancer by inhalation.
Causes damage to organs through prolonged or repeated exposure.
Causes severe burns.

Protection of first-aiders	:	Move out of dangerous area. Consult a physician. Show this material safety data sheet to the doctor in attendance.
Notes to physician	:	Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Specific extinguishing methods	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Deny access to unprotected persons.
Environmental precautions	:	Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

7. Handling and storage

Advice on safe handling	:	Avoid exceeding the given occupational exposure limits (see section 8). Do not get in eyes, on skin, or on clothing. For personal protection see section 8. Persons with a history of skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Smoking, eating and drinking should be prohibited in the application area.
Follow standard hygiene measures when handling chemical products.

Conditions for safe storage : Prevent unauthorized access.
Store in original container.
Keep in a well-ventilated place.
Observe label precautions.
Store in accordance with local regulations.

Materials to avoid : No data available

8. Exposure controls/personal protection

Component	CAS-No.	Basis **	Value	Exposure limit(s)* / Form of exposure
Quartz (SiO2)	14808-60-7	OSHA Z-3	TWA	10 mg/m3 / %SiO2+2 respirable
		OSHA Z-3	TWA	250 mppcf / %SiO2+5 respirable
		OSHA P0	TWA	0.1 mg/m3 Respirable fraction
		ACGIH	TWA	0.025 mg/m3 Respirable fraction
		OSHA Z-1	TWA	0.05 mg/m3 Respirable dust
m-phenylenebis(methylamine)	1477-55-0	ACGIH	C	0.1 mg/m3
		OSHA P0	C	0.1 mg/m3

*The above mentioned values are in accordance with the legislation in effect at the date of the release of this safety data sheet.

****Basis**
ACGIH. Threshold Limit Values (TLV)
OSHA P0. Table Z-1, Limit for Air Contaminat (1989 Vacated Values)
OSHA P1. Permissible Exposure Limits (PEL), Table Z-1, Limit for Air Contaminant
OSHA P2. Permissible Exposure Limits (PEL), Table Z-2
OSHA Z3. Table Z-3, Mineral Dust

Engineering measures : Use of adequate ventilation should be sufficient to control worker exposure to airborne contaminants. If the use of this product generates dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Personal protective equipment

Respiratory protection : Use a properly fitted NIOSH approved air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used.

Hand protection
Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Hygiene measures : Avoid contact with skin, eyes and clothing.
Wash hands before breaks and immediately after handling the product.
Remove contaminated clothing and protective equipment before entering eating areas.
Wash thoroughly after handling.

9. Physical and chemical properties

Appearance	:	paste
Color	:	dark gray
Odor	:	amine-like
Odor Threshold	:	No data available
Flash point	:	> 212 °F (> 100 °C)
Ignition temperature	:	No data available
Decomposition temperature	:	No data available

Lower explosion limit (Vol%)	:	No data available
Upper explosion limit (Vol%)	:	No data available
Flammability (solid, gas)	:	No data available
Oxidizing properties	:	No data available
pH	:	Note: Not applicable
Melting point/range / Freezing point	:	No data available
Boiling point/boiling range	:	No data available
Vapor pressure	:	0.01 mmHg (0.01 hpa)
Density	:	2.01 g/cm3
Water solubility	:	Note: slightly soluble
Partition coefficient: n-octanol/water	:	No data available
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	> 20.5 mm2/s
Relative vapor density	:	No data available
Evaporation rate	:	No data available
Burning rate	:	No data available
Volatile organic compounds (VOC) content	:	5 g/l A+B Combined

10. Stability and reactivity

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	The product is chemically stable.
Possibility of hazardous reactions	:	Stable under recommended storage conditions.
Conditions to avoid	:	No data available
Incompatible materials	:	No data available

11. Toxicological information

Acute toxicity

Not classified based on available information.

Components:

m-phenylenebis(methylamine):

Acute oral toxicity	:	LD50 Oral (Rat): 930 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): 1.34 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 Dermal (Rat): > 3,100 mg/kg

Benzyl alcohol:

Acute oral toxicity	:	LD50 Oral (Rat): 1,620 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): > 4.178 mg/l Exposure time: 4 h Test atmosphere: dust/mist

salicylic acid:

Acute oral toxicity	:	LD50 Oral (Rat): 891 mg/kg
Acute dermal toxicity	:	LD50 Dermal (Rat): > 2,000 mg/kg

triethylenetetramine:

Acute oral toxicity	:	LD50 Oral (Rat): 1,716 mg/kg
Acute dermal toxicity	:	LD50 Dermal (Rabbit): 1,465 mg/kg

Skin corrosion/irritation

Causes severe burns.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitization

Skin sensitization: May cause an allergic skin reaction.
Respiratory sensitization: Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT-single exposure

May cause respiratory irritation.

STOT-repeated exposure

Causes damage to organs (Lungs) through prolonged or repeated exposure.
Reports have associated repeated and prolonged exposure to some of the chemicals in this product with permanent brain,liver, kidney and nervous system damage. Intentional misuse by deliberate concentration and inhalation of vapors may be harmful or fatal.
Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Aspiration toxicity

Not classified based on available information.

Carcinogenicity

May cause cancer by inhalation.

IARC	Group 1: Carcinogenic to humans	
	Quartz (SiO2)	14808-60-7
NTP	Known to be human carcinogen	
	Quartz (SiO2)	14808-60-7

12. Ecological information

Other information

Do not empty into drains; dispose of this material and its container in a safe way.
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Component:

m-phenylenebis(methylamine)	1477-55-0	Toxicity to fish: LC50 Species: Oryzias latipes (Japanese medaka) Dose: > 10 - 100 mg/l Exposure time: 96 h Toxicity to daphnia and other aquatic invertebrates: EC50 Species: Daphnia magna (Water flea) Dose: > 10 - 100 mg/l Exposure time: 48 h
Benzyl alcohol	100-51-6	Toxicity to fish: LC50 Species: Fish Dose: > 100 mg/l Exposure time: 96 h Toxicity to daphnia and other aquatic invertebrates: EC50 Species: Daphnia magna (Water flea) Dose: > 100 mg/l Exposure time: 48 h
triethylenetetramine	112-24-3	Toxicity to fish: LC50 Species: Pimephales promelas (fathead minnow) Dose: > 100 mg/l Exposure time: 96 h Toxicity to daphnia and other aquatic invertebrates: EC50 Species: Daphnia Dose: 10 - 100 mg/l Exposure time: 48 h Toxicity to algae: EC50

Species: Pseudokirchneriella subcapitata (green algae)
Dose: 10 - 100 mg/l
Exposure time: 72 h

13. Disposal considerations

Disposal methods

Waste from residues	:	Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	1760
Description of the goods	Corrosive liquids, n.o.s. (N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine, m-phenylenebis(methylamine))
Class	8
Packing group	III
Labels	8
Emergency Response Guidebook Number	154

IATA

UN number	1760
Description of the goods	Corrosive liquid, n.o.s. (N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine, m-phenylenebis(methylamine))
Class	8
Packing group	III
Labels	8
Packing instruction (cargo aircraft)	856
Packing instruction (passenger aircraft)	852
Packing instruction (passenger aircraft)	Y841

IMDG

UN number	1760
Description of the goods	CORROSIVE LIQUID, N.O.S. (N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine, m-phenylenebis(methylamine))

Class	8
Packing group	III
Labels	8
EmS Number 1	F-A
EmS Number 2	S-B
Marine pollutant	no

DOT: For Limited Quantity exceptions reference 49 CFR 173.154 (b)
IMDG: For Limited Quantity special provisions reference IMDG Code Chapter 3.4

Special precautions for user
No data available

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

15. Regulatory information

TSCA list : All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA304 Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Chronic Health Hazard
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

Ozone-Depletion Potential	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

California Prop 65 ⚠ **WARNING:** Cancer – www.P65Warnings.ca.gov

16. Other information

HMIS Classification

Health	*	3
Flammability		1
Physical Hazard		0
Personal Protection		X

Caution: HMIS® rating is based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® rating is not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® rating is to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). Please note HMIS® attempts to convey full health warning information to all employees.

Revision Date 12/05/2019

Material number: 579211

Product Safety Data Sheet

Silicone Information

This product contains ONE of the following silicones:

Sikasil® WS-295

DOWSIL™ 790 (refers to Gray -- applicable for any color)

Pecora 890 NST™

1. Identification

Product name	:	Sikasil® WS-295
Supplier	:	Sika Corporation 201 Polito Avenue Lyndhurst, NJ 07071 USA www.sikausa.com
Telephone	:	(201) 933-8800
Telefax	:	(201) 804-1076
E-mail address	:	ehs@sika-corp.com
Emergency telephone	:	CHEMTREC: 800-424-9300 INTERNATIONAL: 703-527-3887
Recommended use of the chemical and restrictions on use	:	For further information, refer to product data sheet.

2. Hazards identification

GHS Classification

Flammable liquids, Category 4	H227: Combustible liquid.
Eye irritation, Category 2A	H319: Causes serious eye irritation.
Skin sensitization, Category 1	H317: May cause an allergic skin reaction.
Reproductive toxicity, Category 2	H361f: Suspected of damaging fertility.
Specific target organ systemic toxicity - repeated exposure, Category 2 (Oral)	H373: May cause damage to organs through prolonged or repeated exposure if swallowed.

GHS label elements

Hazard pictograms :

Signal Word : Warning

Hazard Statements : H227 Combustible liquid.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H361f Suspected of damaging fertility.
H373 May cause damage to organs through prolonged or repeated exposure if swallowed.

Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read

and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ eye protection/ face protection.
P281 Use personal protective equipment as required.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment for extinction.
Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

See Section 11 for more detailed information on health effects and symptoms.
There are no hazards not otherwise classified that have been identified during the classification process.
There are no ingredients with unknown acute toxicity used in a mixture at a concentration >= 1%.

3. Composition/information on ingredients

Hazardous ingredients

Chemical name	CAS-No.	Concentration (%)
2-butanone-O,O',O''-(phenylsilylidyne)trioxime	34036-80-1	>= 2 - < 5 %
butan-2-one-O,O',O''-(methylsilylidyne)trioxime	22984-54-9	>= 1 - < 2 %
N-(2-aminoethyl)-N'-[3-(trimethoxysilyl)propyl]ethylenediamine	35141-30-1	>= 1 - < 2 %
octamethylcyclotetrasiloxane	556-67-2	< 1 %

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

If inhaled	:	Move to fresh air. Consult a physician after significant exposure.
In case of skin contact	:	Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. If symptoms persist, call a physician.
In case of eye contact	:	Immediately flush eye(s) with plenty of water. Remove contact lenses. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting without medical advice. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. Obtain medical attention.
Most important symptoms and effects, both acute and delayed	:	irritant effects sensitizing effects Allergic reactions Excessive lachrymation See Section 11 for more detailed information on health effects and symptoms. May cause an allergic skin reaction. Causes serious eye irritation. Suspected of damaging fertility. May cause damage to organs through prolonged or repeated exposure if swallowed.
Protection of first-aiders	:	Move out of dangerous area. Consult a physician. Show this material safety data sheet to the doctor in attendance.
Notes to physician	:	Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media	:	Carbon dioxide (CO2)
Unsuitable extinguishing media	:	Water
Specific extinguishing methods	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Deny access to unprotected persons.
Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

7. Handling and storage

Advice on safe handling	:	Do not breathe vapors or spray mist. Avoid exceeding the given occupational exposure limits (see section 8). Do not get in eyes, on skin, or on clothing. For personal protection see section 8. Persons with a history of skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. Smoking, eating and drinking should be prohibited in the application area. Follow standard hygiene measures when handling chemical products.
Conditions for safe storage	:	Store in original container. Keep in a well-ventilated place. Observe label precautions. Store in accordance with local regulations.
Materials to avoid	:	No data available

8. Exposure controls/personal protection

Component	CAS-No.	Basis **	Value	Exposure limit(s)* / Form of exposure
calcium carbonate	471-34-1	CAL PEL	PEL	10 mg/m3 Total dust
		CAL PEL	PEL	5 mg/m3 respirable dust fraction

*The above mentioned values are in accordance with the legislation in effect at the date of the release of this safety data sheet.

****Basis**
ACGIH. Threshold Limit Values (TLV)
OSHA P0. Table Z-1, Limit for Air Contaminat (1989 Vacated Values)
OSHA P1. Permissible Exposure Limits (PEL), Table Z-1, Limit for Air Contaminant
OSHA P2. Permissible Exposure Limits (PEL), Table Z-2
OSHA Z3. Table Z-3, Mineral Dust

Engineering measures : Use of adequate ventilation should be sufficient to control worker exposure to airborne contaminants. If the use of this product generates dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.
The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits.

Personal protective equipment

Respiratory protection : Use a properly fitted NIOSH approved air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used.

Hand protection
Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Hygiene measures : Avoid contact with skin, eyes and clothing.
Wash hands before breaks and immediately after handling the product.
Remove respiratory and skin/eye protection only after vapors have been cleared from the area.
Remove contaminated clothing and protective equipment before entering eating areas.
Wash thoroughly after handling.

9. Physical and chemical properties

Appearance	:	paste
Color	:	various
Odor	:	mild musty
Odor Threshold	:	No data available
Flash point	:	185 °F (85 °C)
Ignition temperature	:	No data available
Decomposition temperature	:	No data available
Lower explosion limit (Vol%)	:	No data available
Upper explosion limit (Vol%)	:	No data available
Flammability (solid, gas)	:	No data available
Oxidizing properties	:	No data available
pH	:	Note: Not applicable
Melting point/range / Freezing point	:	No data available
Boiling point/boiling range	:	No data available
Vapor pressure	:	0.01 mmHg (0.01 hpa)
Density	:	ca.1.12 g/cm3 at 73 °F (23 °C)
Water solubility	:	Note: insoluble
Partition coefficient: n-octanol/water	:	No data available
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	> 20.5 mm2/s at 104 °F (40 °C)
Relative vapor density	:	No data available
Evaporation rate	:	No data available
Burning rate	:	No data available
Volatile organic compounds (VOC) content	:	37 g/l

10. Stability and reactivity

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	The product is chemically stable.
Possibility of hazardous reactions	:	Stable under recommended storage conditions.
Conditions to avoid	:	Extremes of temperature and direct sunlight.
Incompatible materials	:	No data available

11. Toxicological information

Acute toxicity

Not classified based on available information.

Ingredients:

N-(2-aminoethyl)-N'-[3-(trimethoxysilyl)propyl]ethylenediamine:

Acute oral toxicity	:	LD50 Oral (Rat): 7,758 mg/kg
Acute dermal toxicity	:	LD50 Dermal (Rat): 16,640 mg/kg

octamethylcyclotetrasiloxane:

Acute inhalation toxicity	:	LC50 (Rat): 36 mg/l Exposure time: 4 h Test atmosphere: vapor

Skin corrosion/irritation

Not classified based on available information.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitization

Skin sensitization: May cause an allergic skin reaction.
Respiratory sensitization: Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Reproductive toxicity

Suspected of damaging fertility.

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure if swallowed.
Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Aspiration toxicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

IARC	Group 2B: Possibly carcinogenic to humans	
	titanium dioxide	13463-67-7
	Carbon black	1333-86-4
NTP	Not applicable	

Carbon black (1333-86-4)

Animal Toxicity:
Rat, oral, duration 2 year
Effect: no tumors

Mouse, oral, duration 2 years
Effect: no tumors

Mouse, dermal, duration 18 months
Effect: no skin tumors

Rat, inhalation, duration 2 years
Target organ: lungs
Effect: inflammation, fibrosis, tumors

Note: Tumors in the rat lung are considered to be related to the "particle overload phenomenon" rather than to a specific chemical effect of carbon black itself in the lung. These effects in rats have been reported in many studies on other poorly soluble inorganic particles and appear to be rat specific. Tumors have not been observed in other species (i.e., mouse and hamster) for carbon black or other poorly soluble particles under similar circumstances and study conditions.

Mortality studies (human data): A study on carbon black production workers in the UK (Sorahan, 2001) found an increased risk of lung cancer in two of the five plant studied; however, the increase was not related to the dose of carbon black. Thus, the authors did not consider the increased risk in lung cancer to be due to carbon black exposure. A German study of carbon black workers at one plant (Morfeld, 2006; Buechte, 2006) found a similar increase in lung cancer risk but, like the Sorohan, 2001 (UK study) found no association with carbon black exposure. A large US study of 18 plants showed a reduction in lung cancer risk in carbon black production workers (DEll, 2006). Based upon these studies, the February 2006 Working Group at the International Agency for Research on Cancer (IARC) concluded that the human evidence for carcinogenicity was inadequate (IARC, 2010).

Since the IARC evaluation of carbon black, Sorahan and Harrington (2007) have re-analyzed the UK study data using an alternative exposure hypothesis and found a positive association with carbon black exposure in two of the five plants. The same exposure hypothesis was applied by Morfeld and McCunney (2009) to the German cohort; in contrast, they found no association between carbon black exposure and lung cancer risk and, thus, no support for the alternative exposure hypothesis used by Sorahan and Harrington.

Overall, as a result of these detailed investigations, no causative link between carbon black exposure and cancer risk in humans has been demonstrated.

IARC CANCER CLASSIFICATION: In 2006 IARC re-affirmed its 1995 finding that there is "inadequate evidence" from human health studies to assess whether carbon black causes cancer in humans. IARC concluded that there is "sufficient evidence" in experimental animal studies for the carcinogenicity of carbon black. IARC's overall evaluation is that carbon black is "possibly carcinogenic to humans" (Group 2B)". This conclusion was based on IARC's

guidelines, which generally require such a classification if one species exhibits carcinogenicity in two or more animal studies (IARC, 2010).

Solvent extracts of carbon black were used in one study of rats in which skin tumors were found after dermal application and several studies of mice in which sarcomas were found following subcutaneous injection. IARC concluded that there was "sufficient evidence" that carbon black extracts can cause cancer in animals (Group 2B).

ICGIH CANCER CLASSIFICATION: Confirmed Animal Carcinogen with Unknown Relevance to Humans (Category A3 Carcinogen).

ASSESSMENT: Applying the guidelines of self-classification under the Globally Harmonized System of Classification and Labeling of Chemicals, carbon black is not classified as a carcinogen. Lung tumors are induced in rats as a result of repeated exposure to inert, poorly soluble particles like carbon black and other poorly soluble particles. Rats tumors are a result of a secondary non-genotoxic mechanism that has questionable relevance for classification in humans. In support of this opinion, the CLP Guidance for Specific Target Organ Toxicity - Repeated Exposure (STOT-RE), cites lung overload under mechanisms not relevant to humans. Human health studies show that exposure to carbon black does not increase the risk to carcinogenicity.

Titanium dioxide (13463-67-7)

In lifetime inhalation studies of rats, airborne respirable-size titanium dioxide particles have seen shown to cause an increase in lung tumors at concentrations associated with substantial particle lung burdens and consequential pulmonary overload and inflammation. The potential for these adverse health effects appears to be closely related to the particle size and the amount of the exposed surface area that comes into contact with the lung. However, tests with other laboratory aninals such as mice and hamsters, indicate that rats are significantly more susceptible to the pulmonary overload and inflammation that cause lung cancer. Epidemiology studies do no suggest an increased risk of cancer in humans from occupational exposure to titanium dioxide. Titanium dioxide has been characterized by IARC as possibly carcinogenic to humans (Group 2B) through inhalation (not ingestion). It has not been characterized as a potential carcinogen by either NTP or OSHA.

12. Ecological information

Other information	Do not empty into drains; dispose of this material and its container in a safe way. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

13. Disposal considerations

Disposal methods

Waste from residues	:	Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional

local authority requirements.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT
Not dangerous goods
IATA
Not dangerous goods
IMDG
Not dangerous goods

Special precautions for user
No data available

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

15. Regulatory information

TSCA list : All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA304 Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

Ozone-Depletion Potential	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

California Prop 65	WARNING! This product contains a chemical known in the State of California to cause cancer. WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

16. Other information

HMIS Classification

Health	*	2
Flammability		2
Physical Hazard		0
Personal Protection		X

Caution: HMIS® rating is based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® rating is not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® rating is to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). Please note HMIS® attempts to convey full health warning information to all employees.

Notes to Reader

The information contained in this Safety Data Sheet applies only to the actual Sika Corporation ("Sika") product identified and described herein. This information is not intended to address, nor does it address the use or application of the identified Sika product in combination with any other material, product or process. All of the information set forth herein is based on technical data regarding the identified product that Sika believes to be reliable as of the date hereof. Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's current Product Data Sheet, product label and Safety Data Sheet for each Sika product, which are available at web site and/or telephone number listed in Section 1 of this SDS.

SIKA MAKES NO WARRANTIES EXPRESS OR IMPLIED AND ASSUMES NO LIABILITY ARISING FROM THIS INFORMATION OR ITS USE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES AND SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.

All sales of Sika products are subject to its current terms and conditions of sale available at www.sikausa.com or 201-933-8800.

Revision Date 01/26/2017

Material number: 481215

SAFETY DATA SHEET
THE DOW CHEMICAL COMPANY

Product name: DOWSIL™ 790 Silicone Building Sealant Gray **Issue Date:** 02/08/2018
Print Date: 02/09/2018

THE DOW CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: DOWSIL™ 790 Silicone Building Sealant Gray

Recommended use of the chemical and restrictions on use
Identified uses: Adhesive, binding agents

COMPANY IDENTIFICATION
THE DOW CHEMICAL COMPANY
2030 WILLARD H DOW CENTER
MIDLAND MI 48674-0000
UNITED STATES

Customer Information Number: 800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: CHEMTREC +1 800-424-9300
Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification
This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.
Eye irritation - Category 2A
Reproductive toxicity - Category 2

Label elements
Hazard pictograms

Signal word: **WARNING!**

Hazards
Causes serious eye irritation.
Suspected of damaging fertility or the unborn child.

Precautionary statements

Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.

Storage
Store locked up.

Disposal
Dispose of contents/ container to an approved waste disposal plant.

Other hazards
No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Silicone elastomer
This product is a mixture.

Component	CASRN	Concentration
Limestone	1317-65-3	>= 50.0 - < 60.0 %
Methylvinyl bis(N-ethylacetamido)silane	87855-59-2	>= 1.0 - < 3.0 %
Dimethyl, methylhydrogen siloxane, dehydrogenated, reaction with hydroxydiethylamine	68952-53-4	>= 1.0 - < 5.0 %
Magnesium carbonate	546-93-0	>= 1.0 - < 5.0 %
N-ethylacetamide	625-50-3	>= 0.1 - < 1.0 %
Octamethyl Cyclotetrasiloxane	556-67-2	>= 0.1 - < 1.0 %

Impurities in methylvinylbis(N-ethylacetamido)silane	Not available	>= 0.1 - < 1.0 %

4. FIRST AID MEASURES

Description of first aid measures
General advice:
First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin contact: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist. Suitable emergency eye wash facility should be available in work area.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed
Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical

Unsuitable extinguishing media: None known.

Special hazards arising from the substance or mixture
Hazardous combustion products: Carbon oxides Silicon oxides Nitrogen oxides (NOx)

Unusual Fire and Explosion Hazards: Exposure to combustion products may be a hazard to health.

Advice for firefighters
Fire Fighting Procedures: Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Wipe up or scrape up and contain for salvage or disposal. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.
See sections: 7, 8, 11, 12 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not get on skin or clothing. Do not swallow. Do not get in eyes. Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice.
Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Conditions for safe storage: Keep in properly labelled containers. Store locked up. Store in accordance with the particular national regulations.

Do not store with the following product types: Strong oxidizing agents.
Unsuitable materials for containers**:** None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation

Limestone	OSHA Z-1	TWA total dust	15 mg/m3
	OSHA Z-1	TWA respirable fraction	5 mg/m3
Magnesium carbonate	OSHA Z-1	TWA total dust	15 mg/m3
	OSHA Z-1	TWA respirable fraction	5 mg/m3
Octamethyl Cyclotetrasiloxane	US WEEL	TWA	10 ppm

Although some of the components of this product may have exposure guidelines, no exposure would be expected under normal handling conditions due to the physical state of the material.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields).

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Examples of acceptable glove barrier materials include: Natural rubber ("latex"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	paste
Color	grey

Odor	Fishy
Odor Threshold	No data available
pH	Not applicable
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	Not applicable
Flash point	Not applicable
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	Not classified as a flammability hazard
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	Not applicable
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	1.48
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	Not applicable
Kinematic Viscosity	Not applicable
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.
Liquid Density	1.48 g/cm3
Molecular weight	No data available
Particle size	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Can react with strong oxidizing agents.

Conditions to avoid: None known.

Incompatible materials: Oxidizing agents

Hazardous decomposition products: Formaldehyde.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity
Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):
LD50, Rat, > 5,000 mg/kg Estimated.

Acute dermal toxicity
Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):
LD50, > 2,000 mg/kg Estimated.

Acute inhalation toxicity
Brief exposure (minutes) is not likely to cause adverse effects. Vapor from heated material may cause respiratory irritation.
As product: The LC50 has not been determined.

Skin corrosion/irritation
Brief contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation
May cause slight eye irritation.

Sensitization
For skin sensitization:
Contains component(s) which have caused allergic skin sensitization in guinea pigs.

For respiratory sensitization:
No relevant information found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
For this family of materials:
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity

For this family of materials: Did not cause cancer in long-term animal studies which used routes of exposure considered relevant to industrial handling. Positiveresults have been reported in other studies using routes of exposure not relevant to industrial handling. Both the National Toxicology Program (NTP) Third Annual Report on Carcinogens and the International Agency for Research on Cancer (IARC) Monographs cite limited evidence for carcinogenicity to humans of certain nickel compounds, and sufficient evidence for carcinogenicity to animals. However, both state that it is not possible to specify which specific nickel compounds might be carcinogenic to humans. Nickel Antimony Titanium Yellow Rutile is not listed in the groups of compounds thought to be carcinogenic to either humans or animals.

Teratogenicity
Contains component(s) which did not cause birth defects or any other fetal effects in lab animals.

Reproductive toxicity
Contains component(s) which did not interfere with reproduction in animal studies.

Mutagenicity
Contains a component(s) which were negative in in vitro genetic toxicity studies.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

COMPONENTS INFLUENCING TOXICOLOGY:

Limestone
Acute inhalation toxicity
The LC50 has not been determined.

Methylvinyl bis(N-ethylacetamido)silane
Acute inhalation toxicity
The LC50 has not been determined.

Dimethyl, methylhydrogen siloxane, dehydrogenated, reaction with hydroxydiethylamine
Acute inhalation toxicity
The LC50 has not been determined.

Magnesium carbonate
Acute inhalation toxicity
The LC50 has not been determined.

N-ethylacetamide
Acute inhalation toxicity
Based on data from similar materials LC0, Rat, 8 Hour, vapour, 2.19 mg/l

Octamethyl Cyclotetrasiloxane
Acute inhalation toxicity
LC50, Rat, male and female, 4 Hour, dust/mist, 36 mg/l OECD Test Guideline 403

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

Limestone

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 10,000 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, > 1,000 mg/l

Acute toxicity to algae/aquatic plants
EC50, Desmodesmus subspicatus (green algae), 72 Hour, > 200 mg/l

Methylvinyl bis(N-ethylacetamido)silane

Acute toxicity to fish
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Danio rerio (zebra fish), 96 Hour, > 100 mg/l
LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 100 mg/l, OECD Test Guideline 203
NOEC, Oncorhynchus mykiss (rainbow trout), 96 Hour, 50 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, 69 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 100 mg/l, OECD Test Guideline 201
NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, 100 mg/l

Dimethyl, methylhydrogen siloxane, dehydrogenated, reaction with hydroxydiethylamine

Acute toxicity to fish
No relevant data found.

Magnesium carbonate

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Acute toxicity to algae/aquatic plants
For similar material(s):
EC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth inhibition, > 100 mg/l, OECD Test Guideline 201
For similar material(s):
NOEC, Desmodesmus subspicatus (green algae), static test, 100 mg/l

N-ethylacetamide

Acute toxicity to fish
Based on data from similar materials
LC50, Leuciscus idus (Golden orfe), 96 Hour, 3,390 mg/l, DIN 38412
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Acute toxicity to aquatic invertebrates
Based on data from similar materials
EC50, Daphnia magna (Water flea), 48 Hour, > 580 mg/l, DIN 38412

Acute toxicity to algae/aquatic plants
Based on data from similar materials
EC50, Desmodesmus subspicatus (green algae), 96 Hour, > 500 mg/l

Toxicity to bacteria
Based on data from similar materials
EC10, Pseudomonas putida, 17 Hour, > 10,000 mg/l, DIN 38 412 Part 8

Octamethyl Cyclotetrasiloxane

Acute toxicity to fish
Not expected to be acutely toxic to aquatic organisms.
No toxicity at the limit of solubility
LC50, Oncorhynchus mykiss (rainbow trout), flow-through, 96 Hour, > 0.022 mg/l
No toxicity at the limit of solubility
LC50, Cyprinodon variegatus (sheepshead minnow), flow-through, 14 d, > 0.0063 mg/l

Acute toxicity to aquatic invertebrates
No toxicity at the limit of solubility
EC50, Mysidopsis bahia (opossum shrimp), flow-through test, 96 Hour, > 0.0091 mg/l
No toxicity at the limit of solubility
EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, > 0.015 mg/l

Acute toxicity to algae/aquatic plants
No toxicity at the limit of solubility
ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, > 0.022 mg/l

Chronic toxicity to fish
No toxicity at the limit of solubility
NOEC, Oncorhynchus mykiss (rainbow trout), 93 d, >= 0.0044 mg/l

Chronic toxicity to aquatic invertebrates
No toxicity at the limit of solubility
NOEC, Daphnia magna (Water flea), 21 d, >= 0.0079 mg/l

Persistence and degradability

Limestone

Biodegradability: No relevant data found.

Methylvinyl bis(N-ethylacetamido)silane

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
Biodegradation: 62.66 %
Method: OECD Test Guideline 301B

Dimethyl, methylhydrogen siloxane, dehydrogenated, reaction with hydroxydiethylamine

Biodegradability: Based on data from similar materials
The product is not biodegradable.

Magnesium carbonate

Biodegradability: No relevant data found.

N-ethylacetamide

Biodegradability: Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
Based on data from similar materials
Biodegradation: 100 %
Exposure time: 6 d

Octamethyl Cyclotetrasiloxane

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Not applicable
Biodegradation: 3.7 %
Exposure time: 28 d
Method: OECD Test Guideline 310

Stability in Water (1/2-life)
Hydrolysis, DT50, 69.3 - 144 Hour, pH 7, Half-life Temperature 24.6 °C, OECD Test Guideline 111

Photodegradation
Atmospheric half-life: 16 d
Method: Estimated.

Bioaccumulative potential

Limestone

Bioaccumulation: No relevant data found.

Methylvinyl bis(N-ethylacetamido)silane

Bioaccumulation: No relevant data found.

Dimethyl, methylhydrogen siloxane, dehydrogenated, reaction with hydroxydiethylamine

Bioaccumulation: No relevant data found.

Magnesium carbonate

Bioaccumulation: No relevant data found.

N-ethylacetamide

Bioaccumulation: No relevant data found.

Octamethyl Cyclotetrasiloxane

Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).
Partition coefficient: n-octanol/water(log Pow): 6.49 Measured
Bioconcentration factor (BCF): 12,400 Pimephales promelas (fathead minnow) Measured

Mobility in soil

Limestone

No relevant data found.

Methylvinyl bis(N-ethylacetamido)silane

No relevant data found.

Dimethyl, methylhydrogen siloxane, dehydrogenated, reaction with hydroxydiethylamine

No relevant data found.

Magnesium carbonate

No relevant data found.

N-ethylacetamide

No relevant data found.

Octamethyl Cyclotetrasiloxane

Expected to be relatively immobile in soil (Koc > 5000).

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section10 Regulatory Information, MSDS Section 15

Treatment and disposal methods of used packaging: Empty containers should be recycled or otherwise disposed of by an approved waste management facility. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. Do not re-use containers for any purpose.

14. TRANSPORT INFORMATION

DOT

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
Serious eye damage or eye irritation
Reproductive toxicity

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103
This material does not contain any components with a CERCLA RQ.
Calculated RQ exceeds reasonably attainable upper limit.

Components	**CASRN**	**RQ (RCRA Code)**
Diethylamine	109-89-7	100 lbs RQ

Pennsylvania Worker and Community Right-To-Know Act:
The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components	**CASRN**

Limestone	1317-65-3
Polydimethylsiloxane hydroxy-terminated	70131-67-8
Cobalt titanite green spinel	68186-85-6
Aluminium	7429-90-5

California Prop. 65
WARNING: This product can expose you to chemicals including Quartz, Carbon black, Titanium dioxide, Cobalt titanite green spinel, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

United States TSCA Inventory (TSCA)
All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Hazard Rating System
NFPA

Health	Flammability	Instability
2	1	0

HMIS

Health	Flammability	Physical Hazard
2*	1	0

* = Chronic Effects (See Hazards Identification)

Revision
Identification Number: 4110835 / A001 / Issue Date: 02/08/2018 / Version: 7.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
TWA	8-hour time weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Full text of other abbreviations
AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International

Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

THE DOW CHEMICAL COMPANY urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

US

SAFETY DATA SHEET

PECORA CORPORATION®
Architectural Weatherproofing Products
U.S.A. • since 1862

890 NST NON-STAINING TECHNOLOGY™

1. PRODUCT IDENTIFICATION

IDENTIFICATION of the SUBSTANCE or PREPARATION

TRADE NAME (AS LABELED):	**Pecora 890 NST Non-Staining Technology™**
PRODUCT DESCRIPTION:	Non-Staining, Ultra Low-Modulus Silicone Sealant
CHEMICAL NAME/CLASS:	Polydimethylsiloxane Silicone
SYNONYMS:	890 NST
RELEVANT USE:	Non-Staining Silicone Sealant/Caulking Compound
USES ADVISED AGAINST:	Other Than Relevant Use

COMPANY/UNDERTAKING IDENTIFICATION:

SUPPLIER/MANUFACTURER'S NAME:	**Pecora Corporation**
ADDRESS:	165 Wambold Road, Harleysville, PA 19438
EMERGENCY PHONE:	800-424-9300 (CHEMTREC, 24-hours)
BUSINESS PHONE:	215-723-6051 (Mon–Fri, 8 AM–5 PM ET)

PREPARATION DATE:	May 2005
REVISION DATE:	March 13, 2017

This product is sold for commercial use. This SDS has been developed to address safety concerns of those individuals working with bulk quantities of this material, as well as those of potential users of this product in industrial/occupational settings. ALL United States Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards, Canadian WHMIS 2015 and the Global Harmonization required information is included in appropriate sections based on the Global Harmonization Standard format. This product has been classified in accordance with the hazard criteria of the countries listed above and the SDS contains all the information required by the Canadian WHMIS 2015 [HPR-GHS] , the Global Harmonization Standard and OSHA 1910.120.

2. HAZARD IDENTIFICATION

GLOBAL HARMONIZATION LABELING AND CLASSIFICATION: Classified in accordance with Global Harmonization Standard under U.S. OSHA Hazard Communication Standard, Canadian WHMIS HPR-GHS 2015.

Classification: Reproductive Toxicity Cat. 2, Acute Oral Toxicity Cat. 5, Eye Irritation Cat. 2B, Skin Irritation Cat. 3, Skin Sensitization Cat. 1, Aquatic Chronic Toxicity Cat. 4

Signal Word: Warning

Hazard Statement Codes: H361fd, H303, H316, H320, H317, H413

Precautionary Statement Codes: P201, P202, P261, P264, P272, P273, P280, P308 + P313, P305 + P351 + P338, P337 + P313, P302 + P352, P321, P333 + P313, P362 + P364, P405, P501

Hazard Symbols/Pictogram: GHS07, GHS08

EMERGENCY OVERVIEW:

Physical Description: This product is a smooth paste with a slightly medicinal odor and comes in various colors, including Black, Tru-White, Aluminum Stone, Translucent, and Bronze.

Health Hazards: WARNING! Contains trace compound that may cause adverse effects on fertility (based on animal data). May cause eye, skin, and respiratory tract irritation, especially if exposure is prolonged. May be harmful if ingested. May cause skin sensitization in susceptible individuals.

Flammability Hazard: This product is combustible and can ignite if exposed to high temperature or direct flame.

Reactivity Hazard: This product is not reactive.

Environmental Hazard: This product has not been tested for environmental impact. This product contains a compound that can cause chronic aquatic toxicity.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS®)

Health	**1***
Flammability	**1**
Physical Hazard	**0**

See Section 16 for definitions of ratings

0 = Minimal 3 = Serious
1 = Slight 4 = Severe
2 = Moderate * = Chronic

HMIS® is a registered trademark of the National Paint and Coatings Association.

CANADIAN WHMIS (HPR-GHS) 2015 CLASSIFICATION AND SYMBOLS: See Section 16 for in Classification and Symbols under HPR-GHS 2015.

U.S. OSHA REGULATORY STATUS: This material has a classification under the Global Harmonization Standard, as applied under OSHA regulations, as given earlier in this Section.

3. MATERIAL IDENTIFICATION

Chemical Name	CAS #	W/W%	LABEL ELEMENTS GHS Classification under U.S. OSHA Hazard Communication Standard & Canadian WHMIS (HPR-GHS) 2015 Hazard Statement Codes
Proprietary Polydimethyl Siloxane Mixture Contains the following compound		30.0-60.0	NOTIFIED CLASSIFICATION Classification: Eye Irritation Cat. 2A Hazard Statement Codes: H319
Octamethylcyclotetra-siloxane	556-67-2	>/= 0.01 to < 0.5	HARMONISED CLASSIFICATION AND LABELLING (CLP00) Classification: Reproductive Toxicity Cat. 2, Aquatic Chronic Toxicity Cat. 4 Hazard Statement Codes: H361f, H413 ADDITIONAL SELF-CLASSIFICATION Classification: Flammable Liquid Cat. 3, Acute Oral Toxicity Cat. 4, Acute Dermal Toxicity Cat. 4 Hazard Statement Codes: H226, H302 + H312
Calcium Carbonate (Limestone)	1317-65-3	15.0–40.0	NOTIFIED CLASSIFICATION Classification: Skin Irritation Cat. 2 Hazard Statement Codes: H315
Proprietary Crosslinker		3.0-7.0	NOTIFIED CLASSIFICATION Classification: Skin Sensitization Cat. 1B Hazard Statement Codes: H317 ADDITIONAL MFG CLASSIFICATION Classification: STOT RE Cat. 2, Aquatic Chronic Toxicity Cat. 3 Hazard Statement Codes: H373, H412
Proprietary Silicon Dioxide, Fumed		3.0-7.0	SELF CLASSIFICATION Classification: Not Applicable
Mineral Spirits (contains less than 0.1% benzene)		2.0-5.0	HARMONISED CLASSIFICATION - ANNEX VI OF REGULATION (EC) NO 1272/2008 (CLP REGULATION) Classification: Aspiration Hazard Cat. 1 Hazard Statement Codes: H304 ADDITIONAL MFG CLASSIFICATION Classification: Flammable Liquid Cat. 4, STOT (Inhalation-Narcotic Effect) SE Cat. 3, Aquatic Chronic Cat. 1 Hazard Statement Codes: H227, H336, H411
Proprietary Amine Cross-Linker		0.2-0.4	NOTIFIED CLASSIFICATION Classification: Acute Dermal Toxicity Cat. 4, Skin Corrosion Cat. 1B, Skin Sensitization Cat. 1A, Aquatic Acute Toxicity Cat. 2, Aquatic Chronic Cat. 2 Hazard Statement Codes: H312, H314, H317, H401, H411
The following is component information for some of the individual pigmented colors of this product:			
Titanium Dioxide	13463-67-7	0.0-1.1	SELF-CLASSIFICATION Classification: Carcinogenic Cat. 2 Hazard Statement Codes: H351i
Brown Iron Oxide Pigment	Mixture	0.0-0.9	SELF-CLASSIFICATION BASED ON MFG SDS Classification: Skin Irritation Cat. 2, STOT (Inhalation-Respiratory Irritation) SE Cat. 3 Hazard Statement Codes: H315, H335
Carbon Black	1333-86-4	0.0-0.8	NOTIFIED CLASSIFICATION Classification: Carcinogenic Cat. 2 Hazard Statement Codes: H351i
Red Iron Oxide Pigment	Mixture	0.0-0.5	SELF-CLASSIFICATION BASED ON MFG SDS Classification: Skin Irritation Cat. 2, STOT (Inhalation-Respiratory Irritation) SE Cat. 3 Hazard Statement Codes: H315, H335
Other components. Each of the other components is present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).		Balance	Classification: Not Applicable

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST-AID MEASURES

PROTECTION OF FIRST AID RESPONDERS: Rescuers should not attempt to retrieve victims of exposure to this material without adequate personal protective equipment. Rescuers should be taken for medical attention, if necessary.

DESCRIPTION OF FIRST AID MEASURES: Remove victim(s) to fresh air, as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Remove and isolate contaminated clothing and shoes. Seek immediate medical attention. Take copy of label and MSDS to physician or other health professional with victim(s).

Inhalation: If aerosols of this material are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions.

Skin Exposure: If the material contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 20 minutes. Do not interrupt flushing. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek immediate medical attention.

Eye Exposure: If this product enters the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 20 minutes. Do not interrupt flushing.

Ingestion: If this material is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. DO NOT INDUCE VOMITING, unless directly by medical personnel. Have victim rinse mouth with water or give several cupfuls of water, if conscious. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Dermatitis or other pre-existing skin disorders may be aggravated by exposure to this product.

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

5. FIRE-FIGHTING MEASURES

FLASH POINT: > 140°C (> 300°F) AUTOIGNITION: Unknown.

FLAMMABLE LIMITS IN AIR: Unknown.

EXTINGUISHING MEDIA:

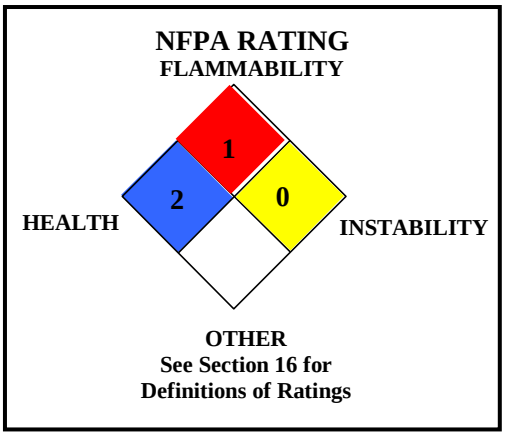
Suitable Extinguishing Media: Use extinguishing material suitable to the surrounding fire, including foam, halon, carbon dioxide and dry chemical.

Unsuitable Extinguishing Media: None known.

PROTECTION OF FIREFIGHTERS:

Special Hazards Arising From the Substance: This product is combustible and can be ignited when exposed to its flashpoint. Not sensitive to mechanical impact under normal conditions. Not sensitive to static discharge under normal conditions. Closed containers may develop pressure and rupture in event of fire.

Special Protective Actions For Fire-Fighters: Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Move containers from fire area if it can be done without risk to personnel. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.



6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS AND EMERGENCY PROCEDURES: An accidental release can result in a fire. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. Use only non-sparking tools and equipment during the response. The atmosphere must at least 19.5 percent Oxygen before non-emergency personnel can be allowed in the area without Self-Contained Breathing Apparatus and fire protection.

PERSONAL PROTECTIVE EQUIPMENT: Responders should wear the level of protection appropriate to the type of chemical released, the amount of the material spilled, and the location where the incident has occurred.

Small Spills: For releases of 1 drum or less, Level D Protective Equipment (gloves, chemical resistant apron, boots, and eye protection) should be worn.

Large Spills: Minimum Personal Protective Equipment should be rubber gloves, rubber boots, face shield, and Tyvek suit. Minimum level of personal protective equipment for releases in which the level of oxygen is less than 19.5% or is unknown must be **Level B: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit, fire-retardant clothing and boots, hard hat, and Self-Contained Breathing Apparatus.**

METHODS FOR CLEAN-UP AND CONTAINMENT:

All Spills: Access to the spill area should be restricted. Spread should be limited by gently covering the spill with polypads. Scrape up or pick-up spilled material, placing in suitable containers. Absorb any residual on appropriate material, such as sand. All contaminated absorbents and other materials should be placed in an appropriate container and seal. Do not mix with wastes from other materials. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations). Dispose of recovered material and report spill per regulatory requirements. Remove all residue before decontamination of spill area. Clean spill area with soap and copious amounts of water.

ENVIRONMENTAL PRECAUTIONS: Minimize use of water to prevent environmental contamination. Prevent spill or rinsate from contaminating storm drains, sewers, soil or groundwater. Place all spill residues in a suitable container and seal. Do not discharge effluent containing this product into streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

OTHER INFORMATION: U.S. regulations may require reporting of spills of this material that reach surface waters if a sheen is formed. If necessary, the toll-free phone number for the US Coast Guard National Response Center is 1-800-424-8802.

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

PRECAUTIONS FOR SAFE HANDLING: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat or drink while handling this material. Avoid contact with eyes, skin, and clothing. Avoid breathing fumes, dusts, vapors or mist. Do not taste or swallow. Use only with adequate ventilation. Keep away from heat and flame. In the event of a spill, follow practices indicated in Section 6: ACCIDENTAL RELEASE MEASURES.

CONDITIONS FOR SAFE STORAGE: This product is stable under ordinary conditions of handling, use and storage. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible.

CONDITIONS FOR SAFE STORAGE (continued): Store away from incompatible materials (see Section 10: STABILITY AND REACTIVITY). Keep container tightly closed when not in use. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. To prolong shelf life, store at temperatures below 26°C (80°F).

PRODUCT END USE: This product is used as a sealant. Follow all industry standards for use of this product.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

EXPOSURE LIMITS/CONTROL PARAMETERS:

Ventilation and Engineering Controls: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided below.

Occupational/Workplace Exposure Limits/Guidelines:

Chemical Name	CAS #	Guideline	Value
Calcium Carbonate, Natural	1317-65-3	OSHA PEL TWA NIOSH REL TWA	15 mg/m^3 total dust 5 mg/m^3 respirable fraction 10 mg/m^3 total dust 5 mg/m^3 respirable fraction
Carbon Black	1333-86-4	ACGIH TLV TWA OSHA PEL TWA NIOSH REL TWA DFG MAK TWA	3.5 mg/m^3 (inhalable fraction) 3.5 mg/m^3 3.5 mg/m^3 (0.1 in the presence of PAHs, as PAHs: 10-hr TWA) As inhalable dust
Proprietary Red and Brown Iron Pigment		ACGIH TLV TWA OSHA PEL TWA NIOSH REL TWA NIOSH IDLH DFG MAK TWA	5 mg/m^3 respirable fraction 10 mg/m^3 fume 5 mg/m^3 dust and fume, as Fe 2500 mg/m^3, as Fe With the exception of iron oxides which are not biologically available
Proprietary Crosslinker		NE	NE
Octamethylcyclotetrasiloxane	556-67-2	NE	NE
Proprietary Polydimethyl Siloxane Mixture		NE	NE
Proprietary Mineral Spirits		ACGIH TLV TWA OSHA PEL TWA NIOSH REL TWA NIOSH REL STEL	525 mg/m^3 2900 mg/m^3 350 mg/m^3 1800 mg/m^3 (15 min.)
Titanium Dioxide	13463-67-7	ACGIH TLV TWA OSHA PEL TWA NIOSH REL	10 mg/m3 NIC: 1 mg/m3 15 mg/m3 total dust Lowest feasible concentration (LOQ 0.2 mg/m3)
Proprietary Amine Cross-Linker Exposure limits given are for diethylenetriamine		ACGIH TLV TWA NIOSH REL TWA DFG MAK	4.2 mg/m3 (skin) 4 mg/m3 (skin) Danger of sensitization of the Skin
The following compounds are possible reaction products from contact with water and during curing:			
Methyl Ethyl Ketoxime	96-29-7	DFG MAK TWA AIHA WEEL TWA	Skin, Danger of Sensitization of the Skin 10 ppm (DSEN: May cause dermal senstization)

NE = Not Established. See Section 16 for Definitions of Terms Used.

Biological Exposure Indices (BEIs): Currently, no BEI's have been established for components of this product.

PERSONAL PROTECTIVE EQUIPMENT (PPE): *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 the Respiratory Protection Standard (29 CFR 1910.134), Eye Protection Standard 29 CFR 1910.13, the Hand Protection Standard 29 CFR 1910.138, and the Foot Protection Standard 29 CFR 1910.136), equivalent standards of Canada (including the Canadian CSA Respiratory Standard Z94.4-93-02, the CSA Eye Protection Standard Z94.3-M1982, Industrial Eye and Face Protectors and the Canadian CSA Foot Protection Standard Z195-M1984, Protective Footwear). Please reference applicable regulations and standards for relevant details.*

Eye/Face Protection: Use approved safety goggles or safety glasses. If necessary, refer to appropriate regulations and standards.

Skin Protection: Wear chemical impervious gloves (e.g., Nitrile or Neoprene). Use triple gloves for spill response. If necessary, refer to appropriate regulations and standards.

Body Protection: Use body protection appropriate for task (e.g., lab coat, coveralls, Tyvek suit). If necessary, refer to the OSHA Technical Manual (Section VII: Personal Protective Equipment) or appropriate Standards of Canada. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in appropriate regulations and standards.

Respiratory Protection: If mists or sprays from this product are created during use, use appropriate respiratory protection. If necessary, use only respiratory protection authorized in appropriate regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under appropriate regulations and standards.

9. PHYSICAL and CHEMICAL PROPERTIES

FORM: Smooth paste.
COLORS: Black, Tru-White, Aluminum Stone, Translucent, and Bronze
MOLECULAR WEIGHT: Mixture.
MOLECULAR FORMULA: Mixture.
ODOR: Mildly medicinal.
ODOR THRESHOLD: Not available.
SPECIFIC GRAVITY: 1.1-1.3
VAPOR PRESSURE, mm Hg @ 20°C: Not established.
RELATIVE VAPOR DENSITY (air = 1): Heavier than air.
EVAPORATION RATE (BuAc = 1): < 1
SOLUBILITY IN WATER: Insoluble.
OTHER SOLUBILITIES: Not available.
MELTING/FREEZING POINT: Not available.
BOILING POINT: Not established.
VOC (less water and exempt): < 100 g/L
WEIGHT % VOC: ~ 10%
FLASH POINT: > 140°C (> 300°F)
AUTOIGNITION TEMPERATURE: Not established.
pH: Not available.
FLAMMABLE LIMITS (in air by volume, %): Lower: Not established; Upper: Not established.
COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not established.

9. PHYSICAL and CHEMICAL PROPERTIES (Continued)

HOW TO DETECT THIS SUBSTANCE (IDENTIFYING PROPERTIES): The appearance of this product may act as an identifying property in the event of an accidental release.

10. STABILITY and REACTIVITY

CHEMICAL STABILITY: Stable under normal circumstances of use and handling. Methylethyl Ketoxime is generated during curing.

CONDITIONS TO AVOID: Avoid contact with incompatible chemicals and exposure to extreme temperatures.

INCOMPATIBLE MATERIALS: This product is not compatible with strong acids and oxidizers and may have some compatibility with aluminum, ammonium salts and mercury/hydrogen mixtures.

HAZARDOUS DECOMPOSITION PRODUCTS: Combustion: Thermal decomposition of this product can generate dusts, irritating fumes, and toxic gases (e.g., carbon, iron, aluminum, titanium, nitrogen and silicone oxides, silicon carbides, formaldehyde, various hydrocarbons). Hydrolysis: Methylethyl ketoxime.

POSSIBILITY OF HAZARDOUS REACTIONS/POLYMERIZATION: This product is not expected to undergo hazardous polymerization, decomposition, condensation, or self-reactivity.

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS: The most significant routes of occupational exposure are inhalation and contact with skin and eyes. The symptoms of exposure to this product are as follows:

Contact with Skin or Eyes: Contact may mildly irritate the skin and cause redness and discomfort. Prolonged or repeated skin contact may cause dermatitis (dry, red skin). Eye contact may cause redness, pain, and tearing.

Skin Absorption: The components of this product are not known to be absorbed through intact skin. Skin contact may cause sensitization and allergic reaction in susceptible individuals. Symptoms may include redness, itching and rash.

Ingestion: If the product is swallowed, it may mildly irritate the mouth, throat, and other tissues of the gastro-intestinal system and may cause nausea, vomiting, and diarrhea.

Inhalation: Exposure to vapors of this product generated during curing, or dusts of this product generated during use after curing may mildly irritate the respiratory tract and cause coughing and sneezing. Vapors or fumes when used in an enclosed space, if heated or during curing may cause irritation of the respiratory system. Symptoms include nose irritation, dry or sore or burning throat, runny nose, shortness of breath, dizziness, incoordination.

Injection: Accidental injection of this product (e.g. puncture with a contaminated object) may cause burning, redness, and swelling in addition to the wound.

Target Organs: Acute: Skin, eyes, central nervous system. Chronic: Skin, fertility.

Chronic Effects: Prolonged or repeated skin contact may cause dermatitis (dry, red skin), sensitization to the skin or adverse liver or kidney effects.

TOXICITY DATA: There are currently no toxicity data available for this product; the following toxicology information is available for components greater than 1% in concentration. Contact Pecora for additional information.

PROPRIETARY CROSSLINKER:

LD_{50} (Oral-Rat) > 8000 mg/kg

LD_{50} (Dermal-Rat) > 4000 mg/kg

LC_{50} (Inhalation-Rat) > 8000 mg/m^3, 4 hours

CALCIUM CARBONATE, NATURAL:

TDLo (Intravenous-Rat) 30 mg/kg: Vascular: BP lowering not characterized in autonomic section; Lungs, Thorax, or Respiration: changes in lung weight; Blood: other changes

TCLo (Inhalation-Rat) 84 mg/m^3/4 hours/40 weeks-intermittent: Lungs, Thorax, or Respiration: fibrosis (interstitial); Liver: other changes; Kidney/Ureter/Bladder: other changes

TCLo (Inhalation-Rat) 250 mg/m^3/2 hours/24 weeks-intermittent: Lungs, Thorax, or Respiration: fibrosis, focal (pneumoconiosis)

FUMED SILICA:

LD_{50} (Oral-Rat) 3160 mg/kg

LD_{50} (Intravenous-Rat) 15 mg/kg: Lungs, Thorax, or Respiration: acute pulmonary edema

TCLo (Inhalation-Rat) 154 mg/m^3/6 hours/4 weeks-intermittent: Lungs, Thorax, or Respiration: structural or functional change in trachea or bronchi; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: dehydrogenases, Metabolism (Intermediary): other proteins

TCLo (Inhalation-Rat) 5.41 mg/m^3/5 days-intermittent: Lungs, Thorax, or Respiration: other changes, changes in lung weight; Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TCLo (Inhalation-Rat) 1.39 mg/m^3/5 days-intermittent: Nutritional and Gross Metabolic: weight loss or decreased weight gain

TDLo (Intratracheal-Mouse) 96.77 mg/kg: Lungs, Thorax, or Respiration: acute pulmonary edema, other changes; Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TDLo (Intratracheal-Mouse) 50 mg/kg: Lungs, Thorax, or Respiration: changes in lung weight

TDLo (Intratracheal-Mouse) 2 mg/kg: 2 mg/kg: Lungs, Thorax, or Respiration: fibrosis, focal (pneumoconiosis), other changes; Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TDLo (Intratracheal-Mouse) 2 mg/kg: Lungs, Thorax, or Respiration: other changes; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: peptidases

TDLo (Intratracheal-Mouse) 2 mg/kg: Lungs, Thorax, or Respiration: fibrosing alveolitis; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: peptidases, Metabolism (Intermediary): effect on inflammation or mediation of inflammation

LDLo (Intratracheal-Rat) 50 mg/kg

LDLo (Intratracheal-Rat) 10 mg/kg

LDLo (Intratracheal-Mouse) 96.77 mg/kg: Lungs, Thorax, or Respiration: acute pulmonary edema, dyspnea, other changes

MINERAL SPIRITS:

Standard Draize Test (Eye-Human) 100 ppm: Mild

Standard Draize Test (Eye-Rabbit) 500 mg/24 hours: Moderate

LC_{50} (Inhalation-Rat) > 1400 ppm/8 hours

LD (Oral-Rat) > 5 gm/kg: Behavioral: somnolence (general depressed activity)

MINERAL SPIRITS (continued):

LD (Skin-Rabbit) > 3 gm/kg

LC (Inhalation-Rat) > 5500 mg/m^3/4 hours: Behavioral: somnolence (general depressed activity)

LC (Inhalation-Dog) > 8 gm/m^3/8 hours-continuous: Behavioral: tremor, convulsions or effect on seizure threshold

LCLo (Inhalation-Cat) 1700 ppm/7 hours: Behavioral: tremor, convulsions or effect on seizure threshold

LCLo (Inhalation-Dog) 8000 mg/m^3/3 hours.....Behavioral: alteration of classical conditioning

TCLo (Inhalation-Rat) 330 ppm/65 days-intermittent: Kidney/Ureter/Bladder: changes in tubules (including acute renal failure, acute tubular necrosis); Blood: other changes

TCLo (Inhalation-Rat) 480 mg/m^3/65 days-intermittent: Blood: normocytic anemia

TCLo (Inhalation-Rat) 1100 mg/m^3/65 days-intermittent: Kidney/Ureter/Bladder: renal function tests depressed; Blood: normocytic anemia

TDLo (Oral-Rat) 10 mg/kg: Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TDLo (Skin-Rabbit) 2 gm/kg/4 weeks-intermittent: Skin and Appendages: dermatitis, other (after systemic exposure)

PROPRIETARY POLYDIMETHYL SILOXANE:

LD_{50} (Oral-Rat) 3160 mg/kg

LD_{50} (Intravenous-Rat) 15 mg/kg: Lungs, Thorax, or Respiration: acute pulmonary edema

TCLo (Inhalation-Rat) 154 mg/m^3/6 hours/4 weeks-intermittent: Lungs, Thorax, or Respiration: structural or functional change in trachea or bronchi; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: dehydrogenases, Metabolism (Intermediary): other proteins

TCLo (Inhalation-Rat) 5.41 mg/m^3/5 days-intermittent: Lungs, Thorax, or Respiration: other changes, changes in lung weight; Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TCLo (Inhalation-Rat) 1.39 mg/m^3/5 days-intermittent: Nutritional and Gross Metabolic: weight loss or decreased weight gain

TDLo (Intratracheal-Mouse) 96.77 mg/kg: Lungs, Thorax, or Respiration: acute pulmonary edema, other changes; Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TDLo (Intratracheal-Mouse) 50 mg/kg: Lungs, Thorax, or Respiration: changes in lung weight

TDLo (Intratracheal-Mouse) 2 mg/kg: 2 mg/kg: Lungs, Thorax, or Respiration: fibrosis, focal (pneumoconiosis), other changes; Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TDLo (Intratracheal-Mouse) 2 mg/kg: Lungs, Thorax, or Respiration: other changes; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: peptidases

TDLo (Intratracheal-Mouse) 2 mg/kg: Lungs, Thorax, or Respiration: fibrosing alveolitis; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: peptidases, Metabolism (Intermediary): effect on inflammation or mediation of inflammation

LDLo (Intratracheal-Rat) 50 mg/kg

LDLo (Intratracheal-Rat) 10 mg/kg

LDLo (Intratracheal-Mouse) 96.77 mg/kg: Lungs, Thorax, or Respiration: acute pulmonary edema, dyspnea, other changes

11. TOXICOLOGICAL INFORMATION (Continued)

TOXICITY DATA (continued):

TITANIUM DIOXIDE:

Standard Draize Test (Skin-Human) 300 µg/3 days-intermittent: Mild

TC (Inhalation-Rat) 10 mg/m^3/18 hours/2 years-intermittent: Tumorigenic: carcinogenic by RTECS criteria; Lungs, Thorax, or Respiration: tumors

LD (Intratracheal-Rat) > 100 µg/kg: Lungs, Thorax, or Respiration: structural or functional change in trachea or bronchi; Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol); Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: other Enzymes

TD (Intramuscular-Rat) 260 mg/kg/84 weeks-intermittent: Tumorigenic: equivocal tumorigenic agent by RTECS criteria; Blood: lymphoma, including Hodgkin's disease; Tumorigenic: tumors at site of application

TDLo (Oral-Rat) 60 gm/kg: Gastrointestinal: hypermotility, diarrhea, other changes

TDLo (Intramuscular-Rat) 360 mg/kg/2 years-intermittent: Tumorigenic: neoplastic by RTECS criteria; Blood: lymphoma, including Hodgkin's disease; Tumorigenic: tumors at site of application

TDLo (Intratracheal-Rat) 1.25 mg/kg: Vascular: regional or general arteriolar constriction; Lungs, Thorax, or Respiration: other changes

TDLo (Intratracheal-Rat) 1.6 mg/kg: Lungs, Thorax, or Respiration: other changes

TDLo (Intratracheal-Rat) 5 mg/kg: Lungs, Thorax, or Respiration: other changes; Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TDLo (Intratracheal-Mouse) 100 mg/kg: Tumorigenic: increased incidence of tumors in susceptible strains

TCLo (Inhalation-Rat) 1 mg/kg: Lungs, Thorax, or Respiration: other changes; Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TCLo (Inhalation-Rat) 250 mg/m^3/6 hours/4 weeks-intermittent: Lungs, Thorax, or Respiration: chronic pulmonary edema, other changes

TCLo (Inhalation-Rat) 50 mg/m^3/6 hours/13 weeks-intermittent: Lungs, Thorax, or Respiration: structural or functional change in trachea or bronchi

TCLo (Inhalation-Rat) 10 mg/m^3/6 hours/13 weeks-intermittent: Lungs, Thorax, or Respiration: fibrosis (interstitial), other changes; Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TCLo (Inhalation-Rat) 10 mg/m^3/13 weeks-intermittent: Lungs, Thorax, or Respiration: other changes; Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TCLo (Inhalation-Rat) 50 mg/m^3/13 weeks-intermittent: Lungs, Thorax, or Respiration: sputum; Blood: changes in cell count (unspecified); Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: dehydrogenases

TITANIUM DIOXIDE (continued):

TCLo (Inhalation-Rat) 250 mg/m^3/13 weeks-intermittent: Lungs, Thorax, or Respiration: other changes; Blood: changes in cell count (unspecified); Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: dehydrogenases

TCLo (Inhalation-Rat) 274 mg/m^3/5 days-intermittent: Lungs, Thorax, or Respiration: changes in lung weight; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: multiple enzyme effects, Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TCLo (Inhalation-Rat) 250 mg/m^3/6 hours/2 years-intermittent: Tumorigenic: carcinogenic by RTECS criteria; Lungs, Thorax, or Respiration: tumors

TCLo (Inhalation-Mouse) 10 mg/m^3/6 hours/13 weeks-intermittent: Lungs, Thorax, or Respiration: other changes; Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TCLo (Inhalation-Mouse) 10 mg/m^3/6 hours/13 weeks-intermittent: Lungs, Thorax, or Respiration: structural or functional change in trachea or bronchi

TCLo (Inhalation-Mouse) 10 mg/m^3/13 weeks-intermittent: Lungs, Thorax, or Respiration: other changes; Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation

TCLo (Inhalation-Mouse) 50 mg/m^3/13 weeks-intermittent: Lungs, Thorax, or Respiration: sputum; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: dehydrogenases

TCLo (Inhalation-Mouse) 250 mg/m^3/13 weeks-intermittent: Lungs, Thorax, or Respiration: sputum; Blood: changes in cell count (unspecified); Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: dehydrogenases

TCLo (Inhalation-Hamster) 250 mg/m^3/13 weeks-intermittent: Lungs, Thorax, or Respiration: sputum; Blood: changes in cell count (unspecified); Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: dehydrogenases

TCLo (Inhalation-Hamster) 250 mg/m^3/6 hours/13 weeks-intermittent: Lungs, Thorax, or Respiration: structural or functional change in trachea or bronchi

DNA Damage (Human Lung) 100 µg/plate

DNA Damage (Human Lung) 20 µg/disk/4 hours

Sister Chromatid Exchange (Human Lymphocyte) 2 µmol/L/72 hours

Micronucleus Test (Human Lymphocyte) 5 µmol/L/72 hours

Micronucleus Test (Intraperitoneal-Mouse) 3 gm/kg/3 days-continuous

Micronucleus Test (Hamster Ovary) 5 µmol/L

DNA Inhibition (Hamster Lung) 500 mg/L

Sister Chromatid Exchange (Hamster Ovary) 1 µmol/L

CARCINOGENIC POTENTIAL: The following table summarizes the carcinogenicity listing for the components of this product. "NO" indicates that the substance is not considered to be or suspected to be a carcinogen by the listed agency, see section 16 for definitions of other ratings.

CHEMICAL	EPA	IARC	NTP	NIOSH	ACGIH	OSHA	PROP 65
Calcium Carbonate (Natural)	No	No	No	No	No	No	No
Carbon Black	No	2B	No	Ca	No	No	Yes (airborne, unbound particles of respirable size)
Iron Oxide	No	3	No	No	A4	No	No
Mineral Spirits	No	No	No	No	No	No	No
Octamethylcyclotetrasiloxane	No	No	No	No	No	No	No
Proprietary Crosslinker	No	No	No	No	No	No	No
Fumed Silicon Dioxide	No	No	No	No	No	No	No
Titanium Dioxide	2B	No	No	Ca	A4	No	Yes (airborne unbound particles of respirable size)
The following is a compound from reaction with water and generated during curing:							
Methyl Ethyl Ketoxime	No	No	No	No	No	No	No

IARC 1: Carcinogenic to Humans. IARC-2B: Possibly Carcinogenic to Humans. IARC-3: Possibly Carcinogenic to Humans. NTP-K: Known to Be a Human Carcinogen. NIOSH-Ca: Potential Occupational Carcinogen, with No Further Categorization. ACGIH TLV-A2: Suspected Human Carcinogen. ACGIH TLV-A4: Not Classifiable as a Human Carcinogen.

IRRITANCY OF PRODUCT: This product may mildly irritate contaminated tissue, especially if contact is prolonged. Eye irritation may be more pronounced.

SENSITIZATION TO THE PRODUCT: This product may cause skin sensitization and allergic reaction in susceptible individuals due to the Phenyl Oximino Silane component.

TOXICOLOGICAL SYNERGISTIC PRODUCTS: None known.

REPRODUCTIVE TOXICITY INFORMATION: This product has not been tested for reproductive toxicity. Information for some components is given, as follows.

Mutagenicity/Embryotoxicity/ Teratogenicity/Reproductive Toxicity: In a developmental and reproductive toxicity study involving female rats and the trace Octamethylcyclotetrasilane component, a significant percentage of female rats exposed experienced reduction of proestrus LH levels, a reduction of ovulation and decreased FSH hormone levels.

BIOLOGICAL EXPOSURE INDICES (BEIs): There are no BEI's established for any component of this product at this time.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

MOBILITY: This product has not been tested for mobility in soil.

PERSISTENCE AND BIODEGRADABILITY: This product has not been tested for persistence or biodegradability.

BIO-ACCUMULATION POTENTIAL: This product has not been tested for bio-accumulation potential.

ECOTOXICITY: This product has not been tested for aquatic or animal toxicity. Data are available for the trace Octamethylcyclotetrasiloxane component.

12. ECOLOGICAL INFORMATION (Continued)

ECOTOXICITY (continued): Although no data is available, under the Global Harmonization Standard, the Phenyl Oximino Silane component is classified as having chronic aquatic toxicity.

OCTAMETHYLCYCLOTETRASILOXANE:

LC_{50} (*Oncorhynchus mykiss* Rainbow trout) 14 days = 10 µg/L

LC_{50} (*Lepomis macrochirus* Bluegill) 96 hours = > 1000 mg/L

LC_{50} (*Brachydanio rerio* Zebra danio) 96 hours = >500 mg/L

OTHER ADVERSE EFFECTS: This material is not expected to have any 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

PREPARING WASTES FOR DISPOSAL: As supplied, this product would not be a hazardous waste as defined by U.S. federal regulation (40 CFR 261) if discarded or disposed. State and local regulations may differ from federal regulations. The generator of the waste is responsible for proper waste determination and management.

U.S. EPA WASTE NUMBER: Not applicable.

14. TRANSPORTATION INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION: 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 classified as Dangerous Goods, per regulations of Transport Canada.

INTERNATIONAL AIR TRANSPORT ASSOCIATION SHIPPING INFORMATION (IATA): This product is NOT classified as dangerous goods, per the International Air Transport Association.

INTERNATIONAL MARITIME ORGANIZATION SHIPPING INFORMATION (IMO): This product is not classified as dangerous goods, per the International Maritime Organization.

15. REGULATORY INFORMATION

U.S. REGULATIONS:

U.S. SARA Reporting Requirements: No component of this product is subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

U.S. SARA Hazard Categories (Section 311/312, 40 CFR 370-21): ACUTE: Yes; CHRONIC: Yes; FIRE: No; REACTIVE: No; SUDDEN RELEASE: No

U.S. TSCA Inventory Status: All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

U.S. CERCLA Reportable Quantity (RQ): Not applicable.

U.S. Clean Air Act (CA 112r) Threshold Quantity (TQ): Not applicable.

Other U.S. Federal Regulations: Not applicable.

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65): This product contains Titanium Dioxide and Carbon Black, suspect carcinogens which are on the list, by the route of inhalation. Due to the form of the product, the Proposition 65 warning is not applicable to these compounds in this product.

CANADIAN REGULATIONS:

Canadian DSL/NDSL Inventory Status: The components of this product are listed on the DSL Inventory.

Canadian Environmental Protection Act (CEPA) Priorities Substances Lists: No component of this product is on the CEPA Priorities Substances Lists.

Canadian WHMIS (HPR-GHS) 2015 Classification and Symbols: See Section 16 in Classification and Symbols under HPR-GHS 2015.

MEXICAN REGULATIONS:

Mexican Workplace Regulations (NOM-018-STPS-2000): This product is not classified as hazardous.

16. OTHER INFORMATION

WARNINGS (per ANSI Z129.1): WARNING! CONTAINS TRACE COMPONENT THAT MAY CAUSE ADVERSE EFFECTS ON FERTILITY, BASED ON ANIMAL DATA. MAY CAUSE EYE, SKIN, AND RESPIRATORY TRACT IRRITATION, ESPECIALLY IF EXPOSURE IS PROLONGED. MAY BE HARMFUL IF ACCIDENTALLY INGESTED. MAY CAUSE SKIN SENSITIZATION AND ALLERGIC REACTION IN SUSCEPTIBLE INDIVIDUALS. COMBUSTIBLE – CAN IGNITE IF EXPOSED TO DIRECT FLAME. CONTAINS COMPOUNDS ACUTELY AND CHRONICALLY TOXIC TO AQUATIC ORGANISMS. Avoid contact with eyes, skin, and clothing. Avoid breathing fumes, dusts, vapors or mist. Do not taste or swallow. Wash thoroughly after handling. Keep container tightly closed. Use only with adequate ventilation. Keep away from heat and flame. Wear gloves, eye protection, respiratory protection, and appropriate body protection. FIRST-AID: In case of contact, immediately flush skin and eyes with plenty of water. Remove contaminated clothing and shoes. Get medical attention if irritation develops or persists. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, do not induce vomiting. Get medical attention. IN CASE OF FIRE: Use water fog, foam, dry chemical, or CO_2. IN CASE OF SPILL: Absorb spilled product with polypads or other suitable absorbing material. Place all spill residue in an appropriate container and seal. Dispose of in accordance with U.S. Federal, State, and local hazardous waste disposal regulations and those of Canada.

16. OTHER INFORMATION (Continued)

GLOBAL HARMONIZATION LABELING AND CLASSIFICATION: Classified in accordance with Global Harmonization Standard under U.S. OSHA Hazard Communication Standard, Canadian WHMIS HPR-GHS 2015.

Classification: Reproductive Toxicity Category 2, Acute Oral Toxicity Category 5, Eye Irritation Category 2B, Skin Irritation Category 3, Skin Sensitization Category 1, Aquatic Chronic Toxicity Category 4

Signal Word: Warning

Hazard Statements: H361f: Suspected of damaging fertility. H303: May be harmful if ingested. H316: Causes mild skin irritation. H320: Causes eye irritation. H317: May cause an allergic skin reaction. H413: May be harmful to aquatic life with long-lasting effects.

Precautionary Statements:

Prevention: P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P261: Avoid breathing fume. P264: Wash thoroughly after handling. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response: P308 + P313: IF exposed or concerned: Get medical advice/attention. P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. P337 + P313: If eye irritation persists: Get medical advice/attention. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P333 + P313: If skin irritation or rash occurs: Get medical advice/attention. P362 + P364: Take off contaminated clothing and wash it before reuse. P321: Specific treatment (remove from exposure and treat symptoms).

Storage: P405: Store locked up.

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

Hazard Symbols/Pictogram: GHS07, GHS08

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

The information presented in this Material Safety Data Sheet is presented in good faith based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. In no case shall the descriptions, information, data or designs provided be considered a part of our terms and conditions of sale.

All materials may present hazards and should be used with caution. Because many factors may affect processing or application/use, we recommend that you make tests to determine the suitability of a product for your particular purpose prior to use. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices or applicable federal, state, or local laws or regulations. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

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: July 2012: Up-date and revise entire MSDS to include current GHS requirements. December 2015: Correction of classification. March 2017: Up-date due to change in formulation and up-date to most current format and regulations.

DATE OF PRINTING March 21, 2017

DEFINITIONS OF TERMS

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

KEY ACRONYMS:

CHEMTREC: Chemical Transportation Emergency Center, a 24-hour emergency information and/or emergency assistance to emergency responders.

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

DFG MAKs: Federal Republic of Germany Maximum Concentration Values in the workplace. Exposure limits are given as TWA (Time-Weighted Average) or PEAK (short-term exposure) values.

DFG MAK Germ Cell Mutagen Categories: 1: Germ cell mutagens that have been shown to increase the mutant frequency in the progeny of exposed humans. **2:** Germ cell mutagens that have been shown to increase the mutant frequency in the progeny of exposed mammals. **3A:** Substances that have been shown to induce genetic damage in germ cells of human of animals, or which produce mutagenic effects in somatic cells of mammals *in vivo* and have been shown to reach the germ cells in an active form. **3B:** Substances that are suspected of being germ cell mutagens because of their genotoxic effects in mammalian somatic cell *in vivo*; in exceptional cases, substances for which there are no *in vivo* data, but that are clearly mutagenic in vitro and structurally related to known in vivo mutagens. **4:** Not applicable (Category 4 carcinogenic substances are those with non-genotoxic mechanisms of action. By definition, germ cell mutagens are genotoxic. Therefore, a Category 4 for germ cell mutagens cannot apply. At some time in the future, it is conceivable that a Category 4 could be established for genotoxic substances with primary targets other than DNA [e.g. purely aneugenic substances] if research results make this seem sensible.) **5:** Germ cell mutagens, the potency of which is considered to be so low that, provided the MAK value is observed, their contribution to genetic risk for humans is expected not to be significant.

DFG MAK Pregnancy Risk Group Classification: Group A: A risk of damage to the developing embryo or fetus has been unequivocally demonstrated. Exposure of pregnant women can lead to damage of the developing organism, even when MAK and BAT (Biological Tolerance Value for Working Materials) values are observed. **Group B:** Currently available information indicates a risk of damage to the developing embryo or fetus must be considered to be probable. Damage to the developing organism cannot be excluded when pregnant women are exposed, even when MAK and BAT values are observed. **Group C:** There is no reason to fear a risk of damage to the developing embryo or fetus when MAK and BAT values are observed. **Group D:** Classification in one of the groups A–C is not yet possible because, although the data available may indicate a trend, they are not sufficient for final evaluation.

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.

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.

KEY ACRONYMS (continued):

PEL: 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 a there is a danger of cutaneous absorption.

STEL: 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.

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

WEEL: Workplace Environmental Exposure Limits from the AIHA.

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. Mechanical irritation may occur. PII or Draize = 0. *Eye Irritation*: Essentially non-irritating, minimal effects clearing in < 24 hours. Mechanical irritation may occur. Draize = 0. *Oral Toxicity LD_{50} Rat*: > 5000 mg/kg. *Dermal Toxicity LD_{50} Rat or Rabbit*: > 2000 mg/kg. *Inhalation Toxicity 4-hrs LC_{50} Rat*: > 20 mg/L. **1** Slight Hazard: Minor reversible injury may occur; may irritate the stomach if swallowed; may defat the skin and exacerbate existing dermatitis. *Skin Irritation*: Slightly or mildly irritating. PII or Draize > 0 < 5. *Eye Irritation*: Slightly to mildly irritating, but reversible within 7 days. Draize > 0 ≤ 25. *Oral Toxicity LD_{50} Rat*: > 500–5000 mg/kg. *Dermal Toxicity LD_{50} Rat or Rabbit*: > 1000–2000 mg/kg. *Inhalation Toxicity LC_{50} 4-hrs Rat*: > 2–20 mg/L. **2** Moderate Hazard: Temporary or transitory injury may occur; prolonged exposure may affect the CNS. *Skin Irritation*: Moderately irritating; primary irritant; sensitizer. PII or Draize ≥ 5, with no destruction of dermal tissue. *Eye Irritation*: Moderately to severely irritating; reversible corneal opacity; corneal involvement or irritation clearing in 8–21 days. Draize = 26–100, with reversible effects. *Oral Toxicity LD_{50} Rat*: > 50–500 mg/kg. *Dermal Toxicity LD_{50} Rat or Rabbit*: > 200–1000 mg/kg. *Inhalation Toxicity LC_{50} 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 cause destruction of dermal tissue, skin burns, and 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 LD_{50} Rat*: > 1–50 mg/kg. *Dermal Toxicity LD_{50} Rat or Rabbit*: > 20–200 mg/kg. *Inhalation Toxicity LC_{50} 4-hrs Rat*: > 0.05–0.5 mg/L.

DEFINITIONS OF TERMS (Continued)

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

HEALTH HAZARD (continued): **4** Severe Hazard: Life-threatening; major or permanent damage may result from single or repeated exposure; extremely toxic; irreversible injury may result from brief contact. *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 LD_{50} Rat*: ≤ 1 mg/kg. *Dermal Toxicity LD_{50} Rat or Rabbit*: ≤ 20 mg/kg. *Inhalation Toxicity LC_{50} 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 requires considerable pre-heating, under all ambient temperature conditions before ignition and combustion can occur. This usually includes the following: 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) (i.e. OSHA Class IIIB); and 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 with air. This usually includes the following: Liquids having a flash-point at or above 37.8°C (100°F); Solid materials in the form of course 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); and Solids and semisolids (e.g. viscous and slow flowing as asphalt) 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. This usually includes the following: Liquids having a flash point below 22.8°C (73°F) and having a boiling point at or above 38°C (100°

point at or above 22.8°C (73°F) and below 37.8°C (100°F) (i.e. 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); and 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 that will burn readily. This usually includes the following: 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) (i.e. OSHA Class IA); and Materials that ignite spontaneously when exposed to air at a temperature of 54.4°C (130°F) or below (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. *Compressed Gases*: No Rating. *Pyrophorics*: No Rating. *Oxidizers*: No 0 rating. *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 violently. *Explosives*: Division 1.5 & 1.6 explosives. 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 oxidizers; 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 explosion 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 explosives. Explosive substances where the explosive effects 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*: Packing Group II oxidizers. 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. *Reactives*: Substances that may polymerize, decompose, condense, or self-react at ambient temperature and/or pressure, but have a low potential (or low risk) 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 1.3 explosives. 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*: Packing Group I oxidizers. 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 (or moderate risk) 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 explosives. 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 (or high risk) to cause significant heat generation or explosion. *Pyrophorics*: Add to the definition of Flammability 4.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

PHYSICAL HAZARD (continued): **4 (continued):** *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 (or high risk) to cause significant heat generation or explosion.

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS

HEALTH HAZARD: **0** Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials. Gases and vapors with an LC_{50} for acute inhalation toxicity greater than 10,000 ppm. Dusts and mists with an LC_{50} for acute inhalation toxicity greater than 200 mg/L. Materials with an LD_{50} for acute dermal toxicity greater than 2000 mg/kg. Materials with an LD_{50} for acute oral toxicity greater than 2000 mg/kg. Materials essentially non-irritating to the respiratory tract, eyes, and skin. **1** Materials that, under emergency conditions, can cause significant irritation. Gases and vapors with an LC_{50} for acute inhalation toxicity greater than 5,000 ppm but less than or equal to 10,000 ppm. Dusts and mists with an LC_{50} for acute inhalation toxicity greater than 10 mg/L but less than or equal to 200 mg/L. Materials with an LD_{50} for acute dermal toxicity greater than 1000 mg/kg but less than or equal to 2000 mg/kg. Materials that slightly to moderately irritate the respiratory tract, eyes and skin. Materials with an LD_{50} for acute oral toxicity greater than 500 mg/kg but less than or equal to 2000 mg/kg. **2** Materials that, under emergency conditions, can cause temporary incapacitation or residual injury. Gases with an LC_{50} for acute inhalation toxicity greater than 3,000 ppm but less than or equal to 5,000 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one-fifth its LC_{50} for acute inhalation toxicity, if its LC_{50} is less than or equal to 5000 ppm and that does not meet the criteria for either degree of hazard 3 or degree of hazard 4. Dusts and mists with an LC_{50} for acute inhalation toxicity greater than 2 mg/L but less than or equal to 10 mg/L. Materials with an LD_{50} for acute dermal toxicity greater than 200 mg/kg but less than or equal to 1000 mg/kg. Compressed liquefied gases with boiling points between -30°C (-22°F) and -55°C (-66.5°F) that cause severe tissue damage, depending on duration of exposure. Materials that are respiratory irritants. Materials that cause severe, but reversible irritation to the eyes or are lachrymators. Materials that are primary skin irritants or sensitizers. Materials whose LD_{50} for acute oral toxicity is greater than 50 mg/kg but less than or equal to 500 mg/kg. **3** Materials that, under emergency conditions, can cause serious or permanent injury. Gases with an LC_{50} for acute inhalation toxicity greater than 1,000 ppm but less than or equal to 3,000 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater its LC_{50} for acute inhalation toxicity, if its LC_{50} is less than or equal to 3000 ppm and that does not meet the criteria for degree of hazard 4. Dusts and mists with an LC_{50} for acute inhalation toxicity greater than 0.5 mg/L but less than or equal to 2 mg/L. Materials with an LD_{50} for acute dermal toxicity greater than 40 mg/kg but less than or equal to 200 mg/kg. Materials that are corrosive to the respiratory tract. Materials that are corrosive to the eyes or cause irreversible corneal opacity. Materials corrosive to the skin. Cryogenic gases that cause frostbite and irreversible tissue damage. Compressed liquefied gases with boiling points below -55°C (-66.5°F) that cause frostbite and irreversible tissue damage. Materials with an LD_{50} for acute oral toxicity greater than 5 mg/kg but less than or equal to 50 mg/kg. **4** Materials that, under emergency conditions, can be lethal. Gases with an LC_{50} for acute inhalation toxicity less than or equal to 1,000 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than ten times its LC_{50} for acute inhalation toxicity, if its LC_{50} is less than or equal to 1000 ppm. Dusts and mists whose LC_{50} for acute inhalation toxicity is less than or equal to 0.5 mg/L. Materials whose LD_{50} for acute dermal toxicity is less than or equal to 40 mg/kg. Materials whose LD_{50} for acute oral toxicity is less than or equal to 5 mg/kg.

FLAMMABILITY HAZARD: **0** Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 816°C (1500°F) for a period of 5 minutes in according with Annex D of NFPA 704. **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: Materials that will burn in air when exposed to a temperature of 816°C (1500°F) for a period of 5 minutes in according with Annex D of NFPA 704. Liquids, solids, and semisolids having a flash point at or above 93.4°C (200°F) (i.e. Class IIIB liquids). Liquids with a flash point greater than 35°C (95°F) that do not sustain combustion when tested using the *Method of Testing for Sustained Combustibility*, per 49 CFR 173, Appendix H or the UN *Recommendations on the Transport of Dangerous Goods, Model Regulations* (current edition) and the related *Manual of Tests and Criteria* (current edition). Liquids with a flash point greater than 35°C (95°F) in a water-miscible solution or dispersion with a water non-combustible liquid/solid content of more than 85% by weight. Liquids that have no fire point when tested by ASTM D 92, *Standard Test Method for Flash and Fire Points by Cleveland Open Cup*, up to the boiling point of the liquid or up to a temperature at which the sample being tested shows an obvious physical change. Combustible pellets with a representative diameter of greater than 2 mm (10 mesh). Most ordinary combustible materials. Solids containing greater than 0.5% by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent. **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. Liquids having a flash point at or above 37.8°C (100°F) and below 93.4°C (200°F) (i.e. Class II and Class IIIA liquids.) Solid materials in the form of powders or coarse dusts of representative diameter between 420 microns (40 mesh) and 2 mm (10 mesh) that burn rapidly but that generally do not form explosive mixtures with air. Solid materials in fibrous or shredded form that burn rapidly and create flash fire hazards, such as cotton, sisal, and hemp. Solids and semisolids that readily give off flammable vapors. Solids containing greater than 0.5% by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent. **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. Liquids having a flash point below 22.8°C (73°F) and having a boiling point at or above 37.8°C (100°F) and those liquids having a flash point at or above 22.8°C (73°F) and below 37.8°C (100°F) (i.e. Class IB and IC liquids). Materials that on account of their physical form or environmental conditions can form explosive mixtures with air and are readily dispersed in air. Flammable or combustible dusts with representative diameter less than 420 microns (40 mesh). Materials that burn with extreme rapidity, usually by reason of self-contained oxygen (e.g. dry nitrocellulose and many organic peroxides). Solids containing greater than 0.5% by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent. **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. Flammable gases. Flammable cryogenic materials. Any liquid or gaseous materials 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) (i.e. Class IA liquids). Materials that ignite when exposed to air, Solids containing greater than 0.5% by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent.

DEFINITIONS OF TERMS (Continued)

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS (continued):

INSTABILITY HAZARD: **0** Materials that in themselves are normally stable, even under fire conditions. Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) below 0.01 W/mL. Materials that do not exhibit an exotherm at temperatures less than or equal to 500°C (932°F) when tested by differential scanning calorimetry.**1** Materials that in themselves are normally stable, but that can become unstable at elevated temperatures and pressures. Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) at or above 0.01 W/mL and below 10 W/mL. **2** Materials that readily undergo violent chemical change at elevated temperatures and pressures. Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) at or above 10 W/mL and below 100W/mL. **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. Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) at or above 100 W/mL and below 1000 W/mL. Materials that are sensitive to thermal or mechanical shock at elevated temperatures and pressures. **4** Materials that in themselves are readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures. Materials that are sensitive to localized thermal or mechanical shock at normal temperatures and pressures. Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) of 1000 W/mL or greater.

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 vapor to form an ignitable mixture with air near the surface of the liquid or within the test vessel used. Autoignition Temperature: Minimum temperature of a solid, liquid, or gas required to initiate or cause self-sustained combustion in air with no other source of ignition. LEL: Lowest concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame. UEL: Highest concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame.

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. LD_{50}: Lethal Dose (solids & liquids) that kills 50% of the exposed animals. LC_{50}: Lethal Concentration (gases) that kills 50% of the exposed animals. ppm: Concentration expressed in parts of material per million parts of air or water. mg/m^3: 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. TDLo: Lowest dose to cause a symptom. TCLo: Lowest concentration to cause a symptom. TDo, LDLo, and LDo, or TC, TCo, LCLo, and LCo: Lowest dose (or concentration) to cause lethal or toxic effects. **Cancer Information:** IARC: International Agency for Research on Cancer. NTP: National Toxicology Program. RTECS: Registry of Toxic Effects of Chemical Substances. 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.

REPRODUCTIVE INFORMATION: A mutagen is a chemical that causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical that causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical that causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance that interferes in any way with the reproductive process.

ECOLOGICAL INFORMATION:

EC: Effect concentration in water. BCF: Bioconcentration Factor, which is used to determine if a substance will concentrate in life forms that consume contaminated plant or animal matter. TLm: Median threshold limit. $\log K_{OW}$ or $\log K_{OC}$: Coefficient of Oil/Water Distribution is used to assess a substance's behavior in the environment.

REGULATORY INFORMATION: This section explains the impact of various laws and regulations on the material.

U.S.:

EPA: U.S. Environmental Protection Agency. ACGIH: American Conference of Governmental Industrial Hygienists, a professional association that establishes exposure limits. OSHA: U.S. Occupational Safety and Health Administration. NIOSH: National Institute of Occupational Safety and Health, which is the research arm of OSHA. DOT: U.S. Department of Transportation. TC: Transport Canada. SARA: Superfund Amendments and Reauthorization Act. TSCA: U.S. Toxic Substance Control Act. CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act. Marine Pollutant status according to the DOT; CERCLA or Superfund; and various state regulations. This section also includes information on the precautionary warnings that appear on the material's package label.

CANADA:

WHMIS: Canadian Workplace Hazardous Materials Information System. TC: Transport Canada. DSL/NDSL: Canadian Domestic/Non-Domestic Substances List.