

1 . Product and company identification

Product name	: SUPERMEND HARDENER
Supplier	: Eclectic Products Inc. 1075 Arrowsmith Eugene, OR 97402 541-484-9621
Material uses	: Consumer products: Consumer product.
Manufacturer	: Eclectic Products Inc. 1075 Arrowsmith Eugene, OR 97402 541-484-9621
Code	: 1085331
Validation date	: 3/4/2011.
Print date	: 3/4/2011.
Responsible name	: Regulatory Compliance
<u>In case of emergency</u>	: CALL INFOTRAC 800-535-5053 001-352-323-3500

2 . Hazards identification

Physical state	: Liquid. [Paste.]
Emergency overview	: DANGER ! CAUSES EYE AND SKIN BURNS. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. MAY BE HARMFUL IF SWALLOWED. Corrosive to eyes and skin. Causes burns. Harmful if swallowed. Severely irritating to the respiratory system. May cause sensitization by skin contact. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
Routes of entry	: Dermal contact. Eye contact. Inhalation.
<u>Potential acute health effects</u>	
Inhalation	: Severely irritating to the respiratory system.
Ingestion	: Harmful if swallowed. May cause burns to mouth, throat and stomach.
Skin	: Corrosive to the skin. Causes burns. May cause sensitization by skin contact.
Eyes	: Corrosive to eyes. Causes burns.
<u>Potential chronic health effects</u>	
Chronic effects	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.
<u>Over-exposure signs/symptoms</u>	
Inhalation	: Adverse symptoms may include the following: respiratory tract irritation coughing
Ingestion	: Adverse symptoms may include the following: stomach pains

2 . Hazards identification

- Skin** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Eyes** : Adverse symptoms may include the following:
pain
watering
redness
- Medical conditions aggravated by over-exposure** : Pre-existing skin and digestive disorders may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3 . Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Aliphatic amine.	Mixture	10-30
Nonyl Phenol	84852-15-3	10-30
Crystalline Silica	14808-60-7	<1

There are no ingredients or 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

- Eye contact** : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Chemical burns must be treated promptly by a physician.
- Skin contact** : Get medical attention immediately. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Inhalation** : Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing or wear gloves.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

- Flammability of the product** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
 - Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous combustion products** : Decomposition products may include the following materials:
carbon oxides
metal oxide/oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

7 . Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Product name

Crystalline Silica

Exposure limits

ACGIH TLV (United States, 1/2009). Notes: Respirable fraction; see Appendix C, paragraph C.

TWA: 0.025 mg/m³ 8 hour(s). Form: Respirable fraction

NIOSH REL (United States, 6/2008). Notes: See Appendix A - NIOSH Potential Occupational Carcinogen

TWA: 0.05 mg/m³ 10 hour(s). Form: respirable dust

OSHA PEL 1989 (United States, 3/1989). Notes: as quartz

TWA: 0.1 mg/m³, (as quartz) 8 hour(s). Form: Respirable dust

OSHA PEL Z3 (United States, 9/2005).

TWA: 10 mg/m³ 8 hour(s). Form: Respirable

TWA: 30 mg/m³ 8 hour(s). Form: Total dust.

TWA: 250 mppcf 8 hour(s). Form: Respirable

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory

: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands

: 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.

Eyes

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Skin

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Precautions to be taken in use:

: This product may contain materials classified as nuisance particulates, which may be present at hazardous levels only during sanding or abrading of the dried film. Wear a dust/mist respirator approved for dust when dusts are generated from sanding or abrading the dried film.

9 . Physical and chemical properties

Physical state	: Liquid. [Paste.]
Flash point	: Open cup: 137.78°C (280°F)
Color	: White.
Odor	: Not available.
Boiling/condensation point	: 304.44°C (580°F)
Specific gravity	: 1.53
Estimated Vapor Density	: >1 [Air = 1]

9 . Physical and chemical properties

VOC % : 0.6211%

Evaporation rate : >1 (Butyl acetate. = 1)

Solubility : Partially soluble in the following materials: water.

10 . Stability and reactivity

Stability : The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid : No specific data.

Materials to avoid : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Will not occur.

11 . Toxicological information

Acute toxicity

<u>Product/ingredient name</u>	<u>Result</u>	<u>Species</u>	<u>Dose</u>	<u>Exposure</u>
Nonyl Phenol	LD50 Oral	Rat	1300 mg/kg	-
	LDLo Dermal	Rabbit	3160 mg/kg	-
Crystalline Silica	TDLo Oral	Rat	10 mg/kg	-
	LDLo Intratracheal	Rat	250 mg/kg	-
	LDLo Intratracheal	Rat	>200 mg/kg	-
	LDLo Intravenous	Rat	90 mg/kg	-
	TDLo Intratracheal	Rat	100 mg/kg	-
	TDLo Intratracheal	Rat	50 mg/kg	-
	TDLo Intratracheal	Rat	30 mg/kg	-
	TDLo Intratracheal	Rat	25 mg/kg	-
	TDLo Intratracheal	Rat	15.69 mg/kg	-
	TDLo Intratracheal	Rat	10 mg/kg	-
	TDLo Intratracheal	Rat	10 mg/kg	-
	TDLo Intratracheal	Rat	5 mg/kg	-
	TDLo Intratracheal	Rat	1.5 mg/kg	-
	TDLo Intratracheal	Rat	1 mg/kg	-
	TDLo Intratracheal	Rat	1 mg/kg	-
	TDLo Intratracheal	Rat	1250 ug/kg	-
	TDLo Intratracheal	Rat	150 mg/kg	-
	TDLo Intratracheal	Rat	150 mg/kg	-
	TDLo Oral	Rat	120 g/kg	-

Carcinogenicity

Conclusion/Summary

11 . Toxicological information

Limestone and natural iron oxide used in making this product contain crystalline silica as an impurity. Repeated, prolonged exposure to respirable crystalline dusts may increase the risk of developing a disabling lung disease called silicosis. The International Agency for Research on Cancer (IARC) reports there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica from occupational sources. Based on studies of workers in industrial and occupational settings, The National Toxicology Program (NTP) Ninth Report on Carcinogens lists crystalline silica (respirable) as a substance known to be a carcinogen to humans.

Classification

Product/ingredient name

Crystalline Silica

ACGIH

A2

IARC

1

EPA

-

NIOSH

+

NTP

Proven.

OSHA

-

IDLH : Not available.

Synergistic products : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name

Nonyl Phenol

Test

-

Result

Acute LC50 0.32
mg/L Marine
water

Species

Fish - Cyprinodon
variegatus

Exposure

96 hours

-

Acute LC50 135.1
ug/L Fresh water

Fish - Lepomis
macrochirus

96 hours

-

Acute LC50 70
ug/L Marine water

Fish - Menidia
beryllina

96 hours

-

Acute LC50 17
ug/L Marine water

Fish -
Pleuronectes
americanus

96 hours

-

Acute LC50 142
ug/L Marine water

Fish - Cyprinodon
variegatus

96 hours

-

Acute LC50
138.25 ug/L
Fresh water

Fish - Pimephales
promelas

96 hours

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	Not available.	Consumer commodity.	ORM-D	-		Remarks < 1 . 3 gal Consumer commodity ORM-D
TDG Classification	1760	<input checked="" type="checkbox"/> CORROSIVE LIQUID, N.O.S. (Aliphatic amine., Nonyl Phenol)	8	III		-
IMDG Class	1760	<input checked="" type="checkbox"/> CORROSIVE LIQUID, N.O.S. (Nonyl Phenol, Aliphatic amine.). Marine pollutant (Nonyl Phenol)	8	III		Emergency schedules (EmS) F-A, S-B Marine pollutant Marine pollutant (P) Remarks Limited quantity
IATA-DGR Class	8000	Consumer commodity	9	-		-

PG* : Packing group

15 . Regulatory information

United States inventory (TSCA 8b): All components are listed or exempted.
SARA 311/312 - Acute, Chronic

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

Ingredient name

Crystalline Silica

Cancer

Yes.

Reproductive

No.

Canada

WHMIS (Canada)

: Class D-2A: Material causing other toxic effects (Very toxic).
Class E: Corrosive material

Canadian lists

: **CEPA Toxic substances:** The following components are listed: Nonylphenol and its ethoxylates
Canadian NPRI: The following components are listed: Nonylphenol and its ethoxylates

Canada inventory

: **Canada inventory:** Not determined.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

Mexico

Classification

:



EU regulations

15 . Regulatory information

Hazard symbol or symbols :



Risk phrases

- : R62- Possible risk of impaired fertility.
- R63- Possible risk of harm to the unborn child.
- R34- Causes burns.
- R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases

- : S2- Keep out of the reach of children.
- S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S29- Do not empty into drains.
- S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
- S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

International regulations

International lists

- : **Australia inventory (AICS):** Not determined.
- China inventory (IECSC):** Not determined.
- Korea inventory (KECI):** Not determined.
- Philippines inventory (PICCS):** Not determined.
- Japan inventory (ENCS):** Not determined.
- Europe inventory:** Not determined.

16 . Other information

Hazardous Material Information System (U.S.A.) :

Health	*	2
Flammability		1
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



- Date of printing** : 3/4/2011.
- Date of issue** : 3/4/2011.
- Date of previous issue** : 11/30/2009.
- Version** : 1.04

Indicates information that has changed from previously issued version.

Notice to reader

16 . Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

1 . Product and company identification

Product name	: SUPERMEND RESIN
Supplier	: Eclectic Products Inc. 1075 Arrowsmith Eugene, OR 97402 541-484-9621
Material uses	: Consumer products: Consumer product.
Manufacturer	: Eclectic Products Inc. 1075 Arrowsmith Eugene, OR 97402 541-484-9621
Code	: 1085330
Validation date	: 3/4/2011.
Print date	: 3/4/2011.
Responsible name	: Regulatory Compliance
<u>In case of emergency</u>	: CALL INFOTRAC 800-535-5053 001-352-323-3500

2 . Hazards identification

Physical state	: Liquid.
Emergency overview	: WARNING ! CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. Irritating to eyes, respiratory system and skin. May cause sensitization by skin contact. Do not breathe vapor or mist. Do not get on skin or clothing. Avoid contact with eyes. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
Routes of entry	: Dermal contact. Eye contact. Inhalation.
<u>Potential acute health effects</u>	
Inhalation	: Irritating to respiratory system.
Ingestion	: No known significant effects or critical hazards.
Skin	: Irritating to skin. May cause sensitization by skin contact.
Eyes	: Irritating to eyes.
<u>Potential chronic health effects</u>	
Chronic effects	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.
Target organs	: Contains material which may cause damage to the following organs: lungs, upper respiratory tract, skin.
<u>Over-exposure signs/symptoms</u>	
Inhalation	: Adverse symptoms may include the following: respiratory tract irritation coughing
Ingestion	: No specific data.

2 . Hazards identification

- Skin** : Adverse symptoms may include the following:
irritation
redness
- Eyes** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Medical conditions aggravated by over-exposure** : Pre-existing skin disorders may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3 . Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Bisphenol A/Epichlorohydrin Epoxy Resin	Mixture	30-60
Titanium Dioxide	13463-67-7	1-5
Crystalline Silica	14808-60-7	<1

There are no ingredients or 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

- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Inhalation** : Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing or wear gloves.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

- Flammability of the product** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous combustion products** : Decomposition products may include the following materials:
metal oxide/oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

7 . Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Product name

Titanium Dioxide

Exposure limits

ACGIH TLV (United States, 1/2009). Notes: Substance identified by other sources as a suspected or confirmed human carcinogen. 1996 Adoption Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Refers to Appendix A - Carcinogens.

TWA: 10 mg/m³ 8 hour(s).

OSHA PEL (United States, 11/2006).

TWA: 15 mg/m³ 8 hour(s). Form: Total dust

OSHA PEL 1989 (United States, 3/1989).

TWA: 10 mg/m³ 8 hour(s). Form: Total dust

Crystalline Silica

ACGIH TLV (United States, 1/2009). Notes: Respirable fraction; see Appendix C, paragraph C.

TWA: 0.025 mg/m³ 8 hour(s). Form: Respirable fraction

NIOSH REL (United States, 6/2008). Notes: See Appendix A - NIOSH Potential Occupational Carcinogen

TWA: 0.05 mg/m³ 10 hour(s). Form: respirable dust

OSHA PEL 1989 (United States, 3/1989). Notes: as quartz

TWA: 0.1 mg/m³, (as quartz) 8 hour(s). Form: Respirable dust

OSHA PEL Z3 (United States, 9/2005).

TWA: 10 mg/m³ 8 hour(s). Form: Respirable

TWA: 30 mg/m³ 8 hour(s). Form: Total dust.

TWA: 250 mppcf 8 hour(s). Form: Respirable

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory

- : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands

- : 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.

Eyes

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Skin

- : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Precautions to be taken in use:

- : This product may contain materials classified as nuisance particulates, which may be present at hazardous levels only during sanding or abrading of the dried film. Wear a dust/mist respirator approved for dust when dusts are generated from sanding or abrading the dried film.

9 . Physical and chemical properties

Physical state	: Liquid.
Flash point	: Open cup: >93.333°C (>200°F)
Color	: White.
Odor	: Not available.
Boiling/condensation point	: 182.22°C (360°F)
Specific gravity	: 1.71
Estimated Vapor Density	: >1 [Air = 1]
VOC %	: 0.2545%
Evaporation rate	: >1 (Butyl acetate. = 1)
Solubility	: Partially soluble in the following materials: water.

10 . Stability and reactivity

Stability	: The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	: No specific data.
Materials to avoid	: No specific data.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	: Will not occur.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure	
Titanium Dioxide	LD Intratracheal	Rat	>100 ug/kg	-	
	TDLo	Rat	5 mg/kg	-	
	Intratracheal				
	TDLo	Rat	1.6 mg/kg	-	
	Intratracheal				
	TDLo	Rat	1.25 mg/kg	-	
	Intratracheal				
	TDLo Oral	Rat	60 g/kg	-	
	Crystalline Silica	LDLo	Rat	250 mg/kg	-
		Intratracheal			
		LDLo	Rat	>200 mg/kg	-
		Intratracheal			
		LDLo Intravenous	Rat	90 mg/kg	-
		TDLo	Rat	100 mg/kg	-
Intratracheal					
TDLo		Rat	50 mg/kg	-	
Intratracheal					
TDLo		Rat	30 mg/kg	-	
Intratracheal					
TDLo	Rat	25 mg/kg	-		
Intratracheal					
TDLo	Rat	15.69 mg/kg	-		
Intratracheal					
TDLo	Rat	10 mg/kg	-		
Intratracheal					
TDLo	Rat	10 mg/kg	-		
Intratracheal					
TDLo	Rat	5 mg/kg	-		
Intratracheal					
TDLo	Rat	1.5 mg/kg	-		
Intratracheal					
TDLo	Rat	1 mg/kg	-		
Intratracheal					

11 . Toxicological information

TDL0	Rat	1 mg/kg	-
Intratracheal			
TDL0	Rat	1250 ug/kg	-
Intratracheal			
TDL0	Rat	150 mg/kg	-
Intratracheal			
TDL0	Rat	150 mg/kg	-
Intratracheal			
TDL0 Oral	Rat	120 g/kg	-

Carcinogenicity

Conclusion/Summary

Limestone and natural iron oxide used in making this product contain crystalline silica as an impurity. Repeated, prolonged exposure to respirable crystalline dusts may increase the risk of developing a disabling lung disease called silicosis. The International Agency for Research on Cancer (IARC) reports there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica from occupational sources. Based on studies of workers in industrial and occupational settings, The National Toxicology Program (NTP) Ninth Report on Carcinogens lists crystalline silica (respirable) as a substance known to be a carcinogen to humans.

The International Agency for Research on Cancer (IARC) Monograph No. 93 reports there is sufficient evidence in experimental animals exposed to titanium dioxide but inadequate evidence for carcinogenicity in humans. Human studies do not suggest an association between occupational exposure to titanium dioxide dust and an increased risk of cancer. The IARC summary concludes, "that no significant exposure to titanium dioxide is thought to occur during the use of products in which titanium dioxide is bound to other materials, such as paint".

Classification

Product/ingredient name

	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Titanium Dioxide	-	2B	-	-	-	-
Crystalline Silica	A2	1	-	+	Proven.	-

IDLH : Not available.

Synergistic products : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name

Product/ingredient name	Test	Result	Species	Exposure
Titanium Dioxide	-	Acute EC50 >1000000 ug/L Fresh water	Daphnia - Daphnia magna	48 hours
	-	Acute LC50 5.5 ppm Fresh water	Daphnia - Daphnia magna	48 hours
	-	Acute LC50 >1000000 ug/L Marine water	Fish - Fundulus heteroclitus	96 hours
	-	Chronic NOEC 500 ppm Fresh water	Daphnia - Daphnia magna	48 hours
	-	Chronic NOEC 1 ppm Fresh water	Daphnia - Daphnia magna	48 hours

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	Not regulated.	-	-	-		-
TDG Classification	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-
IATA-DGR Class	Not regulated.	-	-	-		-

PG* : Packing group

15 . Regulatory information

United States inventory (TSCA 8b): All components are listed or exempted.
SARA 311/312 - Acute, Chronic

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

Ingredient name

Crystalline Silica

Cancer

Yes.

Reproductive

No.

Canada

WHMIS (Canada)

: Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

: **CEPA Toxic substances:** None of the components are listed.
Canadian NPRI: None of the components are listed.

Canada inventory

: **Canada inventory:** All components are listed or exempted.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

Mexico

Classification

:



EU regulations

Risk phrases

: This product is not classified according to EU legislation.

International regulations

15 . Regulatory information

International lists :

- Australia inventory (AICS):** All components are listed or exempted.
- China inventory (IECSC):** All components are listed or exempted.
- Korea inventory (KECI):** All components are listed or exempted.
- Philippines inventory (PICCS):** All components are listed or exempted.
- Japan inventory (ENCS):** Not determined.
- Europe inventory:** Not determined.

16 . Other information

Hazardous Material Information System (U.S.A.) :

Health	2
Flammability	1
Physical hazards	0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



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☑ Indicates information that has changed from previously issued version.

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