



## SAFETY DATA SHEET

### PW2 LEAD-FREE FLUX REMOVER - POWERCLEAN, AEROSOL

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

#### 1. Identification

##### Product identifier

**Product name** PW2 LEAD-FREE FLUX REMOVER - POWERCLEAN, AEROSOL  
**Product number** MCC-PW210Y, MCC-PW210A, MCC-PW2101, MCC-PW2105, MCC-PW2106

##### Recommended use of the chemical and restrictions on use

**Application** Cleaning agent.

##### Details of the supplier of the safety data sheet

**Supplier** MicroCare Corporation  
**Manufacturer** MICROCARE CORPORATION  
 595 John Downey Drive  
 New Britain, CT 06051  
 United States of America  
 CAGE: OATV9  
 Tel: +1 860-827-0626  
 Fax: +1 860-827-8105  
 techsupport@microcare.com

##### Emergency telephone number

**Emergency telephone** CHEMTREC (800) 424-9300

#### 2. Hazard(s) identification

##### Classification of the substance or mixture

**Physical hazards** Aerosol 3 Press. Gas, Liquefied - H280  
**Health hazards** Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Irrit. 2A - H319 STOT SE 3 - H336 Asp. Tox. 1 - H304  
**Environmental hazards** Aquatic Chronic 3 - H412  
**Human health** Prolonged or repeated contact with skin may cause irritation, redness and dermatitis. Mild dermatitis, allergic skin rash.  
**Environmental** The product contains a substance which is harmful to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.  
**Physicochemical** Vapors are heavier than air and may travel along the floor and accumulate in the bottom of containers. Not considered to be a significant hazard due to the small quantities used. Gas or vapor displaces oxygen available for breathing (asphyxiant).

##### Label elements

## PW2 LEAD-FREE FLUX REMOVER - POWERCLEAN, AEROSOL

### Pictogram



### Signal word

Danger

### Hazard statements

H280 Contains gas under pressure; may explode if heated.  
 H302 Harmful if swallowed.  
 H304 May be fatal if swallowed and enters airways.  
 H315 Causes skin irritation.  
 H319 Causes serious eye irritation.  
 H336 May cause drowsiness or dizziness.  
 H412 Harmful to aquatic life with long lasting effects.

### Precautionary statements

P251 Pressurized container: Do not pierce or burn, even after use  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
 P210 Keep away from heat, sparks, open flames and hot surfaces. No smoking.  
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P332+P313 If skin irritation occurs: Get medical advice/ attention.  
 P337+P313 If eye irritation persists: Get medical advice/ attention.  
 P301+P312 If swallowed: Call a poison center/ doctor if you feel unwell.  
 P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.  
 P501 Dispose of contents/ container in accordance with national regulations.

### Supplemental label information

Safety data sheet available on request. For use in industrial installations only.

### Contains

trans-DICHLOROETHYLENE

### Other hazards

This product does not contain any substances classified as PBT or vPvB.

### 3. Composition/information on ingredients

#### Mixtures

<b>trans-DICHLOROETHYLENE</b>	<b>60-100%</b>
CAS number: 156-60-5	

#### Classification

Flam. Liq. 2 - H225  
 Acute Tox. 4 - H302  
 Skin Irrit. 2 - H315  
 Eye Irrit. 2A - H319  
 STOT SE 3 - H336  
 Asp. Tox. 1 - H304  
 Aquatic Chronic 3 - H412

#### HFC-134a Tetrafluoroethane

**10-30%**

CAS number: 811-97-2

#### Classification

Press. Gas, Liquefied - H280

## PW2 LEAD-FREE FLUX REMOVER - POWERCLEAN, AEROSOL

<b>A MIXTURE OF: (R,R)-1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE, (S,S)-1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE</b>	<b>10-30%</b>
CAS number: —	
<b>Classification</b> Aquatic Chronic 3 - H412	

The Full Text for all Hazard Statements are Displayed in Section 16.

**Composition comments**      The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of CFR 1900.1200 TSCA: The ingredients of this product are on the TSCA Inventory.

### Composition

#### 4. First-aid measures

##### Description of first aid measures

<b>General information</b>	Never give anything by mouth to an unconscious person. Do not induce vomiting. Place unconscious person on the side in the recovery position and ensure breathing can take place. If breathing stops, provide artificial respiration.
<b>Inhalation</b>	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen.
<b>Ingestion</b>	Do not induce vomiting. Rinse mouth thoroughly with water. Give plenty of water to drink. Consult a physician for specific advice.
<b>Skin Contact</b>	Remove contaminated clothing and rinse skin thoroughly with water.
<b>Eye contact</b>	Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Consult a physician for specific advice.

##### Most important symptoms and effects, both acute and delayed

<b>General information</b>	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
<b>Inhalation</b>	Vapors may cause headache, fatigue, dizziness and nausea. Difficulty in breathing. Upper respiratory irritation. Severe irritation of nose and throat.
<b>Ingestion</b>	May cause stomach pain or vomiting. Drowsiness, dizziness, disorientation, vertigo.
<b>Skin contact</b>	Prolonged or repeated contact with skin may cause irritation, redness and dermatitis.
<b>Eye contact</b>	Irritation of eyes and mucous membranes. Irritating to eyes. Symptoms following overexposure may include the following: Redness. Pain.

##### Indication of immediate medical attention and special treatment needed

**Notes for the doctor**      No specific recommendations. If in doubt, get medical attention promptly.

#### 5. Fire-fighting measures

##### Extinguishing media

**Suitable extinguishing media**    The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.

##### Special hazards arising from the substance or mixture

**Flammability Class**              The product is not flammable.

## PW2 LEAD-FREE FLUX REMOVER - POWERCLEAN, AEROSOL

<b>Specific hazards</b>	Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors. Aerosol containers can explode when heated, due to excessive pressure build-up.
<b>Hazardous combustion products</b>	Heating may generate the following products: Toxic and corrosive gases or vapors. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors. Oxides of carbon. Oxides of nitrogen.
<b><u>Advice for firefighters</u></b>	
<b>Protective actions during firefighting</b>	Move containers from fire area if it can be done without risk. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk.
<b>Special protective equipment for firefighters</b>	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

### 6. Accidental release measures

#### Personal precautions, protective equipment and emergency procedures

<b>Personal precautions</b>	Warn everybody of potential hazards and evacuate if necessary. Provide adequate ventilation. Avoid inhalation of vapors. Use approved respirator if air contamination is above an acceptable level.
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#### Environmental precautions

<b>Environmental precautions</b>	Contain spillage with sand, earth or other suitable non-combustible material. Avoid release to the environment.
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#### Methods and material for containment and cleaning up

<b>Methods for cleaning up</b>	Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. Eliminate all sources of ignition. No smoking, sparks, flames or other sources of ignition near spillage. Provide adequate ventilation.
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<b>Reference to other sections</b>	See Section 11 for additional information on health hazards.
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### 7. Handling and storage

#### Precautions for safe handling

<b>Usage precautions</b>	Provide adequate ventilation. Avoid inhalation of vapors/spray and contact with skin and eyes. Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors.
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#### Conditions for safe storage, including any incompatibilities

<b>Storage precautions</b>	Aerosol cans: Must not be exposed to direct sunlight or temperatures above 50°C.
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#### Specific end uses(s)

<b>Specific end use(s)</b>	The identified uses for this product are detailed in Section 1.2.
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<b>Reference to other sections.</b>	Store away from incompatible materials (see Section 10).
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### 8. Exposure Controls/personal protection

#### Control parameters

#### Occupational exposure limits

#### trans-DICHLOROETHYLENE

Long-term exposure limit (8-hour TWA): ACGIH 200 ppm 793 mg/m<sup>3</sup>

#### HFC-134a Tetrafluoroethane

## PW2 LEAD-FREE FLUX REMOVER - POWERCLEAN, AEROSOL

Long-term exposure limit (8-hour TWA): OES 4240 mg/m<sup>3</sup>

Short-term exposure limit (15-minute): OES

ACGIH = American Conference of Governmental Industrial Hygienists.

### Additional Occupational Exposure Limits

**Ingredient comments** ACGIH = US Standard.

### Exposure controls

#### Protective equipment



#### Appropriate engineering controls

No specific ventilation requirements. This product must not be handled in a confined space without adequate ventilation.

#### Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses.

#### Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible.

#### Other skin and body protection

Wear suitable protective clothing as protection against splashing or contamination. Wear apron or protective clothing in case of contact.

#### Hygiene measures

No specific hygiene procedures recommended but good personal hygiene practices should always be observed when working with chemical products. When using do not eat, drink or smoke.

#### Respiratory protection

Vapors are heavier than air and may travel along the floor and accumulate in the bottom of containers. In confined or poorly-ventilated spaces, a supplied-air respirator must be worn. Wear self-contained breathing apparatus with full facepiece.

## 9. Physical and Chemical Properties

### Information on basic physical and chemical properties

<b>Appearance</b>	Clear liquid. Aerosol.
<b>Color</b>	Colorless.
<b>Odor</b>	Slight. Ether.
<b>Odor threshold</b>	No information available.
<b>pH</b>	No information available.
<b>Melting point</b>	No information available.
<b>Initial boiling point and range</b>	39°C/102°F @ 101.3 kPa
<b>Flash point</b>	The product is not flammable.
<b>Evaporation rate</b>	No information available.
<b>Evaporation factor</b>	No information available.
<b>Upper/lower flammability or explosive limits</b>	Upper flammable/explosive limit: 13 %(V) Lower flammable/explosive limit: 5.5 %(V)
<b>Other flammability</b>	The product is not flammable. Aerosol ignition distance: none at 0.0 cm

## PW2 LEAD-FREE FLUX REMOVER - POWERCLEAN, AEROSOL

<b>Vapor pressure</b>	55.3 kPa @ 25°C
<b>Vapor density</b>	3.7
<b>Relative density</b>	No information available.
<b>Bulk density</b>	No information available.
<b>Solubility(ies)</b>	0.3 g/100 g water @ 20°C Slightly soluble in water.
<b>Partition coefficient</b>	No information available.
<b>Auto-ignition temperature</b>	No information available.
<b>Decomposition Temperature</b>	No information available.
<b>Viscosity</b>	No information available.
<b>Explosive properties</b>	No information available.
<b>Oxidizing properties</b>	Not known.
<b>Comments</b>	Aerosol.
<b>Refractive index</b>	No information available.
<b>Particle size</b>	No information available.
<b>Molecular weight</b>	No information available.
<b>Volatility</b>	100%
<b>Saturation concentration</b>	No information available.
<b>Critical temperature</b>	No information available.
<b>Volatile organic compound</b>	This product contains a maximum VOC content of 1080 g/l.
<b>Flammability</b>	The product is not flammable.

### 10. Stability and reactivity

<b>Reactivity</b>	The following materials may react with the product: Strong alkalis.
<b>Stability</b>	Stable at normal ambient temperatures and when used as recommended.
<b>Possibility of hazardous reactions</b>	Will not polymerize.
<b>Conditions to avoid</b>	Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors.
<b>Materials to avoid</b>	Alkali metals. Alkaline earth metals. Powdered metal.
<b>Hazardous decomposition products</b>	Heating may generate the following products: Toxic and corrosive gases or vapors. Halogenated hydrocarbons. Hydrogen fluoride (HF). Carbon dioxide (CO <sub>2</sub> ). Carbon monoxide (CO).

### 11. Toxicological information

#### Information on toxicological effects

##### Acute toxicity - oral

<b>ATE oral (mg/kg)</b>	1,816.18
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## PW2 LEAD-FREE FLUX REMOVER - POWERCLEAN, AEROSOL

### Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 35,441.18

<b>Inhalation</b>	Vapors may irritate throat/respiratory system. A single exposure may cause the following adverse effects: Coughing. Difficulty in breathing.
<b>Ingestion</b>	May cause stomach pain or vomiting. May cause nausea, headache, dizziness and intoxication.
<b>Skin Contact</b>	Product has a defatting effect on skin. May cause allergic contact eczema.
<b>Eye contact</b>	May cause temporary eye irritation.
<b>Medical Symptoms</b>	Gas or vapor in high concentrations may irritate the respiratory system. Symptoms following overexposure may include the following: Headache. Fatigue. Nausea, vomiting.

### Toxicological information on ingredients.

#### trans-DICHLOROETHYLENE

**Other health effects** There is no evidence that the product can cause cancer.

#### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 1,235.0

**Species** Rat

**ATE oral (mg/kg)** 1,235.0

#### Acute toxicity - dermal

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)** 5,000.0

**Species** Rabbit

**ATE dermal (mg/kg)** 5,000.0

#### Acute toxicity - inhalation

**Acute toxicity inhalation (LC<sub>50</sub> vapours mg/l)** 24,100.0

**Species** Rat

**ATE inhalation (vapours mg/l)** 24,100.0

#### HFC-134a Tetrafluoroethane

**Other health effects** There is no evidence that the product can cause cancer.

#### Acute toxicity - inhalation

**Acute toxicity inhalation (LC<sub>50</sub> gases ppmV)** 567,000.0

**Species** Rat

**ATE inhalation (gases ppm)** 567,000.0

## PW2 LEAD-FREE FLUX REMOVER - POWERCLEAN, AEROSOL

### A MIXTURE OF: (R,R)-1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE, (S,S)-1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE

#### Acute toxicity - oral

Acute toxicity oral (LD<sub>50</sub> mg/kg) 5,000.0

Species Rat

ATE oral (mg/kg) 5,000.0

#### Acute toxicity - dermal

Acute toxicity dermal (LD<sub>50</sub> mg/kg) 5,000.0

Species Rabbit

ATE dermal (mg/kg) 5,000.0

#### Acute toxicity - inhalation

Acute toxicity inhalation (LC<sub>50</sub> vapours mg/l) 114.0

Species Rat

ATE inhalation (vapours mg/l) 114.0

## 12. Ecological Information

**Ecotoxicity** Dangerous for the environment if discharged into watercourses.

### Ecological information on ingredients.

#### trans-DICHLOROETHYLENE

**Ecotoxicity** Low acute toxicity to aquatic organisms.

### Toxicity

### Ecological information on ingredients.

#### trans-DICHLOROETHYLENE

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: 1350 mg/l, Fish

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 48 hours: 220 mg/l, Daphnia magna

#### HFC-134a Tetrafluoroethane

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: 450 mg/l, Fish

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 48 hours: 980 mg/l, Daphnia magna

### A MIXTURE OF: (R,R)-1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE, (S,S)-1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: 27.2 mg/l, Pimephales promelas (Fat-head Minnow)



## PW2 LEAD-FREE FLUX REMOVER - POWERCLEAN, AEROSOL

**Acute toxicity - aquatic invertebrates** LC<sub>50</sub>, 48 hours: 11.7 mg/l, Daphnia magna

**Acute toxicity - aquatic plants** EC<sub>50</sub>, 72 hours: >120 mg/l, Pseudokirchneriella subcapitata

### Persistence and degradability

**Persistence and degradability** The product is not readily biodegradable.

### Ecological information on ingredients.

#### trans-DICHLOROETHYLENE

**Persistence and degradability** No data available.

#### A MIXTURE OF: (R,R)-1,1,1,2,3,4,5,5,5-DECAFLUOROPENTANE, (S,S)-1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE

**Biodegradation** Not readily biodegradable.

### Bioaccumulative potential

**Bio-Accumulative Potential** No data available on bioaccumulation.

**Partition coefficient** No information available.

### Ecological information on ingredients.

#### trans-DICHLOROETHYLENE

**Bio-Accumulative Potential** Bioaccumulation is unlikely to be significant because of the low water-solubility of this product.

#### HFC-134a Tetrafluoroethane

**Partition coefficient** Pow: 1.06

#### A MIXTURE OF: (R,R)-1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE, (S,S)-1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE

**Bio-Accumulative Potential** Bioaccumulation is unlikely.

**Partition coefficient** Pow: 2.7

### Mobility in soil

**Mobility** The product contains volatile substances which may spread in the atmosphere.

### Ecological information on ingredients.

#### trans-DICHLOROETHYLENE

**Mobility** The product has poor water-solubility.

### Results of PBT and vPvB assessment

**Results of PBT and vPvB assessment** This product does not contain any substances classified as PBT or vPvB.

### Other adverse effects

## PW2 LEAD-FREE FLUX REMOVER - POWERCLEAN, AEROSOL

**Other adverse effects** The product contains a substance or substances that will contribute to global warming (greenhouse effect). The product contains a substance which has a photochemical ozone creation potential.

### 13. Disposal considerations

#### Waste treatment methods

**General information** Waste should be treated as controlled waste. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

**Disposal methods** Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

### 14. Transport information

#### UN Number

UN No. (TDG)	UN1950
UN No. (IMDG)	UN1950
UN No. (ICAO)	UN1950
UN No. (DOT)	UN1950

#### UN proper shipping name

Proper shipping name (TDG)	UN1950 AEROSOLS, NON-FLAMMABLE, 2.2, LIMITED QUANTITY
Proper shipping name (IMDG)	UN1950 AEROSOLS, NON-FLAMMABLE, 2.2, LIMITED QUANTITY
Proper shipping name (ICAO)	UN1950 AEROSOLS, NON-FLAMMABLE, 2.2, LIMITED QUANTITY
Proper shipping name (DOT)	UN1950 AEROSOLS, NON-FLAMMABLE, 2.2, LIMITED QUANTITY

#### Transport hazard class(es)

TDG class	2.2
TDG label(s)	3
IMDG Class	2.2
ICAO class/division	2.2
ICAO subsidiary risk	N/A

#### Transport labels



#### Packing group

IMDG packing group	N/A
ICAO packing group	N/A

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable. No information required.

### 15. Regulatory information

#### US Federal Regulations

## PW2 LEAD-FREE FLUX REMOVER - POWERCLEAN, AEROSOL

### SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities

Not listed.

### CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

*trans-DICHLOROETHYLENE*

Final CERCLA RQ: 1000(454) pounds (Kilograms)

### SARA Extremely Hazardous Substances EPCRA Reportable Quantities

Not listed.

### SARA 313 Emission Reporting

Not listed.

### CAA Accidental Release Prevention

Not listed.

### SARA (311/312) Hazard Categories

Acute  
Pressure

### OSHA Highly Hazardous Chemicals

Not listed.

### US State Regulations

#### California Proposition 65 Carcinogens and Reproductive Toxins

Not listed.

#### California Air Toxics "Hot Spots" (A-I)

Not listed.

#### California Air Toxics "Hot Spots" (A-II)

Not listed.

#### California Directors List of Hazardous Substances

*trans-DICHLOROETHYLENE*

Present.

#### Massachusetts "Right To Know" List

*trans-DICHLOROETHYLENE*

Present.

#### Rhode Island "Right To Know" List

Not listed.

#### Minnesota "Right To Know" List

*HFC-134a Tetrafluoroethane*

Present.

#### New Jersey "Right To Know" List

Not listed.

#### Pennsylvania "Right To Know" List

*trans-DICHLOROETHYLENE*

Present.

## PW2 LEAD-FREE FLUX REMOVER - POWERCLEAN, AEROSOL

### Inventories

#### Canada - DSL/NDSL

A MIXTURE OF: (R,R)-1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE, (S,S)-1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE  
DSL

HFC-134a Tetrafluoroethane  
DSL

trans-DICHLOROETHYLENE  
DSL

#### US - TSCA

All the ingredients are listed.

### 16. Other information

<b>Revision comments</b>	NOTE: Lines within the margin indicate significant changes from the previous revision.
<b>Revision date</b>	2/22/2016
<b>Revision</b>	18
<b>Supersedes date</b>	2/22/2016
<b>SDS No.</b>	AEROSOL - PW2
<b>SDS status</b>	Approved.
<b>Hazard statements in full</b>	H225 Highly flammable liquid and vapor. H280 Contains gas under pressure; may explode if heated. H302 Harmful if swallowed. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness. H412 Harmful to aquatic life with long lasting effects.
<b>NFPA - health hazard</b>	Irritation, minor residual injury. (1)
<b>NFPA - flammability hazard</b>	Burns only if pre-heated. (1)
<b>NFPA - instability hazard</b>	Unstable if heated. (1)
<b>NFPA - special hazard</b>	N/A
<b>ACA HMIS Health rating.</b>	Slight Hazard. (1)
<b>ACA HMIS Flammability rating.</b>	Will not burn. (0)
<b>ACA HMIS Physical hazard rating.</b>	Unstable if heated. (1)
<b>ACA HMIS Personal protection rating.</b>	A

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.