



## 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: + 1 800 638 0125, +1 860-827-0626  
 Fax: +1 860-827-8105  
 techsupport@microcare.com

##### Emergency telephone number

**Emergency telephone** CHEMTREC 1-800-424-9300 (within the U.S.)  
 +1 703-741-5970 (from anywhere in the world)

#### 2. Hazard(s) identification

##### Classification of the substance or mixture

**Physical hazards** Not Classified  
**Health hazards** Acute Tox. 4 - H332  
**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**

Warning

**Hazard statements**

H332 Harmful if inhaled.

H412 Harmful to aquatic life with long lasting effects.

**Precautionary statements**

P210 Keep away from heat, sparks, open flames and hot surfaces. No smoking.

P211 Do not spray on an open flame or other ignition source.

P251 Pressurized container: Do not pierce or burn, even after use

P261 Avoid breathing spray.

P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.

P501 Dispose of contents/ container in accordance with local regulations.

**Supplemental label information**

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

**Contains**

trans-DICHLOROETHYLENE

**3. Composition/information on ingredients****Mixtures**

<b>trans-DICHLOROETHYLENE</b>	<b>30-60%</b>
CAS number: 156-60-5	
<b>Classification</b>	
Flam. Liq. 2 - H225	
Acute Tox. 4 - H332	
Aquatic Chronic 3 - H412	
<b>HFC-134a Tetrafluoroethane</b>	<b>10-30%</b>
CAS number: 811-97-2	
<b>Classification</b>	
Press. Gas, Liquefied - H280	
<b>1,1,1,2,2,3,4,5,5,5-decafluoropentane</b>	<b>10-30%</b>
CAS number: 138495-42-8	
<b>Classification</b>	
Aquatic Chronic 3 - H412	

The full text for all hazard statements is 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.

**Ingredient notes**

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 has been revised to 1,1,1,2,2,3,4,5,5,5-decafluoropentane. No change in chemistry. 20JUL17

**Composition**

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### 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

<b>Notes for the doctor</b>	No specific recommendations. If in doubt, get medical attention promptly.
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### 5. Fire-fighting measures

#### Extinguishing media

<b>Suitable extinguishing media</b>	The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.
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#### Special hazards arising from the substance or mixture

<b>Flammability Class</b>	The product is not flammable.
<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.

#### Advice for firefighters

<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. Bursting aerosol containers may be propelled from a fire at high speed.
<b>Special protective equipment for firefighters</b>	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

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### 6. Accidental release measures

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

**Personal precautions** 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.

#### Environmental precautions

**Environmental precautions** Contain spillage with sand, earth or other suitable non-combustible material. Avoid release to the environment.

#### Methods and material for containment and cleaning up

**Methods for cleaning up** 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.

**Reference to other sections** See Section 11 for additional information on health hazards.

### 7. Handling and storage

#### Precautions for safe handling

**Usage precautions** 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.

#### Conditions for safe storage, including any incompatibilities

**Storage precautions** Aerosol cans: Must not be exposed to direct sunlight or temperatures above 50°C.

#### Specific end uses(s)

**Specific end use(s)** The identified uses for this product are detailed in Section 1.

**Reference to other sections.** Store away from incompatible materials (see Section 10).

### 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**

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

#### **1,1,1,2,2,3,4,5,5,5-decafluoropentane**

No information available that would effect occupational exposure limit values.

ACGIH = American Conference of Governmental Industrial Hygienists.

#### **Additional Occupational Exposure Limits**

**Ingredient comments** ACGIH = US Standard.

#### Exposure controls

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### 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

Appearance	Clear liquid. Aerosol.
Color	Colorless.
Odor	Slight. Ether.
Odor threshold	No information available.
pH	No information available.
Melting point	No information available.
Initial boiling point and range	39°C/102°F @ 101.3 kPa
Flash point	The product is not flammable.
Evaporation rate	No information available.
Evaporation factor	No information available.
Upper/lower flammability or explosive limits	Upper flammable/explosive limit: 13 %(V) Lower flammable/explosive limit: 5.5 %(V)
Other flammability	The product is not flammable. Aerosol ignition distance: none at 0.0 cm
Vapor pressure	55.3 kPa @ 25°C
Vapor density	3.7
Relative density	1.27
Bulk density	No information available.
Solubility(ies)	0.3 g/100 g water @ 20°C Slightly soluble in water.
Partition coefficient	No information available.

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<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 - inhalation

**ATE inhalation (vapours mg/l)** 19.05

<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.

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**Medical Symptoms** 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.

#### 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

**Inhalation** Vapors irritate the respiratory system. May cause coughing and difficulties in breathing.

**Ingestion** May cause stomach pain or vomiting. May cause nausea, headache, dizziness and intoxication.

**Skin Contact** May cause allergic contact eczema. Contact with liquid form may cause frostbite.

**Eye contact** May cause temporary eye irritation.

#### 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** Rat

**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

#### Skin corrosion/irritation

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<b>Animal data</b>	Not irritating. Rabbit
<b>Human skin model test</b>	Data lacking.
<b>Extreme pH</b>	Not applicable. Not corrosive to skin.
<b><u>Serious eye damage/irritation</u></b>	
<b>Serious eye damage/irritation</b>	Not irritating. Rabbit
<b><u>Respiratory sensitization</u></b>	
<b>Respiratory sensitization</b>	Data lacking.
<b><u>Skin sensitization</u></b>	
<b>Skin sensitization</b>	Not sensitizing. - Guinea pig: Not sensitizing.
<b><u>Germ cell mutagenicity</u></b>	
<b>Genotoxicity - in vitro</b>	This substance has no evidence of mutagenic properties.
<b>Genotoxicity - in vivo</b>	This substance has no evidence of mutagenic properties.
<b><u>Carcinogenicity</u></b>	
<b>Carcinogenicity</b>	Does not contain any substances known to be carcinogenic.
<b>IARC carcinogenicity</b>	Not listed.
<b>NTP carcinogenicity</b>	Not listed.
<b>OSHA Carcinogenicity</b>	Not listed.
<b><u>Reproductive toxicity</u></b>	
<b>Reproductive toxicity - fertility</b>	No evidence of reproductive toxicity in animal studies.
<b>Skin Contact</b>	Skin irritation should not occur when used as recommended. May cause defatting of the skin but is not an irritant.
<b>Eye contact</b>	May cause eye irritation.
<b>Acute and chronic health hazards</b>	There is no evidence that the product can cause cancer.

### 12. Ecological Information

#### Ecological information on ingredients.

##### trans-DICHLOROETHYLENE

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

##### 1,1,1,2,2,3,4,5,5,5-decafluoropentane

**Ecotoxicity** It is unlikely that the substance will dissolve in water in amounts big enough to have a toxic effect on fish and daphnies.

#### Ecological information on ingredients.

##### trans-DICHLOROETHYLENE



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

<b>Acute toxicity - fish</b>	LC <sub>50</sub> , 96 hours: 1350 mg/l, Fish
<b>Acute toxicity - aquatic invertebrates</b>	EC <sub>50</sub> , 48 hours: 220 mg/l, Daphnia magna

**HFC-134a Tetrafluoroethane**

<b>Acute toxicity - fish</b>	LC <sub>50</sub> , 96 hours: 450 mg/l, Fish
<b>Acute toxicity - aquatic invertebrates</b>	EC <sub>50</sub> , 48 hours: 980 mg/l, Daphnia magna

**1,1,1,2,2,3,4,5,5,5-decafluoropentane**

<b>Acute toxicity - fish</b>	LC <sub>50</sub> , 96 hours: 13.9 mg/l, Onchorhynchus mykiss (Rainbow trout)
<b>Acute toxicity - aquatic invertebrates</b>	LC <sub>50</sub> , 48 hours: 11.7 mg/l, Daphnia magna
<b>Acute toxicity - aquatic plants</b>	EC <sub>50</sub> , 72 hours: >120 mg/l, Algae

**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

**1,1,1,2,2,3,4,5,5,5-decafluoropentane**

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

**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.

**Other adverse effects**

**Other adverse effects** The product contains a substance or substances that will contribute to global warming (greenhouse effect).

**13. Disposal considerations**

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

### 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. (IMDG) 1950

UN No. (ICAO) 1950

#### UN proper shipping name

Proper shipping name (TDG) 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) LIMITED QUANTITY

#### Transport hazard class(es)

IMDG Class 2.2 LIMITED QUANTITY

ICAO class/division 2.2 LIMITED QUANTITY

ICAO subsidiary risk N/A

#### Packing group

IMDG packing group N/A

ICAO packing group N/A

#### Special precautions for user

EmS F-C, S-V

**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

##### **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.

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

### 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.

### Inventories

#### Canada - DSL/NDSL

Present.

#### US - TSCA

Yes

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

### *1,1,1,2,2,3,4,5,5,5-decafluoropentane*

Present.

1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE (CAS# 138495-42-8) is controlled by TSCA Section 5, Significant New Use Rule

(SNUR; 40 CFR 721.5645) The approved uses are: precision and general cleaning, carrier fluid, displacement drying, printed circuit board cleaning, particulate removal and film cleaning, process medium, heat transfer fluid (dielectric and non-dielectric), and test fluid. Processors and users of this substance must also comply with the applicable general SNUR requirements set forth in 40 CFR 721 subpart A, including export notification requirements if applicable (40 CFR 721.20), and the applicable record keeping requirements set forth at 40 CFR 721.125.

1,1,1,2,2,3,4,5,5,5-Decafluoropentane 138495-42-8

The United States Environmental Protection Agency (USEPA) has established a Significant New Use Rule (SNUR) for one of the components in this product. This material contains one or more substances which requires export notification under TSCA Section 12(b) and 40 CFR Part 707 Subpart D:

### *HFC-134a Tetrafluoroethane*

Present.

### *trans-DICHLOROETHYLENE*

Present.

## 16. Other information

<b>Revision comments</b>	NOTE: Lines within the margin indicate significant changes from the previous revision.
<b>Revision date</b>	11/21/2017
<b>Revision</b>	58
<b>Supersedes date</b>	9/5/2017
<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. H332 Harmful if inhaled. H412 Harmful to aquatic life with long lasting effects.

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.