SAFETY DATA SHEET
PW2 LEAD FREE FLUX REMOVER - POWERCLEAN II, BULK

1. Identification

Product name: PW2 LEAD FREE FLUX REMOVER - POWERCLEAN II, BULK
Synonyms; trade names: PW2 POWERCLEAN II SOLVENT; POWERCLEAN ELECTRONIC CLEANER

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: +1 860-893-1930
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. Gas or vapor displaces oxygen available for breathing (asphyxiant).
PW2 LEAD FREE FLUX REMOVER - POWERCLEAN II, BULK

Pictogram

Signal word Warning

Hazard statements
H332 Harmful if inhaled.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements
P261 Avoid breathing vapor/spray.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P312 Call a poison center/doctor if you feel unwell.
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-1,2-DICHLOROETHYLENE

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

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>trans-1,2-DICHLOROETHYLENE</td>
<td>60-100%</td>
</tr>
<tr>
<td>CAS number: 156-60-5</td>
<td></td>
</tr>
</tbody>
</table>

Classification
Flam. Liq. 2 - H225
Acute Tox. 4 - H332
Aquatic Chronic 3 - H412

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,2,3,4,5,5,5-decafluoropentane</td>
<td>10-30%</td>
</tr>
<tr>
<td>CAS number: 138495-42-8</td>
<td></td>
</tr>
</tbody>
</table>

Classification
Aquatic Chronic 3 - H412

The full text for all hazard statements is displayed in Section 16.

Composition comments TSCA: The ingredients of this product are on the TSCA Inventory. 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

4. First-aid measures

Description of first aid measures
PW2 LEAD FREE FLUX REMOVER - POWERCLEAN II, BULK

General information
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.

Inhalation
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.

Ingestion
Do not induce vomiting. Rinse mouth thoroughly with water. Give plenty of water to drink. Consult a physician for specific advice.

Skin Contact
Remove contaminated clothing and rinse skin thoroughly with water.

Eye contact
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

General information
The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation
Vapours may cause drowsiness and dizziness. Difficulty in breathing. Nausea, vomiting.

Ingestion
May cause stomach pain or vomiting. Congestion of the lungs may occur, producing severe shortness of breath. Fumes from the stomach contents may be inhaled, resulting in the same symptoms as inhalation.

Skin contact
Prolonged or repeated contact with skin may cause irritation, redness and dermatitis.

Eye contact
Profuse watering of the eyes. Irritation and redness, followed by blurred vision.

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

Specific hazards
Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors. Closed containers can burst violently when heated, due to excess pressure build-up.

Advice for firefighters

Protective actions during firefighting
Containers close to fire should be removed or cooled with water.

Special protective equipment for firefighters
Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

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
PW2 LEAD FREE FLUX REMOVER - POWERCLEAN II, BULK

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
Absorb spillage with non-combustible, absorbent material. Do not discharge into drains or watercourses or onto the ground. Contain and absorb spillage with sand, earth or other non-combustible material. Collect spillage with a shovel and broom, or similar and reuse, if possible. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Reference to other sections
For personal protection, see Section 8. See Section 11 for additional information on health hazards.

7. Handling and storage

Precautions for safe handling
Provide adequate ventilation. Avoid inhalation of vapors/spray and contact with skin and eyes.

Conditions for safe storage, including any incompatibilities

Storage precautions
Store in tightly-closed, original container in a dry, cool and well-ventilated place.

Storage class
The product is non-combustible.

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

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-1,2-DICHLOROETHYLENE
Long-term exposure limit (8-hour TWA): ACGIH 200 ppm 793 mg/m³

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

Protective equipment

Appropriate engineering controls
No specific ventilation requirements. This product must not be handled in a confined space without adequate ventilation.
PW2 LEAD FREE FLUX REMOVER - POWERCLEAN II, BULK

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. Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Chemical splash goggles or face shield.

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear liquid.</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless.</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight. Ether.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available.</td>
</tr>
<tr>
<td>pH</td>
<td>No information available.</td>
</tr>
<tr>
<td>Melting point</td>
<td>No information available.</td>
</tr>
<tr>
<td>Initial boiling point and range</td>
<td>39°C/102°F @ 101.3 kPa</td>
</tr>
<tr>
<td>Flash point</td>
<td>The product is not flammable.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available.</td>
</tr>
<tr>
<td>Evaporation factor</td>
<td>No information available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Lower flammable/explosive limit: 5.5 %(V) Upper flammable/explosive limit: 13 %(V)</td>
</tr>
<tr>
<td>Other flammability</td>
<td>The product is not flammable.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>55.3 kPa @ 25°C/77°F</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.27 g/cm³ @ 25°C/77°F</td>
</tr>
<tr>
<td>Bulk density</td>
<td>No information available.</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>No information available.</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No information available.</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No information available.</td>
</tr>
</tbody>
</table>
PW2 LEAD FREE FLUX REMOVER - POWERCLEAN II, BULK

Viscosity
No information available.

Explosive properties
No information available.

Refractive index
No information available.

Particle size
Not applicable.

Molecular weight
Not applicable.

Vatility
100%

Saturation concentration
No information available.

Critical temperature
No information available.

10. Stability and reactivity

Reactivity
The following materials may react with the product: Strong alkalis.

Stability
Stable at normal ambient temperatures and when used as recommended.

Possibility of hazardous reactions
Will not polymerize.

Conditions to avoid
Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors.

Materials to avoid
Alkali metals. Alkaline earth metals. Powdered metal.

Hazardous decomposition products
Heating may generate the following products: Toxic and corrosive gases or vapors. Halogenated hydrocarbons. Hydrogen fluoride (HF). Carbon dioxide (CO2). Carbon monoxide (CO).

11. Toxicological information

Information on toxicological effects

Acute toxicity - inhalation
ATE inhalation (vapours mg/l) 14.29

Inhalation
Vapors may irritate throat/respiratory system. A single exposure may cause the following adverse effects: Coughing. Difficulty in breathing.

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

Skin Contact
Product has a defatting effect on skin. May cause allergic contact eczema.

Eye contact
May cause temporary eye irritation.

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-1,2-DICHLOROETHYLENE

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

Acute toxicity - inhalation
## PW2 LEAD FREE FLUX REMOVER - POWERCLEAN II, BULK

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE inhalation (vapours mg/l)</td>
<td>11.0</td>
</tr>
<tr>
<td><strong>Acute toxicity - oral</strong></td>
<td></td>
</tr>
<tr>
<td>Acute toxicity oral (LD₅₀ mg/kg)</td>
<td>5,000.0</td>
</tr>
<tr>
<td>Species</td>
<td>Rat</td>
</tr>
<tr>
<td>ATE oral (mg/kg)</td>
<td>5,000.0</td>
</tr>
<tr>
<td><strong>Acute toxicity - dermal</strong></td>
<td></td>
</tr>
<tr>
<td>Acute toxicity dermal (LD₅₀ mg/kg)</td>
<td>5,000.0</td>
</tr>
<tr>
<td>Species</td>
<td>Rat</td>
</tr>
<tr>
<td>ATE dermal (mg/kg)</td>
<td>5,000.0</td>
</tr>
<tr>
<td><strong>Acute toxicity - inhalation</strong></td>
<td></td>
</tr>
<tr>
<td>Acute toxicity inhalation (LC₅₀ vapours mg/l)</td>
<td>114.0</td>
</tr>
<tr>
<td>Species</td>
<td>Rat</td>
</tr>
<tr>
<td>ATE inhalation (vapours mg/l)</td>
<td>114.0</td>
</tr>
<tr>
<td><strong>Skin corrosion/irritation</strong></td>
<td></td>
</tr>
<tr>
<td>Animal data</td>
<td>Not irritating. Rabbit</td>
</tr>
<tr>
<td>Human skin model test</td>
<td>Data lacking.</td>
</tr>
<tr>
<td><strong>Extreme pH</strong></td>
<td></td>
</tr>
<tr>
<td>Not applicable.</td>
<td>Not corrosive to skin.</td>
</tr>
<tr>
<td><strong>Serious eye damage/irritation</strong></td>
<td></td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Not irritating. Rabbit</td>
</tr>
<tr>
<td><strong>Respiratory sensitzation</strong></td>
<td></td>
</tr>
<tr>
<td>Respiratory sensitzation</td>
<td>Data lacking.</td>
</tr>
<tr>
<td><strong>Skin sensitization</strong></td>
<td></td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>Not sensitizing. - Guinea pig: Not sensitizing.</td>
</tr>
<tr>
<td><strong>Germ cell mutagenicity</strong></td>
<td></td>
</tr>
<tr>
<td>Genotoxicity - in vitro</td>
<td>This substance has no evidence of mutagenic properties.</td>
</tr>
<tr>
<td>Genotoxicity - in vivo</td>
<td>This substance has no evidence of mutagenic properties.</td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong></td>
<td></td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Does not contain any substances known to be carcinogenic.</td>
</tr>
<tr>
<td>IARC carcinogenicity</td>
<td>Not listed.</td>
</tr>
<tr>
<td>NTP carcinogenicity</td>
<td>Not listed.</td>
</tr>
</tbody>
</table>
PW2 LEAD FREE FLUX REMOVER - POWERCLEAN II, BULK

OSHA Carcinogenicity
Not listed.

Reproductive toxicity
No evidence of reproductive toxicity in animal studies.

Reproductive toxicity - fertility

Skin Contact
Skin irritation should not occur when used as recommended. May cause defatting of the skin but is not an irritant.

Eye contact
May cause eye irritation.

Acute and chronic health hazards
There is no evidence that the product can cause cancer.

12. Ecological information

Ecotoxicity
The product contains volatile organic compounds (VOCs) which have a photochemical ozone creation potential. The product contains a substance or substances that will contribute to global warming (greenhouse effect).

Ecotoxicity
Low acute toxicity to aquatic organisms.

1,1,1,2,2,3,4,5,5-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.

8/11
PW2 LEAD FREE FLUX REMOVER - POWERCLEAN II, BULK

**trans-1,2-DICHLOROETHYLENE**

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

**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-1,2-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

**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

**General** Not regulated. The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DOT).

**UN proper shipping name** Not applicable., No information required.

**Proper shipping name (International)** Not applicable., No information required.

**Proper shipping name (DOT)** DOT only - Not classified as dangerous in the meaning of transport regulations when < 2640 lbs

**Transport hazard class(es)**

**Transport Labels (International)** Not applicable., No information required.

**Packing group**

**Packing group (International)** Not applicable., No information required.

**Environmental hazards**

**Environmentally Hazardous Substance** No.

**Special precautions for user**
PW2 LEAD FREE FLUX REMOVER - POWERCLEAN II, BULK

Not applicable. No information required.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

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-1,2-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
None

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-1,2-DICHLOROETHYLENE
Present.

Massachusetts "Right To Know" List
trans-1,2-DICHLOROETHYLENE
Present.

Rhode Island "Right To Know" List
Not listed.

Minnesota "Right To Know" List
Not listed.
PW2 LEAD FREE FLUX REMOVER - POWERCLEAN II, BULK

New Jersey "Right To Know" List
Not listed.

Pennsylvania "Right To Know" List
trans-1,2-DICHLOROETHYLENE
Present.

Inventories
Canada - DSL/NDSL
Yes

US - TSCA
All the ingredients are listed.
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:

16. Other information

<table>
<thead>
<tr>
<th>Revision comments</th>
<th>NOTE: Lines within the margin indicate significant changes from the previous revision.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision date</td>
<td>12/21/2018</td>
</tr>
<tr>
<td>Revision</td>
<td>25</td>
</tr>
<tr>
<td>Supersedes date</td>
<td>6/25/2018</td>
</tr>
<tr>
<td>SDS No.</td>
<td>BULK - PW2</td>
</tr>
<tr>
<td>SDS status</td>
<td>Approved.</td>
</tr>
</tbody>
</table>
| Hazard statements in full | H225 Highly flammable liquid and vapor.  
|                    | 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.