SAFETY DATA SHEET
SPR - HEAVY DUTY FLUX REMOVER, AEROSOL

1. IDENTIFICATION

Product Name: SPR - HEAVY DUTY FLUX REMOVER, AEROSOL
Product No.: MCC-SPR, MCC-SPR101
Synonyms, Trade Names: "SPR - SUPRCLEAN Nonflammable Flux Remover"
Identification No.: UN1950
Identified uses: Cleaning agent.
Supplier: MicroCare Corporation
595 John Downey Drive
New Britain, CT 06019
United States of America
Toll Free: 1-800-638-0125
Tel: 1-860-827-0626
Web: www.MicroCare.com
email: techsupport@microcare.com

Emergency Telephone: CHEMTREC (800) 424-9300

2. HAZARD(S) IDENTIFICATION

EMERGENCY OVERVIEW

Colourless liquid. Slight odor. Ether. This product is not flammable. Avoid contact with eyes and prolonged skin contact. Prolonged or repeated contact with skin may cause redness, itching, irritation and eczema/chapping.

Color: Colourless.
Odor: Slight odor. Ether

GHS Pictogram

Signal Word: Warning
Hazard Statements:
H332 Harmful if inhaled.
H412 Harmful to aquatic life with long lasting effects.

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

Contains: trans-DICHLOROETHYLENE

GHS Classification:
Physical and Chemical Hazards: Not classified.
Human health: Acute Tox. 4 - H332
Environment: Aquatic Chronic 3 - H412

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM - WHMIS

WHMIS Label
## Human Health
Prolonged skin contact may cause redness, irritation and dry skin. Mild dermatitis, allergic skin rash.

### Inhalation
Vapors may irritate the respiratory system and cause coughing, asthmatic breathing and breathlessness.

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

### Skin Contact
Acts as a defatting agent on skin. May cause cracking of skin, and eczema.

### Eye Contact
May cause temporary eye irritation.

### Medical Symptoms
High concentrations of vapors may irritate respiratory system and lead to headache, fatigue, nausea and vomiting.

## Environment
The product contains a substance which is harmful to aquatic organisms and which may cause long term adverse effects in the aquatic environment.

## Physical And Chemical Hazards
Vapors are heavier than air and may travel along the floor and in the bottom of containers. Considering the limited amount applied during use and the size of the container, the risk of adverse effects is considered small. Gas or vapor displaces oxygen available for breathing (asphyxiant).

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>成分</th>
<th>GHS Classification</th>
<th>比例</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,3,4,4,5,5,5-decafluoropentane</td>
<td>Aquatic Chronic 3 - H412</td>
<td>10-30%</td>
</tr>
<tr>
<td>CAS No.: 138495-42-8</td>
<td>EC No.: 420-640-8</td>
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<table>
<thead>
<tr>
<th>成分</th>
<th>GHS Classification</th>
<th>比例</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETHANOL</td>
<td>Flam. Liq. 2 - H225</td>
<td>1-5%</td>
</tr>
<tr>
<td>CAS No.: 64-17-5</td>
<td>EC No.: 200-578-6</td>
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</table>

<table>
<thead>
<tr>
<th>成分</th>
<th>GHS Classification</th>
<th>比例</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFC-134a Tetrafluoroethane</td>
<td>Not classified.</td>
<td>10-30%</td>
</tr>
<tr>
<td>CAS No.: 811-97-2</td>
<td>EC No.: 212-377-0</td>
<td></td>
</tr>
</tbody>
</table>
**4. FIRST-AID MEASURES**

**Description of first aid measures**

**General Information**

NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Place unconscious person on the side in the recovery position and ensure breathing can take place. Perform artificial respiration if breathing has stopped.

**Inhalation**

Move into fresh air and keep at rest. If respiratory problems, artificial respiration/oxygen.

**Ingestion**

Do not induce vomiting. Immediately rinse mouth and drink plenty of water (200-300 ml). Consult a physician for specific advice.

**Skin Contact**

Remove contaminated clothes and rinse skin thoroughly with water.

**Eye Contact**

Promptly wash eyes with plenty of water while lifting the eye lids. Make sure to remove any contact lenses from the eyes before rinsing. 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 dependant of the concentration and the length of exposure.

**Inhalation**

Vapors may cause headache, fatigue, dizziness and nausea. Difficulty in breathing. Upper respiratory irritation. Severe irritation in nose and throat.

**Ingestion**

May cause stomach pain or vomiting. Drowsiness, dizziness, disorientation, vertigo.

**Skin Contact**

Prolonged or repeated contact with skin may cause redness, itching, irritation and eczema/chapping.

**Eye Contact**

Irritation of eyes and mucous membranes. Irritating and may cause redness and pain.

**Indication of any immediate medical attention and special treatment needed**

**Notes To The Physician**

No recommendation given, but first aid may still be required in case of accidental exposure, inhalation or ingestion of this chemical. If in doubt, GET MEDICAL ATTENTION PROMPTLY!

**5. FIRE-FIGHTING MEASURES**

**Flammability Class**

This product is not flammable.

**Flammability Limit - Lower(%)** 5.0

**Flammability Limit - Upper(%)** 14.4

**Extinguishing Media**

This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

**Hazardous combustion products**

When heated, toxic and corrosive vapors/gases may be formed. In case of fire, toxic gases (CO, CO2, NOx) may be formed.

**Unusual Fire & Explosion Hazards**

Aerosol containers can explode when heated, due to excessive pressure build-up.

**Specific Hazards**

Avoid contact with naked flames and hot surfaces as corrosive and toxic decomposition products can be formed.
SPR - HEAVY DUTY FLUX REMOVER, AEROSOL

Special Fire Fighting Procedures
Move container from fire area if it can be done without risk. Water spray should be used to cool containers.

Protective Equipment For Fire-Fighters
Self contained breathing apparatus and full protective clothing must be worn in case of fire.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Warn everybody of potential hazards and evacuate if necessary. Ventilate well, avoid breathing vapors. Use approved respirator if air contamination is above accepted level.

Environmental Precautions
Contain spillages with sand, earth or any suitable adsorbent material. Avoid release to the environment.

Spill Clean Up Methods
Wear necessary protective equipment. Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate.

Reference to other sections
See section 11 for more detailed information on health effects and symptoms.

7. HANDLING AND STORAGE

Handling
Provide good ventilation. Avoid inhalation of vapors/spray and contact with skin and eyes. Avoid contact with naked flames and hot surfaces as corrosive and toxic decomposition products can be formed.

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

Specific end use(s)
The identified uses for this product are detailed in Section 1.2.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>STD</th>
<th>TWA (8-hrs)</th>
<th>STEL (15 min)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETHANOL</td>
<td>ACGIH</td>
<td>1000 ppm</td>
<td></td>
<td>A3</td>
</tr>
<tr>
<td>ETHANOL</td>
<td>PEL</td>
<td>1000 ppm</td>
<td>1900 mg/m3</td>
<td></td>
</tr>
<tr>
<td>trans-DICHLOROETHYLENE</td>
<td>ACGIH</td>
<td>200 ppm</td>
<td></td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETHANOL</td>
<td>3300 ppm</td>
</tr>
</tbody>
</table>

ACGIH=American Conference of Governmental Industrial Hygienists.
A3: Confirmed Animal Carcinogen with Unknown Relevance to Humans.

Protective Equipment

Engineering Measures
No specific ventilation requirements noted, except this product must not be used in a confined space without good ventilation.

Respiratory Equipment
Vapors are heavier than air and may travel along the floor and in the bottom of containers. At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used. Self-contained breathing apparatus with full facepiece.

Hand Protection
For prolonged or repeated skin contact use suitable protective gloves.

Eye Protection
Wear approved, tight fitting safety glasses where splashing is probable.

Other Protection
Wear suitable protective clothing as protection against splashing or contamination.
Hygiene Measures
No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. When using do not eat, drink or smoke.

Skin Protection
Wear apron or protective clothing in case of splashes.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear liquid. Aerosol.</td>
</tr>
<tr>
<td>Color</td>
<td>Colourless.</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight odor. Ether</td>
</tr>
<tr>
<td>Solubility</td>
<td>Slightly soluble in water.</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>41 C / 106 F</td>
</tr>
<tr>
<td>Vapor density (air=1)</td>
<td>3.4</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>mm Hg 20 284</td>
</tr>
<tr>
<td>Solubility Value (G/100G H2O@20°C)</td>
<td>.4</td>
</tr>
<tr>
<td>Flammability Limit - Lower(%)</td>
<td>5.0</td>
</tr>
<tr>
<td>Flammability Limit - Upper(%)</td>
<td>14.4</td>
</tr>
</tbody>
</table>

Other Flammability
This product is not flammable.

10. STABILITY AND REACTIVITY

Reactivity
Reaction with: Strong alkalis.

Stability
Stable under normal temperature conditions and recommended use.

Hazardous Polymerisation
Will not polymerise.

Conditions To Avoid
Avoid contact with naked flames and hot surfaces as corrosive and toxic decomposition products can be formed.

Materials To Avoid
Alkali metals. Alkali earth metals. Powdered metal.

Hazardous Decomposition Products

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Toxicological Information on Ingredients:</th>
<th>ETHANOL (CAS: 64-17-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxic Dose 1 - LD 50</td>
<td></td>
</tr>
<tr>
<td>7, 060 mg/kg (oral rat)</td>
<td></td>
</tr>
<tr>
<td>Toxic Conc. - LC 50</td>
<td></td>
</tr>
<tr>
<td>20000 mg/l/4h (inh-rat)</td>
<td></td>
</tr>
</tbody>
</table>
**SPR - HEAVY DUTY FLUX REMOVER, AEROSOL**  
*trans-DICHLOROETHYLENE (CAS: 156-60-5)*

**Toxic Dose 1 - LD 50**  
1235 mg/kg (oral rat)

**Toxic Dose 2 - LD 50**  
>5000 mg/kg (oral-rbt)

**Toxic Conc. - LC 50**  
24100 ppm/4h (inh-rat)

**Other Health Effects**
This substance has no evidence of carcinogenic properties.

**HFC-134a Tetrafluoroethane (CAS: 811-97-2)**

**Toxic Dose 1 - LD 50**  
>2085 mg/kg (oral rat)

**Other Health Effects**
This substance has no evidence of carcinogenic properties.

**1,1,1,2,3,4,4,5,5,5-decafluoropentane (CAS: 138495-42-8)**

**Toxic Dose 1 - LD 50**  
>5, 000 mg/kg (oral rat)

**Toxic Conc. - LC 50**  
11, 100 ppm/4h (inh-rat)

### 12. ECOLOGICAL INFORMATION

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

**Acute Fish Toxicity**
Very toxic to aquatic organisms.

**Degradability**
The product is not readily biodegradable.

**Bioaccumulative potential**
No data available on bioaccumulation.

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

**Results of PBT and vPvB assessment**
This product does not contain any PBT or vPvB Substances.

**Other adverse effects**
The product contains substances which contribute to global warming (greenhouse effect). The product contains a substance which has a photochemical ozone creation potential.
**SPR - HEAVY DUTY FLUX REMOVER, AEROSOL**

**Ecological Information on Ingredients:**

**ETHANOL (CAS: 64-17-5)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC 50, 96 Hrs, Fish mg/l</td>
<td>&gt;10,000</td>
</tr>
<tr>
<td>EC 50, 48 Hrs, Daphnia, mg/l</td>
<td>7, 800</td>
</tr>
</tbody>
</table>

**trans-DICHLOROETHYLENE (CAS: 156-60-5)**

Ecotoxicity

Low acute toxicity to aquatic organisms.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC 50, 96 Hrs, Fish mg/l</td>
<td>1350</td>
</tr>
<tr>
<td>EC 50, 48 Hrs, Daphnia, mg/l</td>
<td>220</td>
</tr>
</tbody>
</table>

**Degradability**

No data available.

**Bioaccumulative potential**

Bioaccumulation is unlikely to be significant because of the low water solubility of this product.

**Mobility:**

The product has poor water-solubility.

**HFC-134a Tetrafluoroethane (CAS: 811-97-2)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC 50, 96 Hrs, Fish mg/l</td>
<td>450</td>
</tr>
<tr>
<td>EC 50, 48 Hrs, Daphnia, mg/l</td>
<td>980</td>
</tr>
</tbody>
</table>

**1,1,1,2,3,4,4,5,5,5-decafluoropentane (CAS: 138495-42-8)**

Ecotoxicity

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC 50, 96 Hrs, Fish mg/l</td>
<td>27.2</td>
</tr>
</tbody>
</table>

**Degradability**

The product is not expected to be biodegradable.

**Bioaccumulative potential**

Bioaccumulation is unlikely to be significant because of the low water solubility of this product.

**IC 50, 72 Hrs, Algae, mg/l**

| Value | 120 |

### 13. DISPOSAL CONSIDERATIONS

**Waste Management**

Waste to be treated as controlled waste. Disposal to licensed waste disposal site in accordance with local Waste Disposal Authority.

**Disposal Methods**

Dispose of waste and residues in accordance with local authority requirements.

### 14. TRANSPORT INFORMATION

- **UN No. (DOT/TDG)**: UN1950
- **UN No. (IMDG)**: UN 1950
- **UN No. (ICAO)**: UN 1950
- **DOT Proper Shipping Name**: LIMITED QUANTITIES
- **DOT Proper Shipping Name**: AEROSOLS
- **TDG Proper Shipping Name**: AEROSOLS
SPR - HEAVY DUTY FLUX REMOVER, AEROSOL

IMDG Class 2.2
ICAO Class 2.2
ICAO Subsidiary Risk N/A
Transport Labels

IMDG Pack Group N/A
Air Pack Group N/A
Environmentally Hazardous Substance/Marine Pollutant No.
Transport in Bulk according to Annex II of MARPOL 73/78 and the IBC Code Notes
Not applicable. No information required.

15. REGULATORY INFORMATION

Regulatory Status (US)
SECTION 313: This product does not contain toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372. TSCA: The ingredients of this product are on the TSCA Inventory.

Regulatory References

US Federal Regulations
SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities
None of the ingredients are listed.
CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)
The following ingredients are listed.
trans-DICHLOROETHYLENE; 1, 000 lbs (454 Kg)
SARA Extremely Hazardous Substances EPCRA Reportable Quantities
None of the ingredients are listed.
SARA 313 Emission Reporting
None of the ingredients are listed.
CAA Accidental Release Prevention
None of the ingredients are listed.
SARA (311/312) Hazard Categories
Acute
OSHA Highly Hazardous Chemicals
None of the ingredients are listed.

US State Regulations
California Proposition 65 Carcinogens and Reproductive Toxins
None of the ingredients are listed.
California Air Toxics "Hot Spots" (A-I)
None of the ingredients are listed.
California Air Toxics "Hot Spots" (A-II)
None of the ingredients are listed.
Massachusetts "Right To Know" List
The following ingredients are listed.
ETHANOL
trans-DICHLOROETHYLENE
SPR - HEAVY DUTY FLUX REMOVER, AEROSOL

Rhode Island "Right To Know" List
The following ingredients are listed.
- ETHANOL

Minnesota "Right To Know" List
The following ingredients are listed.
- ETHANOL
- HFC-134a Tetrafluoroethane

New Jersey "Right To Know" List
The following ingredients are listed.
- ETHANOL

Pennsylvania "Right To Know" List
The following ingredients are listed.
- ETHANOL
- trans-DICHLOROETHYLENE

International Inventories
Canada – DSL/NDSL
The following ingredients are listed.
- ETHANOL
- HFC-134a Tetrafluoroethane
- trans-DICHLOROETHYLENE

US - TSCA
The following ingredients are listed.
- ETHANOL
- HFC-134a Tetrafluoroethane
- trans-DICHLOROETHYLENE

US – TSCA 12(b) Export Notification
None of the ingredients are listed.

16. OTHER INFORMATION

HAZARDOUS MATERIAL INFORMATION SYSTEM (HMIS)

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEALTH</td>
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<tr>
<td>FLAMMABILITY</td>
<td>1</td>
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<tr>
<td>PHYSICAL</td>
<td>1</td>
</tr>
<tr>
<td>PERSONAL PROTECTION</td>
<td>A</td>
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</table>

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

Revision Comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision Date: 08/27/2013
Revision: 9
Supersedes Date: 05/06/2013
Sds No.: AEROSOL_SPR
Material Safety Data Sheet Status: Approved
Date: 06 May 2013
Disclaimer

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.