1. Identification

Product identifier
LPS® Electro Contact Cleaner

Other means of identification
Part Number 00416

Recommended use
A non-flammable solvent blend for the removal of dirt, moisture, dust, flux and oxides from the internal components of electronic or precision equipment such as circuit boards and the internal components of electronic devices used in factories and other industrial settings.

Recommended restrictions
None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer
Company name: ITW Pro Brands
Address: 4647 Hugh Howell Rd.
Tucker, GA 30084
Country: (U.S.A.)
Tel: +1 770-243-8800

In Case of Emergency
1-800-424-9300 (inside U.S.)
+001 703-527-3887 (outside U.S.)
Website: www.lpslabs.com
E-mail: lpssds@itwprobrands.com

2. Hazard(s) identification

Physical hazards
Gases under pressure
Liquefied gas

Health hazards
Not classified.

Environmental hazards
Not classified.

OSHA defined hazards
Not classified.

Label elements

Signal word Warning
Hazard statement Contains gas under pressure; may explode if heated.
Precautionary statement
Prevention Observe good industrial hygiene practices.
Response Wash hands after handling.
Storage Protect from sunlight. Store in a well-ventilated place.
Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC)
None known.

Supplemental information
None known.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethane, 1,1,1,2-tetrafluoro-(hfc-134a)</td>
<td></td>
<td>811-97-2</td>
<td>40 - 50</td>
</tr>
<tr>
<td>Methyl Nonaffluorobutyl ether</td>
<td></td>
<td>163702-07-6</td>
<td>10 - 20</td>
</tr>
<tr>
<td>Chemical name</td>
<td>Common name and synonyms</td>
<td>CAS number</td>
<td>%</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>--------------------------</td>
<td>--------------</td>
<td>------</td>
</tr>
<tr>
<td>Methyl Nonafluoroisobutyl ether</td>
<td></td>
<td>163702-08-7</td>
<td>10 - 20</td>
</tr>
<tr>
<td>Perfluoro Compounds, (Primarily compounds with 6 Carbons)</td>
<td></td>
<td>86508-42-1</td>
<td>10 - 20</td>
</tr>
<tr>
<td>1,2-trans-dichloroethylene</td>
<td></td>
<td>156-60-5</td>
<td>5 - 10</td>
</tr>
<tr>
<td>Cyclohexylmethane</td>
<td></td>
<td>108-87-2</td>
<td>1 - 5</td>
</tr>
<tr>
<td>Isopropanol</td>
<td></td>
<td>67-63-0</td>
<td>1 - 5</td>
</tr>
</tbody>
</table>

4. First-aid measures

Inhalation: Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact: No adverse effects due to skin contact are expected.

Eye contact: No specific first aid measures noted.

Ingestion: Not likely, due to the form of the product.

Most important symptoms/effects, acute and delayed: Direct contact with eyes may cause temporary irritation.

Indication of immediate medical attention and special treatment needed: Provide general supportive measures and treat symptomatically.

General information: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures


Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical: During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions: In case of fire: Stop leak if safe to do so. Do not move cargo or vehicle if cargo has been exposed to heat. ALWAYS stay away from tanks engulfed in flame. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.

Specific methods: Cool containers exposed to flames with water until well after the fire is out.

General fire hazards: Contents under pressure. Pressurized container may explode when exposed to heat or flame.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Wear appropriate protective equipment and clothing during clean-up. Emergency personnel need self-contained breathing equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. Use personal protection recommended in Section 8 of the SDS.

Methods and materials for containment and cleaning up: Isolate area until gas has dispersed. Stop the flow of material, if this is without risk. For waste disposal, see section 13 of the SDS.

Environmental precautions: Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling: Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities: Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Stored containers should be periodically checked for general condition and leakage. Store away from incompatible materials (see Section 10 of the SDS). Level 1 Aerosol.
8. Exposure controls/personal protection

Occupational exposure limits
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexylmethane (CAS 108-87-2)</td>
<td>PEL</td>
<td>2000 mg/m3</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>PEL</td>
<td>500 ppm</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>STEL</td>
<td>980 mg/m3</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>TWA</td>
<td>400 ppm</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-trans-dichloroethylene (CAS 156-60-5)</td>
<td>TWA</td>
<td>200 ppm</td>
</tr>
<tr>
<td>Cyclohexylmethane (CAS 108-87-2)</td>
<td>TWA</td>
<td>400 ppm</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>STEL</td>
<td>400 ppm</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>TWA</td>
<td>200 ppm</td>
</tr>
</tbody>
</table>

US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexylmethane (CAS 108-87-2)</td>
<td>1600 mg/m3</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>400 ppm</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>1225 mg/m3</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>500 ppm</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>980 mg/m3</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>400 ppm</td>
</tr>
</tbody>
</table>

US. Workplace Environmental Exposure Level (WEEL) Guides

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethane, 1,1,1,2-tetrafluoro-(hfc-134a) (CAS 811-97-2)</td>
<td>TWA</td>
<td>1000 ppm</td>
<td>8 hour</td>
</tr>
<tr>
<td>Methyl Nonfluorobutyl ether (CAS 163702-07-6)</td>
<td>TWA</td>
<td>750 ppm</td>
<td></td>
</tr>
<tr>
<td>Methyl Nonfluorosibutyl ether (CAS 163702-08-7)</td>
<td>TWA</td>
<td>750 ppm</td>
<td></td>
</tr>
</tbody>
</table>

Biological limit values

<table>
<thead>
<tr>
<th>Components</th>
<th>Value</th>
<th>Determinant</th>
<th>Specimen</th>
<th>Sampling Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>40 mg/l</td>
<td>Acetone</td>
<td>Urine</td>
<td>*</td>
</tr>
</tbody>
</table>

* - For sampling details, please see the source document.

Appropriate engineering controls
Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses with side shields (or goggles).

Skin protection
Hand protection
Wear appropriate chemical resistant gloves.

Other
Wear suitable protective clothing.

Respiratory protection
In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
9. Physical and chemical properties

Appearance
- Physical state: Gas.
- Form: Aerosol.
- Color: Colorless.
- Odor: Characteristic.
- Odor threshold: Not established
- pH: Not applicable
- Melting point/freezing point: Not established
- Initial boiling point and boiling range: 118.4 °F (48 °C)
- Flash point: None (Tag-Closed Cup)
- Evaporation rate: < 1 (Ethyl Ether = 1)
- Flammability (solid, gas): Non flammable gas.

Upper/lower flammability or explosive limits
- Flammability limit - lower (%): Not established
- Flammability limit - upper (%): Not established
- Explosive limit - lower (%): Not available.
- Explosive limit - upper (%): Not available.

Vapor pressure: 3103 mm Hg @ 20°C
Vapor density: > 1
Relative density: Not available.
Solubility(ies)
- Solubility (water): < 5 % by weight
- Partition coefficient (n-octanol/water): < 1

Auto-ignition temperature: > 482 °F (> 250 °C)
Decomposition temperature: Not established
Viscosity: < 3 cSt @ 25°C

Other information
- Explosive properties: Not explosive.
- Heat of combustion: < 20 kJ/g
- Oxidizing properties: Not oxidizing.
- Percent volatile: 100 %
- Specific gravity: 1.38 - 1.4 @ 25°C
- VOC: 45 % per US State & Federal Consumer Product Regulations

10. Stability and reactivity

Reactivity: The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability: Material is stable under normal conditions.

Possibility of hazardous reactions: Hazardous polymerization does not occur.

Conditions to avoid: Heat. Contact with incompatible materials.

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products: Combustion will generate smoke, possibly thick and choking, resulting in zero visibility and combustion products include hydrogen fluoride, hydrogen chloride, fluorine, chlorine, carbon monoxide and carbon dioxide.
11. Toxicological information

Information on likely routes of exposure

- **Inhalation**: Prolonged inhalation may be harmful.
- **Skin contact**: No adverse effects due to skin contact are expected.
- **Eye contact**: Direct contact with eyes may cause temporary irritation.
- **Ingestion**: Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics

Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

**Acute toxicity**

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-trans-dichloroethylene (CAS 156-60-5)</td>
<td>Acute</td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>1235 mg/kg</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclohexylmethane (CAS 108-87-2)</td>
<td>Acute</td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>Rabbit</td>
<td>&gt; 2000 mg/kg, 24 Hours</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor</td>
<td>Rat</td>
<td>&gt; 6564 ppm, 1 Hours</td>
</tr>
<tr>
<td>LC50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>Acute</td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>Rabbit</td>
<td>16.4 ml/kg, 24 Hours</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>4.7 g/kg</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**: Prolonged skin contact may cause temporary irritation.

**Serious eye damage/eye irritation**: Direct contact with eyes may cause temporary irritation.

**Respiratory or skin sensitization**

- **Respiratory sensitization**: Not a respiratory sensitizer.
- **Skin sensitization**: This product is not expected to cause skin sensitization.
- **Germ cell mutagenicity**: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity**: This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

- **ACGIH Carcinogens**: Isopropanol (CAS 67-63-0) A4 Not classifiable as a human carcinogen.
- **IARC Monographs. Overall Evaluation of Carcinogenicity**: Not listed.
- **US. National Toxicology Program (NTP) Report on Carcinogens**: Not listed.

**Reproductive toxicity**: This product is not expected to cause reproductive or developmental effects.

- **Specific target organ toxicity - single exposure**: Not classified.
- **Specific target organ toxicity - repeated exposure**: Not classified.
- **Aspiration hazard**: Not likely, due to the form of the product.
Chronic effects
Prolonged inhalation may be harmful.

Further information
None known.

12. Ecological information

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexylmethane (CAS 108-87-2)</td>
<td>Aquatic Fish</td>
<td>LC50 Striped bass (Morone saxatilis) 5.8 mg/l, 96 hours</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>Aquatic Fish</td>
<td>LC50 Bluegill (Lepomis macrochirus) &gt; 1400 mg/l, 96 hours</td>
</tr>
</tbody>
</table>

Persistence and degradability
No data is available on the degradability of this product.

Bioaccumulative potential

<table>
<thead>
<tr>
<th>Partition coefficient n-octanol / water (log Kow)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2-trans-dichloroethylene</td>
</tr>
<tr>
<td>Cyclohexylmethane</td>
</tr>
<tr>
<td>Ethane, 1,1,1,2-tetrafluoro-(hfc-134a)</td>
</tr>
<tr>
<td>Isopropanol</td>
</tr>
</tbody>
</table>

Mobility in soil
No data available.

Other adverse effects
The product contains volatile organic compounds which have a photochemical ozone creation potential.

13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
The waste code should be assigned in discussion between the user, the producer and the waste disposal company. D003: Waste Reactive material

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT
UN number UN1950
UN proper shipping name Aerosols, non-flammable
Transport hazard class(es) Class 2.2
Subsidiary risk -
Label(s) 2.2
Packing group Not applicable.
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Packaging exceptions 306
Packaging non bulk None
Packaging bulk None

IATA
UN number UN1950
UN proper shipping name Aerosols, non-flammable
Transport hazard class(es) Class 2.2
Subsidiary risk -
Packing group Not applicable.
Environmental hazards No.
ERG Code: 10L

Special precautions for user:
Read safety instructions, SDS and emergency procedures before handling.

Other information:

Passenger and cargo aircraft:
Allowed with restrictions.

Cargo aircraft only:
Allowed with restrictions.

IMDG:

UN number: UN1950
UN proper shipping name: AEROSOLS

Transport hazard class(es):

Class: 2.2
Subsidiary risk: -

Packing group: Not applicable.

Environmental hazards:
Marine pollutant: No.
EmS: F-D, S-U

Special precautions for user:
Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:
Not applicable.

DOT:

NON-FLAMMABLE GAS

IATA; IMDG:

General information:
Ensure compliance with applicable regulations.

15. Regulatory information:

US federal regulations:
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D):
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4):
1,2-trans-dichloroethylene (CAS 156-60-5) Listed.

SARA 304 Emergency release notification:
Not regulated.

Not regulated.
Superfund Amendments and Reauthorization Act of 1986 (SARA)

**Hazard categories**
- Immediate Hazard - No
- Delayed Hazard - No
- Fire Hazard - No
- Pressure Hazard - Yes
- Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**
- Not listed.

**SARA 311/312 Hazardous chemical**
- Yes

**SARA 313 (TRI reporting)**
- Not regulated.

**Other federal regulations**
- Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
  - Not regulated.
- Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
  - Not regulated.
- Safe Drinking Water Act (SDWA)
  - Not regulated.

**FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace**
- Isopropanol (CAS 67-63-0)
- Low priority

**US state regulations**
- WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
- **US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**
  - 1,2-trans-dichloroethylene (CAS 156-60-5)
  - Isopropanol (CAS 67-63-0)

**International Inventories**

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>No</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>No</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s) and are listed on the inventory. A "No" indicates that one or more components of this product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

**Issue date**
- 12-27-2016

**Version #**
- 01
Disclaimer

ITW Pro Brands cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.

Revision information

This document has undergone significant changes and should be reviewed in its entirety.