MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product identifier **LPS® Electra-X 2.0**

Version # 01

Issue date 03-31-2015

CAS # Mixture

Part Number 07316, C07316

Product use An aggressive 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.

Manufacturer information

ITW Pro Brands
4647 Hugh Howell Rd
Tucker, GA 30084
United States
lpssds@itwprobrands.com
www.lpslabs.com

1-800-241-8334 /	770-243-8800
Chemtrec	1-800-424-9300

Supplier Not available.

2. Hazards Identification

Emergency overview WARNING

CONTENTS UNDER PRESSURE.
Aerosol. Pressurized container may explode when exposed to heat or flame. Irritating to eyes and skin.

Potential health effects

Routes of exposure Skin contact. Eye contact. Inhalation.

Eyes Contact with eyes may cause irritation. Avoid contact with eyes.

Skin May cause skin irritation. Avoid contact with the skin.

Inhalation Intentional misuse by concentrating and inhaling the product can be harmful or fatal. May cause irritation of respiratory tract. Prolonged inhalation may be harmful.

Ingestion Exposure by ingestion of an aerosol is unlikely. Irritating. May cause nausea, stomach pain and vomiting.

Chronic effects Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Signs and symptoms Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Symptoms may include redness, edema, drying, defatting and cracking of the skin.

Potential environmental effects May cause long-term adverse effects in the environment.

3. Composition / Information on Ingredients

Hazardous components	CAS #	Percent
1,2-trans-Dichloroethylene	156-60-5	50 - 60
Ethane, 1,1,1,2-Tetrafluoro-(HFC 134a)	811-97-2	30 - 40

Non-hazardous components	CAS #	Percent
2,3-Dihydroperfluoropentane (HFC-43-10mee)	138495-42-8	10 - 20

4. First Aid Measures

First aid procedures

Inhalation Move to fresh air. Get medical attention, if needed.

Skin contact Remove and isolate contaminated clothing and shoes. Wash off immediately with soap and plenty of water. Get medical attention if irritation develops and persists.

Eye contact	Flush eyes immediately with large amounts of water. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	In the unlikely event of swallowing contact a physician or poison control center. Rinse mouth thoroughly. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting without advice from poison control center.
General advice	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties	Heat may cause the containers to explode.
Extinguishing media	
Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Protection of firefighters	
Specific hazards arising from the chemical	Pressurized container may explode when exposed to heat or flame. During fire, gases hazardous to health may be formed.
Protective equipment for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Fire fighting equipment/instructions	In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up. Some of these materials, if spilled, may evaporate leaving a flammable residue.
Specific methods	In the event of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out.
Explosion data	
Sensitivity to static discharge	Yes
Sensitivity to mechanical impact	None known.
Hazardous combustion products	May include oxides of carbon.
General fire hazards	Contents under pressure. Pressurized container may explode when exposed to heat or flame.

6. Accidental Release Measures

Personal precautions	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see section 8 of the MSDS.
Environmental precautions	Do not contaminate water.
Methods for containment	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Use water spray to reduce vapors or divert vapor cloud drift. Prevent entry into waterways, sewer, basements or confined areas.
Methods for cleaning up	Should not be released into the environment. Stop the flow of material, if this is without risk. Isolate area until gas has dispersed. Following product recovery, flush area with water. Clean up in accordance with all applicable regulations. For waste disposal, see section 13 of the MSDS.
Other information	Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling	Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Do not breathe mist or vapor. Avoid contact with skin. Avoid contact with eyes. Avoid prolonged exposure. When using do not eat or drink. Do not use in areas without adequate ventilation. Wear personal protective equipment. Wash thoroughly after handling. Avoid release to the environment.

Storage Contents under pressure. Do not expose to heat or store at temperatures above 120°F/49°C as can may burst. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. Store in a closed container away from incompatible materials. Store away from incompatible materials (see Section 10 of the MSDS). Keep out of the reach of children. Use care in handling/storage.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
1,2-TRANS-DICHLOROETHYLENE (CAS 156-60-5)	TWA	200 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
1,2-TRANS-DICHLOROETHYLENE (CAS 156-60-5)	TWA	200 ppm

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value
1,2-TRANS-DICHLOROETHYLENE (CAS 156-60-5)	TWA	200 ppm

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
1,2-TRANS-DICHLOROETHYLENE (CAS 156-60-5)	STEL	990 mg/m3
		250 ppm
	TWA	790 mg/m3
		200 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

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. Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

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

Skin protection Wear suitable protective clothing.

Respiratory protection If permissible levels are exceeded use NIOSH mechanical filter / organic vapor cartridge or an air-supplied respirator.

Hand protection Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

9. Physical & Chemical Properties

Appearance

Physical state Gas.

Form Aerosol.

Color Colorless.

Odor Mild.

Odor threshold Not available.

pH Not applicable.

Vapor pressure > 300 mm Hg @ 25°C

Vapor density > 1 (air = 1)

Boiling point 118 °F (47.78 °C)

Melting point/Freezing point Not available.

Solubility (water) < 0.14 g/l @ 68°F

Specific gravity	Not available.
Relative density	1.319
Flash point	~ 77°F / 25°C (Concentrate)
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.
VOC	59.5 % per US Federal Consumer Product Regulations
Evaporation rate	< 1 (BuAc)
Viscosity	Not applicable.
Percent volatile	100 %
Partition coefficient (n-octanol/water)	Not available.
Other data	
Density	11.00
Flammability (solid, gas)	Not applicable.

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Aerosol containers are unstable at temperatures above 49°C. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Carbon oxides. Hydrogen fluoride. Hydrogen chloride.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Components	Species	Test Results
1,2-trans-Dichloroethylene (CAS 156-60-5)		
Acute		
Inhalation		
LC50	Mouse	21723 ppm, 6 Hours
Oral		
LD50	Rat	1235 mg/kg

Acute effects	Harmful if inhaled.
Sensitization	Not classified.
Chronic effects	None known.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/irritation	Direct contact with eyes may cause temporary irritation.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Reproductive effects	This product is not expected to cause reproductive or developmental effects.
Teratogenicity	Not available.
Symptoms and target organs	Direct contact with eyes may cause temporary irritation. Exposure may cause temporary irritation, redness, or discomfort.
Synergistic materials	Not available.
Further information	Not available.

12. Ecological Information

Ecotoxicological data No ecotoxicity data noted for the ingredient(s).

Ecotoxicity Harmful to aquatic life with long lasting effects.

Environmental effects Harmful to aquatic life with long lasting effects.

Aquatic toxicity Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Persistence and degradability Not available.

Partition coefficient

1,2-trans-Dichloroethylene	2.06
Ethane, 1,1,1,2-Tetrafluoro-(HFC 134a)	1.06

Other adverse effects Not available.

13. Disposal Considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Contents under pressure. Do not puncture, incinerate or crush. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

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 Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied. Do not re-use empty containers.

14. Transport Information

TDG

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 Not available.
Special precautions for user Read safety instructions, MSDS and emergency procedures before handling.

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 2L
Special precautions for user Read safety instructions, MSDS and emergency procedures before handling.
Other information
Passenger and cargo aircraft Allowed.
Cargo aircraft only Allowed.

IMDG

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.
Environmental hazards
Marine pollutant No.
EmS F-D, S-U
Special precautions for user Read safety instructions, MSDS and emergency procedures before handling.

IATA; IMDG; TDG

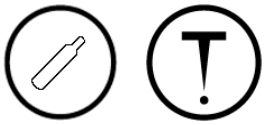
15. Regulatory Information

Canadian regulations This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS status Controlled

WHMIS classification A - Compressed Gas
D2B - Other Toxic Effects-TOXIC

WHMIS labeling



International Inventories

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

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

16. Other Information

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.

Prepared by Not available.