



SAFETY DATA SHEET

1. Identification

Product identifier LPS® Revo 66

Other means of identification

Part Number 04416

Recommended use An aerosol remover of dirt, moisture, dust, flux or oxides from the internal components of electronic or precision equipment.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Manufacturer

Company name LPS Laboratories, a division of Illinois Tool Works, Inc.

Address 4647 Hugh Howell Rd.
Tucker, GA 30084
(U.S.A.)

Country 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 sds@lpslabs.com

2. Hazard(s) identification

Physical hazards Gases under pressure Dissolved gas

Health hazards Acute toxicity, inhalation Category 4

Environmental hazards Not classified.

OSHA defined hazards Not classified.

Label elements



Signal word Warning

Hazard statement Harmful if inhaled. Contains gas under pressure; may explode if heated.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Pressurized container: Do not pierce or burn, even after use. Avoid breathing gas. Use only outdoors or in a well-ventilated area.

Response If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

Storage Store away from incompatible materials.

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

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

Supplemental information Not applicable.

3. Composition/information on ingredients

Mixtures

| Chemical name | Common name and synonyms | CAS number | % |
|----------------------------|--------------------------|------------|---------|
| 1,2-TRANS-DICHLOROETHYLENE | | 156-60-5 | 50 - 60 |
| Isopropanol | ISOPROPYL ALCOHOL (IPA) | 67-63-0 | 3 - 5 |

4. First-aid measures

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact

Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact

Rinse with water. Get medical attention if irritation develops and persists.

Ingestion

Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

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. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information

In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media

Water. Water spray. Foam. Carbon dioxide (CO₂). Dry powder.

Unsuitable extinguishing media

None known.

Specific hazards arising from the chemical

Contents under pressure. Pressurized container may explode when exposed to heat or flame.

Special protective equipment and precautions 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

Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up. 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

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. In the event of fire and/or explosion do not breathe fumes.

General fire hazards

Extremely flammable aerosol.

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. Wear appropriate protective equipment and clothing during clean-up. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid breathing gas. 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

Refer to attached safety data sheets and/or instructions for use. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Isolate area until gas has dispersed. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. 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

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 cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Avoid contact with eyes. Avoid prolonged exposure. Use only outdoors or in a well-ventilated area. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Level 1 Aerosol.

Store locked up. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection**Occupational exposure limits****US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

| Components | Type | Value |
|---------------------------|------|----------------------------------|
| Isopropanol (CAS 67-63-0) | PEL | 980 mg/m ³ 400 ppm |

US. ACGIH Threshold Limit Values

| Components | Type | Value |
|-------------------------------------------|------|---------|
| 1,2-TRANS-DICHLOROETHYLENE (CAS 156-60-5) | TWA | 200 ppm |
| Isopropanol (CAS 67-63-0) | STEL | 400 ppm |
| | TWA | 200 ppm |

US. NIOSH: Pocket Guide to Chemical Hazards

| Components | Type | Value |
|---------------------------|------|-----------------------------------|
| Isopropanol (CAS 67-63-0) | STEL | 1225 mg/m ³ 500 ppm |
| | TWA | 980 mg/m ³ 400 ppm |

Biological limit values**ACGIH Biological Exposure Indices**

| Components | Value | Determinant | Specimen | Sampling Time |
|---------------------------|---------|-------------|----------|---------------|
| Isopropanol (CAS 67-63-0) | 40 mg/l | Acetone | Urine | * |

* - 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. Provide eyewash station.

Individual protection measures, such as personal protective equipment

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

Skin protection

Hand protection Chemical resistant gloves are recommended.

Other Wear appropriate chemical resistant clothing.

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

Thermal hazards Not applicable.

General hygiene considerations

When using do not smoke. 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 | Liquid. |
| Physical state | Gas. |
| Form | Aerosol. |
| Color | Clear colorless or nearly colorless |
| Odor | Mild. |
| Odor threshold | Not available. |
| pH | Not available. |
| Melting point/freezing point | Not available. |

| | |
|-----------------------------------------------------|--------------------------------------------------------------|
| Initial boiling point and boiling range | 107.6 °F (42 °C) |
| Flash point | Not applicable |
| Evaporation rate | < 1 BuAc |
| Flammability (solid, gas) | Not available. |
| Upper/lower flammability or explosive limits | |
| Flammability limit - lower (%) | Not available. |
| Flammability limit - upper (%) | Not available. |
| Explosive limit - lower (%) | Not available. |
| Explosive limit - upper (%) | Not available. |
| Vapor pressure | 868 mm Hg @20 °C |
| Vapor density | > 1 |
| Relative density | Not available. |
| Solubility(ies) | |
| Solubility (water) | < 5 % |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | 860 °F (460 °C) estimated |
| Decomposition temperature | Not available. |
| Viscosity | < 3 cSt @25 °C |
| Other information | |
| Percent volatile | 100 % |
| Specific gravity | 1.2 - 1.3 @20 °C |
| VOC (Weight %) | 64.7 % per US State and 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 | Avoid heat, sparks, open flames and other ignition sources. |
| Incompatible materials | Strong oxidizing agents. Reacts violently with sodium, potassium, barium metal. Reacts with finely divided aluminum, zinc and magnesium. |
| 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

| | |
|---------------------|---------------------------------------------------------------------------------------------------------------------|
| Ingestion | May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure. |
| Inhalation | Harmful by inhalation. |
| Skin contact | Based on available data, the classification criteria are not met. |
| Eye contact | Direct contact with eyes may cause temporary irritation. |

| | |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Symptoms related to the physical, chemical and toxicological characteristics | Direct contact with eyes may cause temporary irritation. Exposed individuals may experience eye tearing, redness, and discomfort. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Information on toxicological effects

| | |
|-----------------------|---------------------|
| Acute toxicity | Harmful if inhaled. |
|-----------------------|---------------------|

| Components | Species | Test Results |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------|
| 1,2-TRANS-DICHLOROETHYLENE (CAS 156-60-5) | | |
| Acute | | |
| Inhalation | | |
| LC50 | Mouse | 21723 mg/l, 6 Hours |
| Oral | | |
| LD50 | Rat | 1235 mg/kg |
| Other | | |
| LD50 | Mouse | 4019 mg/kg |
| | Rat | 7411 mg/kg |
| Isopropanol (CAS 67-63-0) | | |
| Acute | | |
| Dermal | | |
| LD50 | Rabbit | 12800 mg/kg |
| | | 16.4 ml/kg |
| Inhalation | | |
| LC50 | Rat | > 10000 ppm |
| Oral | | |
| LD50 | Dog | 4797 mg/kg |
| | Mouse | 3600 mg/kg |
| | Rabbit | 5.03 g/kg |
| | Rat | 4.7 g/kg |
| Other | | |
| LD50 | Mouse | 1509 mg/kg |
| | Rat | 1099 mg/kg |
| Skin corrosion/irritation | Based on available data, the classification criteria are not met. | |
| Serious eye damage/eye irritation | Direct contact with eyes may cause temporary irritation. | |
| Respiratory or skin sensitization | | |
| Respiratory sensitization | Based on available data, the classification criteria are not met. | |
| Skin sensitization | Based on available data, the classification criteria are not met. | |
| 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. | |
| OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050) | | |
| Not listed. | | |
| Reproductive toxicity | This product is not expected to cause reproductive or developmental effects. | |
| Specific target organ toxicity - single exposure | Based on available data, the classification criteria are not met. | |
| Specific target organ toxicity - repeated exposure | Based on available data, the classification criteria are not met. | |
| Aspiration hazard | Based on available data, the classification criteria are not met. | |
| Chronic effects | Prolonged inhalation may be harmful. | |
| 12. Ecological information | | |
| Ecotoxicity | Harmful to aquatic life with long lasting effects. | |

| Components | Species | Test Results |
|---------------------------------------------------|------------------------------------------------------------|--------------------------------|
| Isopropanol (CAS 67-63-0) | | |
| Aquatic | | |
| Fish | LC50 | Bluegill (Lepomis macrochirus) |
| | | > 1400 mg/l, 96 hours |
| Persistence and degradability | No data is available on the degradability of this product. | |
| Bioaccumulative potential | No data available. | |
| Partition coefficient n-octanol / water (log Kow) | | |
| 1,2-TRANS-DICHLOROETHYLENE | 2.06 | |
| Isopropanol | 0.05 | |
| Mobility in soil | No data available. | |
| Other adverse effects | Not assigned. | |

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. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. 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 | D001: Waste Flammable material with a flash point <140 F 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 | 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

| | |
|-------------------------------------|-------------------------|
| 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. |
| Environmental hazards | |
| Marine pollutant | No |
| Special precautions for user | Not available. |
| Special provisions | N82 |
| 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 | - |
| Label(s) | 2.2 |
| Packing group | Not applicable. |
| Environmental hazards | No. |
| Special precautions for user | Not available. |
| 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 | Not available. |
| Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code | Not applicable. |

DOT



IATA; IMDG



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.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

| | |
|-------------------|-------|
| Immediate Hazard | - Yes |
| Delayed Hazard | - No |
| Fire Hazard | - No |
| Pressure Hazard | - Yes |
| Reactivity Hazard | - No |

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

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.**US state regulations****US. Massachusetts RTK - Substance List**

1,2-TRANS-DICHLOROETHYLENE (CAS 156-60-5)

Isopropanol (CAS 67-63-0)

US. New Jersey Worker and Community Right-to-Know Act

Isopropanol (CAS 67-63-0)

US. Pennsylvania Worker and Community Right-to-Know Law

1,2-TRANS-DICHLOROETHYLENE (CAS 156-60-5)

Isopropanol (CAS 67-63-0)

US. Rhode Island RTK

1,2-TRANS-DICHLOROETHYLENE (CAS 156-60-5)

Isopropanol (CAS 67-63-0)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

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, including date of preparation or last revision**Issue date** 02-18-2014**Revision date** 04-19-2014**Version #** 02**Disclaimer**

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

Composition / Information on Ingredients: Disclosure Overrides
 Physical & Chemical Properties: Multiple Properties
 Regulatory Information: Risk Phrases - Labeling
 GHS: Classification