MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product identifier **LPS® HDX (Aerosol)**

Version # 01

Issue date 06-18-2014

CAS # Mixture

Part Number 01020, C01020

Product use A degreaser designed to remove grease, oil, dirt and other residues from metal and other hard surfaces near ignition sources.

Manufacturer information

LPS Laboratories, a division of Illinois Tool Works
4647 Hugh Howell Rd
Tucker, Georgia 30084
United States
www.lpslabs.com

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

Supplier Not available.

2. Hazards Identification

Emergency overview

DANGER

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

MAY CAUSE CANCER.
Suspected of causing genetic defects. Vapors may cause drowsiness and dizziness. Irritating to eyes and skin.

Potential health effects

Routes of exposure Eye contact. Skin contact. Inhalation. Ingestion.

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

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

Inhalation May cause cancer by inhalation. May cause irritation of respiratory tract. Prolonged inhalation may be harmful.

Ingestion Components of the product may be absorbed into the body by ingestion. Irritating. May cause nausea, stomach pain and vomiting. Do not ingest.

Target organs Central nervous system. Eyes. Heart. Kidneys. Liver. Respiratory system. Skin.

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

Signs and symptoms Irritating to eyes and skin. Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Narcosis. Decrease in motor functions. Behavioral changes.

Potential environmental effects Harmful to aquatic organisms. May cause long-term adverse effects in the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
TRICHLOROETHYLENE	79-01-6	90 - 100
CARBON DIOXIDE	124-38-9	1 - 5

4. First Aid Measures

First aid procedures

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

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

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.

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.
Notes to physician	Provide general supportive measures and treat symptomatically.
General advice	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Call a POISON CENTER or doctor/physician if you feel unwell.

5. Fire Fighting Measures

Flammable properties	Pressurized container may explode when exposed to heat or flame.
Extinguishing media	
Suitable extinguishing media	Dry chemical powder. Carbon dioxide (CO2). Water spray, fog or regular foam.
Unsuitable extinguishing media	Not available.
Protection of firefighters	
Specific hazards arising from the chemical	Contents under pressure. Pressurized container may explode when exposed to heat or flame.
Protective equipment for firefighters	Firefighters should wear full protective clothing including self contained breathing apparatus. Structural firefighters protective clothing will only provide limited protection.
Fire fighting equipment/instructions	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. 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	Cool containers exposed to flames with water until well after the fire is out.
Explosion data	
Sensitivity to static discharge	None known.
Sensitivity to mechanical impact	None known.
Hazardous combustion products	Chlorine. Phosgene. Hydrogen Chloride.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental Release Measures

Personal precautions	Consider initial downwind evacuation for at least 500 meters (1/3 mile). 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). 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. Ventilate closed spaces before entering them. For personal protection, see section 8 of the MSDS.
Environmental precautions	Prevent further leakage or spillage if safe to do so. 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. If possible, turn leaking containers so that gas escapes rather than liquid. Move the cylinder to a safe and open area if the leak is irreparable. Prevent entry into waterways, sewer, basements or confined areas.
Methods for cleaning up	Ventilate the area. 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 re-use empty containers. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not get this material on clothing. Do not use in areas without adequate ventilation. Wear positive pressure self-contained breathing apparatus (SCBA). Wear personal protective equipment. Wash thoroughly after handling.

Storage Contents under pressure. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. Store locked up. Store in a well-ventilated place. Keep container dry. Store away from incompatible materials (see Section 10 of the MSDS). Keep in an area equipped with sprinklers.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
CARBON DIOXIDE (CAS 124-38-9)	STEL	30000 ppm
	TWA	5000 ppm
TRICHLOROETHYLENE (CAS 79-01-6)	STEL	25 ppm
	TWA	10 ppm

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
CARBON DIOXIDE (CAS 124-38-9)	STEL	54000 mg/m3
		30000 ppm
	TWA	9000 mg/m3
		5000 ppm
TRICHLOROETHYLENE (CAS 79-01-6)	STEL	537 mg/m3
		100 ppm
	TWA	269 mg/m3
		50 ppm

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

Components	Type	Value
CARBON DIOXIDE (CAS 124-38-9)	STEL	15000 ppm
	TWA	5000 ppm
TRICHLOROETHYLENE (CAS 79-01-6)	STEL	25 ppm
	TWA	10 ppm

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

Components	Type	Value
CARBON DIOXIDE (CAS 124-38-9)	STEL	30000 ppm
	TWA	5000 ppm
TRICHLOROETHYLENE (CAS 79-01-6)	STEL	25 ppm
	TWA	10 ppm

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

Components	Type	Value
CARBON DIOXIDE (CAS 124-38-9)	STEL	30000 ppm
	TWA	5000 ppm
TRICHLOROETHYLENE (CAS 79-01-6)	STEL	25 ppm
	TWA	10 ppm

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
CARBON DIOXIDE (CAS 124-38-9)	STEL	54000 mg/m3
		30000 ppm
	TWA	9000 mg/m3
		5000 ppm

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
TRICHLOROETHYLENE (CAS 79-01-6)	STEL	1070 mg/m3
		200 ppm
	TWA	269 mg/m3
		50 ppm

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

Components	Type	Value
CARBON DIOXIDE (CAS 124-38-9)	PEL	9000 mg/m3
		5000 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
TRICHLOROETHYLENE (CAS 79-01-6)	Ceiling	200 ppm
	TWA	100 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
TRICHLOROETHYLENE (CAS 79-01-6)	15 mg/l	Trichloroacetic acid	Urine	*
	0.5 mg/l	Trichloroethanol, without hydrolysis	Blood	*

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

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). Eye wash fountain is recommended.

Skin protection Avoid contact with the skin. Wear appropriate chemical resistant clothing.

Respiratory protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

9. Physical & Chemical Properties

Appearance Clear. Liquid.

Physical state Gas.

Form Aerosol.

Color Clear,Colorless

Odor Sweet, Spice

Odor threshold Not established

pH Not applicable

Vapor pressure 58 mm Hg @ 20℃

Vapor density 4.5

Boiling point 188.6 ℉ (87 ℃)

Melting point/Freezing point Not established

Solubility (water) 0.1 %

Specific gravity 1.41 - 1.47 @ 20℃

Relative density Not available.

Flash point Tag Closed Cup (None)

Flammability limits in air, upper, % by volume 10.5 %

Flammability limits in air, lower, % by volume	8 %
Auto-ignition temperature	> 788 °F (> 420 °C)
VOC	97.8 %
Evaporation rate	0.3 (Ethyl Ether = 1)
Viscosity	0.53 cP @ 25° C
Percent volatile	100 %
Partition coefficient (n-octanol/water)	2.4
Other data	
Decomposition temperature	Not established
Explosive properties	Not established.
Flammability (solid, gas)	Not applicable.
Heat of combustion	< 20 kJ/g
Oxidizing properties	Not established.

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Keep away from heat, sparks and open flame. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Reacts violently with sodium, potassium, barium metal. Reacts with finely divided aluminum, zinc and magnesium.
Hazardous decomposition products	Irritating and/or toxic fumes and gases may be emitted upon the products decomposition. Hydrogen chloride. Chlorine. Phosgene.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Components	Species	Test Results
TRICHLOROETHYLENE (CAS 79-01-6)		
Acute		
Dermal		
LD50	Rabbit	20 ml/kg
Inhalation		
LC50	Mouse	8450 mg/l, 4 Hours
	Rat	26000 mg/l, 1 Hours
		12000 mg/l, 4 Hours
LD50	Mouse	49000 mg/l, 30 Minutes
		5500 mg/l, 10 Hours
NOEL	Ape	730 mg/l
	Guinea pig	730 mg/l
	Rabbit	1200 mg/l, 473 Hours
		730 mg/l
	Rat	100 mg/l, 8 Hours
Oral		
LD50	Dog	5680 mg/kg
	Mouse	2402 mg/kg
	Rat	4920 mg/kg
Other		
LD100	Mouse	5500 mg/kg
LD50	Dog	2783 mg/kg

Components	Species	Test Results
	Mouse	2402 mg/kg
	Rabbit	29 g/kg

Acute effects Narcotic effects.

Sensitization Based on available data, the classification criteria are not met.

Local effects Irritating to eyes and skin. Irritating to respiratory system. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic effects Prolonged inhalation may be harmful.

Carcinogenicity May cause cancer.

ACGIH Carcinogens

TRICHLOROETHYLENE (CAS 79-01-6) A2 Suspected human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

TRICHLOROETHYLENE (CAS 79-01-6) 1 Carcinogenic to humans.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/irritation Causes serious eye irritation.

Mutagenicity Suspected of causing genetic defects.

Reproductive effects Based on available data, the classification criteria are not met.

Teratogenicity Not available.

Symptoms and target organs Irritating to eyes, respiratory system and skin. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Exposure may cause temporary irritation, redness, or discomfort. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea.

Synergistic materials Not available.

12. Ecological Information

Ecotoxicological data

Components		Species	Test Results
TRICHLOROETHYLENE (CAS 79-01-6)			
Aquatic			
Fish	LC50	Flagfish (Jordanella floridae)	3.1 mg/l, 96 hours

Ecotoxicity Harmful to aquatic life with long lasting effects.

Environmental effects Harmful to aquatic organisms.

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

Persistence and degradability Not inherently biodegradable.

Partition coefficient

LPS® HDX (Aerosol)	2.4
TRICHLOROETHYLENE	2.61

Mobility in environmental media The product is immiscible with water and will spread on the water surface.

Other adverse effects None known.

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. 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	6.1(PGIII)
Packing group	Not applicable.
Environmental hazards	No
Special precautions for user	Not available.

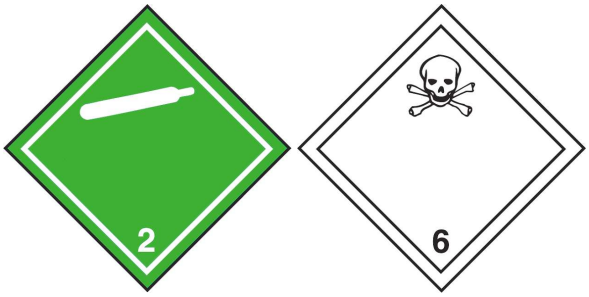
IATA

UN number	UN1950
UN proper shipping name	Aerosols, non-flammable
Transport hazard class(es)	
Class	2.2
Subsidiary risk	6.1(PGIII)
Packing group	Not applicable.
Environmental hazards	No
ERG Code	2L
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
Transport hazard class(es)	
Class	2.2
Subsidiary risk	6.1(PGIII)
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	No
EmS	F-D, S-U
Special precautions for user	Not available.

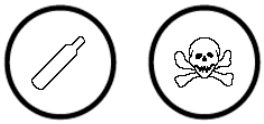
IATA; IMDG; TDG



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 D1B - Immediate/Serious-TOXIC D2A - Other Toxic Effects-VERY TOXIC 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)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
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

Prepared by Not available.