



SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture LPS® TriFree®
Registration number -
Synonyms None.
Part Number 03620, M03620
Issue date 04-September-2014
Version number 01

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses A spray brake cleaner designed to remove oil, grease, brake fluid, brake pad material or dirt from motor vehicle brake mechanisms.
Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

Supplier Geocel Limited
Company name Western Wood Way, Langage Science Park, Plympton,
Address Plymouth, PL7 5BG
United Kingdom
Telephone +44 (0)1752 202060 / +44 (0)1752 334384
In Case of Emergency +001 703-527-3887
Manufacturer
Company name LPS Laboratories, a division of Illinois Tool Works, Inc.
Address 4647 Hugh Howell Rd., Tucker, GA 30084 (U.S.A.)
Website <http://www.lpslabs.com>
e-mail sds@lpslabs.com

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

Classification F+;R12, Xn;R65, Xi;R36/38, R66-67, N;R51/53

The full text for all R-phrases is displayed in section 16.

Classification according to Regulation (EC) No 1272/2008 as amended

Physical hazards

Aerosols	Category 1	H222 - Extremely flammable aerosol. H229 - Pressurized container: May burst if heated.
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Health hazards

Skin corrosion/irritation	Category 2	H315 - Causes skin irritation.
Serious eye damage/eye irritation	Category 2	H319 - Causes serious eye irritation.
Specific target organ toxicity - single exposure	Category 3 narcotic effects	H336 - May cause drowsiness or dizziness.
Aspiration hazard	Category 1	H304 - May be fatal if swallowed and enters airways.

Environmental hazards

Hazardous to the aquatic environment, long-term aquatic hazard	Category 2	H411 - Toxic to aquatic life with long lasting effects.
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Hazard summary

Physical hazards Extremely flammable.

Health hazards	Irritating to eyes and skin. Harmful: may cause lung damage if swallowed. Repeated exposure may cause skin dryness or cracking. Vapours may cause drowsiness and dizziness. Occupational exposure to the substance or mixture may cause adverse health effects.
Environmental hazards	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Specific hazards	Extremely flammable. Irritating to eyes and skin. Harmful: may cause lung damage if swallowed. Do not breathe dust/fume/gas/mist/vapors/spray.
Main symptoms	Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Skin irritation. May cause redness and pain. Vapours have a narcotic effect and may cause headache, fatigue, dizziness and nausea.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Acetone, Carbon dioxide, Cyclohexylmethane, Heptane, Primary Amyl Acetate

Hazard pictograms



Signal word

Danger

Hazard statements

H222	Extremely flammable aerosol.
H229	Pressurized container: May burst if heated.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Pressurised container: Do not pierce or burn, even after use.
P261	Avoid breathing gas.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves.
P280	Wear eye/face protection.

Response

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTRE or doctor/physician if you feel unwell.
P321	Specific treatment (see this label).
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.

Storage

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.

Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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Supplemental label information None.

2.3. Other hazards None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Acetone	50 - 60	67-64-1 200-662-2	-	606-001-00-8	#
Classification:	DSD: F;R11, Xi;R36, R66-67				
	CLP: Flam. Liq. 2;H225, Eye Irrit. 2;H319, STOT SE 3;H336				
Heptane	20 - 30	142-82-5 205-563-8	-	601-008-00-2	#
Classification:	DSD: F;R11, Xn;R65, Xi;R38, R67, N;R50/53				C
	CLP: Flam. Liq. 2;H225, Asp. Tox. 1;H304, Skin Irrit. 2;H315, STOT SE 3;H336, Aquatic Acute 1;H400, Aquatic Chronic 1;H410				C
Cyclohexylmethane	10 - 20	108-87-2 203-624-3	-	601-018-00-7	
Classification:	DSD: F;R11, Xn;R65, Xi;R38, R67, N;R51/53				
	CLP: Flam. Liq. 2;H225, Asp. Tox. 1;H304, Skin Irrit. 2;H315, Acute Tox. 4;H332, STOT SE 3;H336, Aquatic Chronic 2;H411				
Carbon dioxide	1 - 5	124-38-9 204-696-9	-	-	#
Classification:	DSD: -				
	CLP: -				
Primary Amyl Acetate	1 - 5	628-63-7 211-047-3	-	607-130-00-2	#
Classification:	DSD: R10, R66				C
	CLP: Flam. Liq. 3;H226, Aquatic Chronic 3;H412				C

CLP: Regulation No. 1272/2008.

DSD: Directive 67/548/EEC.

M: M-factor

vPvB: very persistent and very bioaccumulative substance.

PBT: persistent, bioaccumulative and toxic substance.

#: This substance has been assigned Community workplace exposure limit(s).

Note C: Some organic substances may be marketed either in a specific isomeric form or as a mixture of several isomers. In this case the supplier must state on the label whether the substance is a specific isomer or a mixture of isomers.

SECTION 4: First aid measures

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

4.1. Description of first aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTRE or doctor/physician if you feel unwell.

Skin contact Remove contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

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.

Ingestion Call a physician or poison control centre immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary oedema and pneumonitis.

4.2. Most important symptoms and effects, both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

4.3. Indication of any immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards Extremely flammable aerosol.

5.1. Extinguishing media	
Suitable extinguishing media	Powder. Alcohol resistant foam. Water. Water spray. Dry chemicals. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
5.2. Special hazards arising from the substance or mixture	Contents under pressure. Pressurised container may explode when exposed to heat or flame.
5.3. Advice for firefighters	
Special 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.
Special fire fighting procedures	Move containers from fire area if you can do so without risk. Cool containers exposed to heat with water spray and remove container, if no risk is involved. 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. Use water spray to cool unopened containers. In the event of fire and/or explosion do not breathe fumes.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. Use personal protection recommended in Section 8 of the SDS.

For emergency responders Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up Stop the flow of material, if this is without risk. Collect spillage. Use water spray to reduce vapours or divert vapour cloud drift. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Never return spills to original containers for re-use.

6.4. Reference to other sections Use personal protection recommended in Section 8 of the SDS. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Pressurised 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. Avoid breathing gas. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Avoid prolonged exposure. Use only in well-ventilated areas. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities Store locked up. Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C. Do not puncture, incinerate or crush. Keep away from heat and sources of ignition. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Keep out of the reach of children.

7.3. Specific end use(s) Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value
Acetone (CAS 67-64-1)	MAK	1200 mg/m ³ 500 ppm
	STEL	4800 mg/m ³ 2000 ppm
	Ceiling	18000 mg/m ³
Carbon dioxide (CAS 124-38-9)		10000 ppm
	MAK	9000 mg/m ³
		5000 ppm

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value
Cyclohexylmethane (CAS 108-87-2)	MAK	1600 mg/m ³
		400 ppm
	STEL	6400 mg/m ³
		1600 ppm
Primary Amyl Acetate (CAS 628-63-7)	MAK	270 mg/m ³
		50 ppm
	STEL	540 mg/m ³
		100 ppm

Belgium. Exposure Limit Values.

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	2420 mg/m ³
		1000 ppm
	TWA	1210 mg/m ³
		500 ppm
Carbon dioxide (CAS 124-38-9)	STEL	54784 mg/m ³
		30000 ppm
	TWA	9131 mg/m ³
		5000 ppm
Cyclohexylmethane (CAS 108-87-2)	TWA	1633 mg/m ³
		400 ppm
Heptane (CAS 142-82-5)	STEL	2085 mg/m ³
		500 ppm
	TWA	1664 mg/m ³
		400 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m ³
		100 ppm
	TWA	270 mg/m ³
		50 ppm

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	1400 mg/m ³
		600 mg/m ³
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m ³
		5000 ppm
Cyclohexylmethane (CAS 108-87-2)	TWA	500 mg/m ³
		500 ppm
Heptane (CAS 142-82-5)	TWA	1600 mg/m ³
		1600 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m ³
		100 ppm
	TWA	270 mg/m ³
		50 ppm

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Components	Type	Value
Acetone (CAS 67-64-1)	MAC	1210 mg/m ³
		500 ppm
	STEL	3620 mg/m ³
		1500 ppm
Carbon dioxide (CAS 124-38-9)	MAC	9000 mg/m ³
		5000 ppm
Heptane (CAS 142-82-5)	MAC	2085 mg/m ³
		500 ppm
Primary Amyl Acetate (CAS 628-63-7)	MAC	270 mg/m ³
		270 ppm

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09 Components

Components	Type	Value
	STEL	50 ppm 540 mg/m3 100 ppm

Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended. Components

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	2400 mg/m3 1000 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m3 5000 ppm

Czech Republic. OELs. Government Decree 361 Components

Components	Type	Value
Acetone (CAS 67-64-1)	Ceiling TWA	1500 mg/m3 800 mg/m3
Carbon dioxide (CAS 124-38-9)	Ceiling	45000 mg/m3
Cyclohexylmethane (CAS 108-87-2)	TWA Ceiling	9000 mg/m3 2000 mg/m3
Heptane (CAS 142-82-5)	TWA Ceiling	1500 mg/m3 2000 mg/m3
Primary Amyl Acetate (CAS 628-63-7)	TWA Ceiling	1000 mg/m3 540 mg/m3
	TWA	270 mg/m3

Denmark. Exposure Limit Values Components

Components	Type	Value
Acetone (CAS 67-64-1)	TLV	600 mg/m3 250 ppm
Carbon dioxide (CAS 124-38-9)	TLV	9000 mg/m3 5000 ppm
Cyclohexylmethane (CAS 108-87-2)	TLV	805 mg/m3 200 ppm
Heptane (CAS 142-82-5)	TLV	820 mg/m3 200 ppm
Primary Amyl Acetate (CAS 628-63-7)	TLV	271 mg/m3 50 ppm

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	1210 mg/m3 500 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m3 5000 ppm
Cyclohexylmethane (CAS 108-87-2)	TWA	1600 mg/m3 400 ppm
Heptane (CAS 142-82-5)	TWA	2085 mg/m3 500 ppm

Finland. Workplace Exposure Limits Components

Components	Type	Value
Acetone (CAS 67-64-1)	STEL TWA	1500 mg/m3 630 ppm 1200 mg/m3
Carbon dioxide (CAS 124-38-9)	TWA	500 ppm 9100 mg/m3

Finland. Workplace Exposure Limits Components

Type	Value
STEL	5000 ppm 2000 mg/m3
TWA	500 ppm 1600 mg/m3 400 ppm
STEL	2100 mg/m3
TWA	500 ppm 1200 mg/m3 300 ppm
STEL	540 mg/m3
TWA	100 ppm 270 mg/m3 50 ppm

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984 Components

Type	Value
VLE	2420 mg/m3
VME	1000 ppm 1210 mg/m3
VME	500 ppm 9000 mg/m3
VME	5000 ppm 1600 mg/m3
VLE	400 ppm 2085 mg/m3
VME	500 ppm 1668 mg/m3 400 ppm
VLE	540 mg/m3
VME	100 ppm 270 mg/m3 50 ppm

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Type	Value
TWA	1200 mg/m3 500 ppm
TWA	9100 mg/m3
TWA	5000 ppm 810 mg/m3
TWA	200 ppm 2100 mg/m3 500 ppm
TWA	270 mg/m3
	50 ppm

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace Components

Type	Value
AGW	1200 mg/m3 500 ppm
AGW	9100 mg/m3
AGW	5000 ppm 810 mg/m3
	200 ppm

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Components	Type	Value
Primary Amyl Acetate (CAS 628-63-7)	AGW	270 mg/m3
		50 ppm
Greece. OELs (Decree No. 90/1999, as amended)		
Components	Type	Value
Acetone (CAS 67-64-1)	STEL	3560 mg/m3
	TWA	1780 mg/m3
Carbon dioxide (CAS 124-38-9)	STEL	54000 mg/m3
	TWA	5000 ppm 9000 mg/m3
Cyclohexylmethane (CAS 108-87-2)	STEL	5000 ppm 2000 mg/m3
	TWA	500 ppm 2000 mg/m3
Heptane (CAS 142-82-5)	STEL	500 ppm 2000 mg/m3
	TWA	500 ppm 2000 mg/m3
Primary Amyl Acetate (CAS 628-63-7)	STEL	800 mg/m3
	TWA	150 ppm 530 mg/m3 100 ppm
Hungary. OELs. Joint Decree on Chemical Safety of Workplaces		
Components	Type	Value
Acetone (CAS 67-64-1)	STEL	2420 mg/m3
	TWA	1210 mg/m3
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m3
Heptane (CAS 142-82-5)	STEL	8000 mg/m3
	TWA	2000 mg/m3
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m3
	TWA	270 mg/m3
Iceland. OELs. Regulation 154/1999 on occupational exposure limits		
Components	Type	Value
Acetone (CAS 67-64-1)	TWA	600 mg/m3
		250 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m3
		5000 ppm
Cyclohexylmethane (CAS 108-87-2)	TWA	805 mg/m3
		200 ppm
Heptane (CAS 142-82-5)	TWA	820 mg/m3
		200 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m3
	TWA	100 ppm 266 mg/m3 50 ppm
Ireland. Occupational Exposure Limits		
Components	Type	Value
Acetone (CAS 67-64-1)	TWA	1210 mg/m3
		500 ppm
Carbon dioxide (CAS 124-38-9)	STEL	27000 mg/m3
		15000 ppm

Ireland. Occupational Exposure Limits

Components	Type	Value
	TWA	9000 mg/m3
		5000 ppm
Cyclohexylmethane (CAS 108-87-2)	TWA	1600 mg/m3
		400 ppm
Heptane (CAS 142-82-5)	TWA	2085 mg/m3
		500 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m3
		100 ppm
	TWA	270 mg/m3
		50 ppm

Italy. Occupational Exposure Limits

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	1210 mg/m3
		500 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m3
		5000 ppm
Cyclohexylmethane (CAS 108-87-2)	TWA	400 ppm
Heptane (CAS 142-82-5)	TWA	2085 mg/m3
		500 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m3
		100 ppm
	TWA	270 mg/m3
		50 ppm

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	1210 mg/m3
		500 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m3
		5000 ppm
Heptane (CAS 142-82-5)	STEL	2085 mg/m3
		500 ppm
	TWA	350 mg/m3
		85 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m3
		100 ppm
	TWA	270 mg/m3
		50 ppm

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	2420 mg/m3
		1000 ppm
	TWA	1210 mg/m3
		500 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m3
		5000 ppm
Cyclohexylmethane (CAS 108-87-2)	TWA	50 mg/m3
Heptane (CAS 142-82-5)	STEL	3128 mg/m3
		750 ppm
	TWA	2085 mg/m3
		500 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m3
		100 ppm

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Components	Type	Value
	TWA	270 mg/m3 50 ppm

Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	1210 mg/m3 500 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m3 5000 ppm
Heptane (CAS 142-82-5)	TWA	2085 mg/m3 500 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m3
	TWA	100 ppm 270 mg/m3 50 ppm

Malta. OELs. Occupational Exposure Limit Values (L.N. 227. of Occupational Health and Safety Authority Act (CAP. 424), Schedules I and V)

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	1210 mg/m3 500 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m3 5000 ppm
Heptane (CAS 142-82-5)	TWA	2085 mg/m3 500 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m3
	TWA	100 ppm 270 mg/m3 50 ppm

Netherlands. OELs (binding)

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	2420 mg/m3
	TWA	1210 mg/m3
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m3
Heptane (CAS 142-82-5)	STEL	1600 mg/m3
	TWA	1200 mg/m3
Primary Amyl Acetate (CAS 628-63-7)	STEL	530 mg/m3

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value
Acetone (CAS 67-64-1)	TLV	295 mg/m3 125 ppm
Carbon dioxide (CAS 124-38-9)	TLV	9000 mg/m3 5000 ppm
Cyclohexylmethane (CAS 108-87-2)	TLV	800 mg/m3
Heptane (CAS 142-82-5)	TLV	200 ppm 800 mg/m3
Primary Amyl Acetate (CAS 628-63-7)	TLV	200 ppm 260 mg/m3
		50 ppm

Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	1800 mg/m3

Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	TWA	600 mg/m ³
	STEL	27000 mg/m ³
Cyclohexylmethane (CAS 108-87-2)	TWA	9000 mg/m ³
	STEL	3000 mg/m ³
Heptane (CAS 142-82-5)	TWA	1600 mg/m ³
	STEL	2000 mg/m ³
Primary Amyl Acetate (CAS 628-63-7)	TWA	1200 mg/m ³
	STEL	500 mg/m ³
	TWA	250 mg/m ³

Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	1210 mg/m ³ 500 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m ³ 5000 ppm
Heptane (CAS 142-82-5)	TWA	2085 mg/m ³ 500 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m ³ 100 ppm
	TWA	270 mg/m ³ 50 ppm

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	750 ppm
Carbon dioxide (CAS 124-38-9)	TWA	500 ppm
	STEL	30000 ppm
Cyclohexylmethane (CAS 108-87-2)	TWA	5000 ppm
	TWA	400 ppm
Heptane (CAS 142-82-5)	STEL	500 ppm
	TWA	400 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	100 ppm
	TWA	50 ppm

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	1210 mg/m ³ 500 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m ³ 5000 ppm
Cyclohexylmethane (CAS 108-87-2)	STEL	1500 mg/m ³ 375 ppm
	TWA	1200 mg/m ³ 211 ppm
Heptane (CAS 142-82-5)	TWA	2085 mg/m ³ 500 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	500 mg/m ³ 100 ppm
	TWA	270 mg/m ³ 50 ppm

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	1210 mg/m3 500 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m3 5000 ppm
Cyclohexylmethane (CAS 108-87-2)	STEL	1620 mg/m3
	TWA	400 ppm 810 mg/m3 200 ppm
Heptane (CAS 142-82-5)	TWA	2085 mg/m3 500 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m3
	TWA	100 ppm 270 mg/m3 50 ppm

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	1210 mg/m3 500 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m3 5000 ppm
Cyclohexylmethane (CAS 108-87-2)	TWA	2000 mg/m3
Heptane (CAS 142-82-5)	TWA	500 ppm 2085 mg/m3 500 ppm
Primary Amyl Acetate (CAS 628-63-7)	TWA	270 mg/m3 50 ppm

Spain. Occupational Exposure Limits

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	1210 mg/m3 500 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9150 mg/m3 5000 ppm
Cyclohexylmethane (CAS 108-87-2)	TWA	1630 mg/m3
Heptane (CAS 142-82-5)	TWA	400 ppm 2085 mg/m3 500 ppm
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m3
	TWA	100 ppm 270 mg/m3 50 ppm

Sweden. Occupational Exposure Limit Values

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	1200 mg/m3 500 ppm
	TWA	600 mg/m3 250 ppm
Carbon dioxide (CAS 124-38-9)	STEL	18000 mg/m3
	TWA	10000 ppm 9000 mg/m3 5000 ppm

Sweden. Occupational Exposure Limit Values

Components	Type	Value
Primary Amyl Acetate (CAS 628-63-7)	STEL	540 mg/m ³
	TWA	100 ppm 270 mg/m ³ 50 ppm

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	2400 mg/m ³ 1000 ppm
	TWA	1200 mg/m ³ 500 ppm
Carbon dioxide (CAS 124-38-9)	TWA	9000 mg/m ³
Cyclohexylmethane (CAS 108-87-2)	STEL	5000 ppm 3200 mg/m ³
	TWA	800 ppm 1600 mg/m ³ 400 ppm

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	3620 mg/m ³ 1500 ppm
	TWA	1210 mg/m ³ 500 ppm
Carbon dioxide (CAS 124-38-9)	STEL	27400 mg/m ³
	TWA	15000 ppm 9150 mg/m ³
Heptane (CAS 142-82-5)	TWA	5000 ppm 2085 mg/m ³ 500 ppm

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	1210 mg/m ³ 500 ppm
	TWA	9000 mg/m ³ 5000 ppm
Heptane (CAS 142-82-5)	TWA	2085 mg/m ³ 500 ppm
	STEL	540 mg/m ³
Primary Amyl Acetate (CAS 628-63-7)	TWA	100 ppm 270 mg/m ³ 50 ppm

Biological limit values**France. Biological indicators of exposure (IBE) (National Institute for Research and Security (INRS, ND 2065))**

Components	Value	Determinant	Specimen	Sampling time
Acetone (CAS 67-64-1)	100 mg/l	Acétone	Urine	*

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

Germany. TRGS 903, BAT List (Biological Limit Values)

Components	Value	Determinant	Specimen	Sampling time
Acetone (CAS 67-64-1)	80 mg/l	Aceton	Urine	*

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

Slovakia. BLVs (Biological Limit Value). Regulation no. 355/2006 concerning protection of workers exposed to chemical agents, Annex 2

Components	Value	Determinant	Specimen	Sampling time
Acetone (CAS 67-64-1)	53,36 mg/g	Acetone	Creatinine in urine	*
	80 mg/l	Acetone	Urine	*

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

Spain. Biological Limit Values (VLBs), Occupational Exposure Limits for Chemical Agents, Table 4

Components	Value	Determinant	Specimen	Sampling time
Acetone (CAS 67-64-1)	50 mg/l	Acetona	Urine	*

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

Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)

Components	Value	Determinant	Specimen	Sampling time
Acetone (CAS 67-64-1)	80 mg/l	Aceton	Urine	*

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

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no-effect level (DNEL) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

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

General information Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

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

Skin protection

- Hand protection Chemical resistant gloves are recommended.

- Other 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.

Thermal hazards Not applicable.

Hygiene measures 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.

Environmental exposure controls Contain spills and prevent releases and observe national regulations on emissions. Environmental manager must be informed of all major releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Physical state	Gas.
Form	Aerosol
Colour	Clear, Colorless.
Odour	Ether-like. Fruity.
Odour threshold	Not established
pH	Not applicable
Melting point/freezing point	Not established
Initial boiling point and boiling range	> 56 °C (> 132,8 °F)
Flash point	-17,0 °C (1,4 °F) Tag closed cup
Evaporation rate	> 1 (BuAc = 1)
Flammability (solid, gas)	Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) 1,2 %

Flammability limit - upper (%) 12,8 %

Vapour pressure > 75 mm Hg @ 20°C

Vapour density ~ 3 (air = 1)

Relative density 0,75 - 0,77 @ 20°C

Solubility(ies)

Solubility (water) 55 % w/w

Solubility (other) Not available.

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature Not established

Decomposition temperature Not established

Viscosity Not established

Explosive properties Not available.

Oxidizing properties Not available.

9.2. Other information

Heat of combustion > 30 kJ/g

Percent volatile 100 %

VOC (Weight %) 45 % per U.S State and Federal Consumer Product Regulations.

SECTION 10: Stability and reactivity

10.1. Reactivity Strong oxidising agents. Strong acids.

10.2. Chemical stability Material is stable under normal conditions.

10.3. Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid Avoid temperatures exceeding the flash point. Contact with incompatible materials.

10.5. Incompatible materials Strong oxidising agents.

10.6. Hazardous decomposition products Carbon oxides.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation Vapours have a narcotic effect and may cause headache, fatigue, dizziness and nausea.

Skin contact Causes skin irritation.

Eye contact Causes serious eye irritation.

Ingestion May be fatal if swallowed and enters airways.

Symptoms Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. Exposure may cause temporary irritation, redness, or discomfort. Vapours have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Decrease in motor functions. Behavioural changes.

11.1. Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects.

Components	Species	Test results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Guinea pig	> 7426 mg/kg, 24 Hours > 9,4 ml/kg, 24 Hours
	Rabbit	> 7426 mg/kg, 24 Hours > 9,4 ml/kg, 24 Hours
Inhalation		
LC50	Rat	55700 ppm, 3 Hours

Components	Species	Test results
		132 mg/l, 3 Hours
		76 mg/l, 4 Hours
		50,1 mg/l
		50,1 mg/l, 8 Hours
<i>Oral</i>		
LD50	Mouse	5,2 g/kg
	Rat	5800 mg/kg
		2,2 ml/kg
Cyclohexylmethane (CAS 108-87-2)		
Acute		
<i>Dermal</i>		
LD50	Rat	2800 - 3100 mg/kg, 24 Hours
		>= 4 ml/kg, 24 Hours
<i>Inhalation</i>		
LC25	Rabbit	7300 ppm
LC50	Rat	16 mg/l, 4 Hours
<i>Oral</i>		
LD50	Rat	> 8 ml/kg
Heptane (CAS 142-82-5)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg, 24 Hours
<i>Inhalation</i>		
LC50	Rat	> 29,29 mg/l, 4 Hours
LD50	Mouse	75 mg/l, 2 Hours
<i>Other</i>		
LD50	Mouse	222 mg/kg
Skin corrosion/irritation	Causes skin irritation.	
Serious eye damage/eye irritation	Causes serious eye irritation.	
Respiratory sensitisation	Not a respiratory sensitizer.	
Skin sensitisation	This product is not expected to cause skin sensitisation.	
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		
Acetone (CAS 67-64-1)	Not classifiable as a human carcinogen. A4	
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.	
Specific target organ toxicity - single exposure	Narcotic effects.	
Specific target organ toxicity - repeated exposure	Based on available data, the classification criteria are not met.	
Aspiration hazard	May be fatal if swallowed and enters airways.	
Mixture versus substance information	No information available.	
Other information	Not available.	

SECTION 12: Ecological information

12.1. Toxicity Toxic to aquatic life with long lasting effects.

Components	Species	Test results
Acetone (CAS 67-64-1)		
Aquatic		
Crustacea	EC50 Water flea (Daphnia magna)	10294 - 17704 mg/l, 48 hours

Components		Species	Test results
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	4740 - 6330 mg/l, 96 hours
Cyclohexylmethane (CAS 108-87-2)			
Aquatic			
Fish	LC50	Striped bass (Morone saxatilis)	5,8 mg/l, 96 hours
Heptane (CAS 142-82-5)			
Aquatic			
Fish	LC50	Mozambique tilapia (Tilapia mossambica)	375 mg/l, 96 hours
Primary Amyl Acetate (CAS 628-63-7)			
Aquatic			
Fish	LC50	Western mosquitofish (Gambusia affinis)	65 mg/l, 96 hours

12.2. Persistence and degradability

Expected to biodegrade.

12.3. Bioaccumulative potential

No data available for this product.

Partition coefficient n-octanol/water (log Kow)

LPS® TriFree®	< 1
Acetone	-0,24
Cyclohexylmethane	3,61
Heptane	4,66
Primary Amyl Acetate	2,3

Bioconcentration factor (BCF)

Not available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

Not a PBT or vPvB substance or mixture.

12.6. Other adverse effects

None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste

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.

EU waste code

The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Disposal methods/information

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. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Special precautions

Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN1950
14.2. UN proper shipping name	Aerosols, flammable (Heptane)
14.3. Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Hazard No. (ADR)	Not available.
Tunnel restriction code	D
14.4. Packing group	Not applicable.
14.5. Environmental hazards	Yes
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN1950
14.2. UN proper shipping name	Aerosols, flammable (Heptane)
14.3. Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
14.4. Packing group	Not applicable.
14.5. Environmental hazards	Yes
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number	UN1950
14.2. UN proper shipping name	Aerosols, [flammable] (Heptane)
14.3. Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
14.4. Packing group	Not applicable.
14.5. Environmental hazards	Yes
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IATA

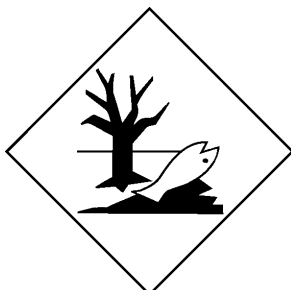
14.1. UN number	UN1950
14.2. UN proper shipping name	Aerosols, flammable (Heptane)
14.3. Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
14.4. Packing group	Not applicable.
14.5. Environmental hazards	Yes
ERG Code	10L
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

14.1. UN number	UN1950
14.2. UN proper shipping name	AEROSOLS, Flammable (Heptane), MARINE POLLUTANT
14.3. Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
14.4. Packing group	Not applicable.
14.5. Environmental hazards	
Marine pollutant	Yes
EmS	F-D, S-U
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	This substance/mixture is not intended to be transported in bulk.



Marine pollutant



SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I

Not listed.

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(1) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Acetone (CAS 67-64-1)

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work

Not listed.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding

Not listed.

Other EU regulations

Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances

Not listed.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Acetone (CAS 67-64-1)

Cyclohexylmethane (CAS 108-87-2)

Heptane (CAS 142-82-5)
Primary Amyl Acetate (CAS 628-63-7)

Directive 94/33/EC on the protection of young people at work

Not listed.

Other regulations	The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.
National regulations	Young people under 18 years old are not allowed to work with this product according to the EU Directive 94/33/EC on the protection of young people at work. Follow national regulation for work with chemical agents.
15.2. Chemical safety assessment	No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations	Not available.
References	Not available.
Information on evaluation method leading to the classification of mixture	The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.
Full text of any statements or R-phrases and H-statements under Sections 2 to 15	R10 Flammable. R11 Highly flammable. R12 Extremely flammable. R36 Irritating to eyes. R36/38 Irritating to eyes and skin. R38 Irritating to skin. R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R65 Harmful: may cause lung damage if swallowed. R66 Repeated exposure may cause skin dryness or cracking. R67 Vapours may cause drowsiness and dizziness. H225 Highly flammable liquid and vapour. H226 Flammable liquid and vapour. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H319 Causes serious eye irritation. H332 Harmful if inhaled. H336 May cause drowsiness or dizziness. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long lasting effects. H412 Harmful to aquatic life with long lasting effects.
Revision information	None.
Training information	Follow training instructions when handling this material.

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.