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® Red & Redi
Registration number	-
Synonyms	None.
SDS number	05816
Part Number	05816, M05816
Issue date	05-June-2014
Version number	01

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

Identified uses	A red colored, multi-purpose grease designed with high temperature resistance while providing excellent lubrication.
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, Xi;R36/38, R67, 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.
Health hazards		
Skin corrosion/irritation	Category 2	H315 - Causes skin irritation.
Serious eye damage/eye irritation	Category 2	H319 - Causes serious eye irritation.
Reproductive toxicity	Category 2	H361f - Suspected of damaging fertility.
Specific target organ toxicity - single exposure	Category 3 narcotic effects	H336 - May cause drowsiness or dizziness.
Environmental hazards		
Hazardous to the aquatic environment, long-term aquatic hazard	Category 2	H411 - Toxic to aquatic life with long lasting effects.

Hazard summary

Physical hazards	Extremely flammable.

Health hazards	May impair fertility. Irritating to eyes and skin. 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	Irritating to eyes and skin. May impair fertility. May cause central nervous system effects.
Main symptoms	Irritating to eyes and skin. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Symptoms may include redness, oedema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Narcosis. Behavioural changes. Decrease in motor functions. Sterility.

2.2. Label elements

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

Contains: 2,2-Dimethylbutane, 2,3-Dimethylbutane, 2-Methylpentane, 3-Methylpentane, Light Mineral Spirits, N-HEXANE, Petroleum Gases, Liquefied, Sweetened, Petroleum Oil

Hazard pictograms

Signal word Danger

Hazard statements

H222	Extremely flammable aerosol.
H229	Pressurized container: May burst if heated.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H361f	Suspected of damaging fertility.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
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.
P281	Use personal protective equipment as required.

Response

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.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTRE or doctor/physician if you feel unwell.
P321	Specific treatment (see this label).
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.

Supplemental label information 60,25 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

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
Petroleum Oil	30 - 40	64742-52-5 265-155-0	-	649-465-00-7	Note L
Classification: **DSD:**	Carc. Cat. 2;R45				L
CLP:	Asp. Tox. 1;H304, Skin Irrit. 2;H315, Eye Irrit. 2;H319, Carc. 1B;H350				L
Petroleum Gases, Liquefied, Sweetened	20 - 30	68476-86-8 270-705-8	-	649-203-00-1	
Classification: **DSD:**	F+;R12, Carc. Cat. 1;R45, Muta. Cat. 2;R46				K,S
CLP:	Flam. Gas 1;H220, Press. Gas;H280, Muta. 1B;H340, Carc. 1B;H350				K,S,U
2-Methylpentane	10 - 20	107-83-5 203-523-4	-	601-007-00-7	
Classification: **DSD:**	F;R11, Xn;R65, Xi;R38, R67, N;R51/53				C
CLP:	Flam. Liq. 2;H225, Asp. Tox. 1;H304, Skin Irrit. 2;H315, STOT SE 3;H336, Aquatic Chronic 2;H411				C
2,3-Dimethylbutane	1 - 10	79-29-8 201-193-6	-	601-007-00-7	
Classification: **DSD:**	F;R11, Xn;R65, Xi;R38, R67, N;R51/53				C
CLP:	Flam. Liq. 2;H225, Asp. Tox. 1;H304, Skin Irrit. 2;H315, STOT SE 3;H336, Aquatic Chronic 2;H411				C
3-Methylpentane	1 - 10	96-14-0 202-481-4	-	601-007-00-7	
Classification: **DSD:**	F;R11, Xn;R65, Xi;R38, R67, N;R51/53				C
CLP:	Flam. Liq. 2;H225, Asp. Tox. 1;H304, Skin Irrit. 2;H315, STOT SE 3;H336, Aquatic Chronic 2;H411				C
2,2-Dimethylbutane	1 - 5	75-83-2 200-906-8	-	601-007-00-7	
Classification: **DSD:**	F;R11, Xn;R65, Xi;R38, R67, N;R51/53				C
CLP:	Flam. Liq. 2;H225, Asp. Tox. 1;H304, Skin Irrit. 2;H315, STOT SE 3;H336, Aquatic Chronic 2;H411				C
Light Mineral Spirits	1 - 5	64742-88-7 265-191-7	-	649-405-00-X	
Classification: **DSD:**	Xn;R65				
CLP:	Asp. Tox. 1;H304				
N-HEXANE	1 - 5	110-54-3 203-777-6	-	601-037-00-0	#
Classification: **DSD:**	F;R11, Repr. Cat. 3;R62, Xn;R65-48/20, Xi;R38, R67, N;R51/53				
CLP:	Flam. Liq. 2;H225, Asp. Tox. 1;H304, Skin Irrit. 2;H315, STOT SE 3;H336, Repr. 2;H361f, STOT RE 2;H373, Aquatic Chronic 2;H411				

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.

Note K: The classification as a carcinogen or mutagen need not apply if it can be shown that the substance contains less than 0,1 % w/w 1,3-butadiene (EINECS No 203-450-8).

Note L: This component has been tested by Supplier. According to Supplier, the component complies with the criteria of Note L in Annex I of 67/548/EEC, and is exempt from a classification of T; R45. (Contains less than 3% DMSO)

Note S: This substance may not require a label according to Article 17 (see section 1.3 of Annex I) (Table 3.1). This substance may not require a label according to Article 23 of Directive 67/548/EEC (see section 8 of Annex VI to that Directive) (Table 3.2).

Note U: When put on the market gases have to be classified as "Gases under pressure", in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case.

Composition comments The full text for all R- and H-phrases is displayed in section 16.

SECTION 4: First aid measures

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Call a POISON CENTRE or doctor/physician if you feel unwell.

4.1. Description of first aid measures

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.

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

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. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconsious person. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

4.2. Most important symptoms and effects, both acute and delayed Dermatitis. Rash. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. 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.

SECTION 5: Firefighting measures

General fire hazards Extremely flammable aerosol.

5.1. Extinguishing media

Suitable extinguishing media Dry chemical, CO2, water spray or regular foam.

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. 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. Avoid breathing gas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. Use personal protection recommended in Section 8 of the SDS.
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	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. Collect spillage. Scoop up used absorbent into drums or other appropriate container. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.
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	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. 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. All equipment used when handling the product must be grounded. Avoid breathing gas. Avoid contact with eyes, skin, and clothing. Avoid contact during pregnancy/while nursing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Use only in well-ventilated areas. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices. Avoid release to the environment. Do not empty into drains.
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, sparks and open flame. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. 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
2,2-Dimethylbutane (CAS 75-83-2)	MAK	715 mg/m3
		200 ppm
	STEL	2860 mg/m3
		800 ppm
2,3-Dimethylbutane (CAS 79-29-8)	MAK	715 mg/m3
		200 ppm
	STEL	2860 mg/m3
		800 ppm
2-Methylpentane (CAS 107-83-5)	MAK	715 mg/m3
		200 ppm
	STEL	2860 mg/m3
		800 ppm
3-Methylpentane (CAS 96-14-0)	MAK	715 mg/m3
		200 ppm
	STEL	2860 mg/m3
		800 ppm
N-HEXANE (CAS 110-54-3)	MAK	72 mg/m3

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

Components	Type	Value
		20 ppm
	STEL	288 mg/m3
		80 ppm

Belgium. Exposure Limit Values.

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3
		20 ppm

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

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3
		20 ppm

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

Components	Type	Value
N-HEXANE (CAS 110-54-3)	MAC	72 mg/m3
		20 ppm

Czech Republic. OELs. Government Decree 361

Components	Type	Value
N-HEXANE (CAS 110-54-3)	Ceiling	200 mg/m3
	TWA	70 mg/m3

Denmark. Exposure Limit Values

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TLV	72 mg/m3
		20 ppm

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

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3
		20 ppm

Finland. Workplace Exposure Limits

Components	Type	Value
2,2-Dimethylbutane (CAS 75-83-2)	STEL	2300 mg/m3
		630 ppm
	TWA	1800 mg/m3
		500 ppm
2,3-Dimethylbutane (CAS 79-29-8)	STEL	2300 mg/m3
		630 ppm
	TWA	1800 mg/m3
		500 ppm
2-Methylpentane (CAS 107-83-5)	STEL	2300 mg/m3
		630 ppm
	TWA	1800 mg/m3
		500 ppm
3-Methylpentane (CAS 96-14-0)	STEL	2300 mg/m3
		630 ppm
	TWA	1800 mg/m3
		500 ppm
N-HEXANE (CAS 110-54-3)	STEL	2300 mg/m3
		630 ppm
	TWA	72 mg/m3
		20 ppm

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

Components	Type	Value	Form
N-HEXANE (CAS 110-54-3)	VLE	1500 mg/m3	Vapor.
	VME	72 mg/m3	
		20 ppm	

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

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	180 mg/m3
		50 ppm

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

Components	Type	Value
2,2-Dimethylbutane (CAS 75-83-2)	AGW	1800 mg/m3
		500 ppm
2,3-Dimethylbutane (CAS 79-29-8)	AGW	1800 mg/m3
		500 ppm
2-Methylpentane (CAS 107-83-5)	AGW	1800 mg/m3
		500 ppm
3-Methylpentane (CAS 96-14-0)	AGW	1800 mg/m3
		500 ppm
N-HEXANE (CAS 110-54-3)	AGW	180 mg/m3
		50 ppm

Greece. OELs (Decree No. 90/1999, as amended)

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	180 mg/m3
		50 ppm

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	90 mg/m3
		25 ppm

Ireland. Occupational Exposure Limits

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3
		20 ppm

Italy. Occupational Exposure Limits

Components	Type	Value
2,2-Dimethylbutane (CAS 75-83-2)	STEL	1000 ppm
	TWA	500 ppm
2,3-Dimethylbutane (CAS 79-29-8)	STEL	1000 ppm
	TWA	500 ppm
2-Methylpentane (CAS 107-83-5)	STEL	1000 ppm
	TWA	500 ppm
3-Methylpentane (CAS 96-14-0)	STEL	1000 ppm
	TWA	500 ppm
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3
		20 ppm

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

Components	Type	Value
N-HEXANE (CAS 110-54-3)	STEL	300 mg/m3

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

Components	Type	Value
	TWA	72 mg/m3 20 ppm

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

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3 20 ppm

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

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3 20 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
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3 20 ppm

Netherlands. OELs (binding)

Components	Type	Value
N-HEXANE (CAS 110-54-3)	STEL	144 mg/m3
	TWA	72 mg/m3

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TLV	72 mg/m3 20 ppm

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

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3

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

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3 20 ppm

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

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	50 ppm

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

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3 20 ppm

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

Components	Type	Value
N-HEXANE (CAS 110-54-3)	STEL	140 mg/m3 40 ppm
	TWA	72 mg/m3 20 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
2,2-Dimethylbutane (CAS 75-83-2)	TWA	720 mg/m3 200 ppm
2,3-Dimethylbutane (CAS 79-29-8)	TWA	720 mg/m3 200 ppm
2-Methylpentane (CAS 107-83-5)	TWA	720 mg/m3

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
		200 ppm
3-Methylpentane (CAS 96-14-0)	TWA	720 mg/m3
		200 ppm
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3
		20 ppm

Spain. Occupational Exposure Limits

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3
		20 ppm

Sweden. Occupational Exposure Limit Values

Components	Type	Value
2,2-Dimethylbutane (CAS 75-83-2)	STEL	1100 mg/m3
		300 ppm
	TWA	700 mg/m3
		200 ppm
2,3-Dimethylbutane (CAS 79-29-8)	STEL	1100 mg/m3
		300 ppm
	TWA	700 mg/m3
		200 ppm
2-Methylpentane (CAS 107-83-5)	STEL	1100 mg/m3
		300 ppm
	TWA	700 mg/m3
		200 ppm
3-Methylpentane (CAS 96-14-0)	STEL	1100 mg/m3
		300 ppm
	TWA	700 mg/m3
		200 ppm
N-HEXANE (CAS 110-54-3)	STEL	180 mg/m3
		50 ppm
	TWA	90 mg/m3
		25 ppm

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value
2,2-Dimethylbutane (CAS 75-83-2)	STEL	3600 mg/m3
		1000 ppm
	TWA	1800 mg/m3
		500 ppm
2,3-Dimethylbutane (CAS 79-29-8)	STEL	3600 mg/m3
		1000 ppm
	TWA	1800 mg/m3
		500 ppm
2-Methylpentane (CAS 107-83-5)	STEL	3600 mg/m3
		1000 ppm
	TWA	1800 mg/m3
		500 ppm
3-Methylpentane (CAS 96-14-0)	STEL	3600 mg/m3
		1000 ppm
	TWA	1800 mg/m3
		500 ppm
N-HEXANE (CAS 110-54-3)	STEL	1440 mg/m3
		400 ppm
	TWA	180 mg/m3

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value
		50 ppm

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3 20 ppm

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

Components	Type	Value
N-HEXANE (CAS 110-54-3)	TWA	72 mg/m3 20 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
N-HEXANE (CAS 110-54-3)	5 mg/g	2,5-Hexanedione	Creatinine in urine	*

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

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

Components	Value	Determinant	Specimen	Sampling time
N-HEXANE (CAS 110-54-3)	5 mg/l	2,5-Hexandion plus 4,5-Dihydroxy-2-hexanon	Urine	*

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

Hungary. Chemical Safety at Workplace Ordinance Joint Decree No. 25/2000 (Annex 2): Permissible limit values of biological exposure (effect) indices

Components	Value	Determinant	Specimen	Sampling time
N-HEXANE (CAS 110-54-3)	3,5 mg/g	hexane-2,5-dion	Creatinine in urine	*
	3,5 µmol/mmol	hexane-2,5-dion	Creatinine in 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
N-HEXANE (CAS 110-54-3)	3 mg/g	2,5-hexanedione and 4,5-dihydroxy-2-hexanone	Creatinine in urine	*
	5 mg/l	2,5-hexanedione and 4,5-dihydroxy-2-hexanone	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
N-HEXANE (CAS 110-54-3)	0,4 mg/l	2,5-Hexanodiona, sin hidrólisis	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
N-HEXANE (CAS 110-54-3)	5 mg/l	2,5-Hexandion plus 4,5-Dihydroxy-2-hexanon	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	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	Wear suitable protective clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Not applicable.
Hygiene measures	When using, do not eat, drink or 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.
Environmental exposure controls	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	Grease
Physical state	Gas.
Form	Aerosol Viscous. Film.
Colour	Red
Odour	Very faint. Solvent.
Odour threshold	Not established
pH	Not applicable
Melting point/freezing point	Not applicable
Initial boiling point and boiling range	~70,2°C (158°F)
Flash point	> -29,0 °C (> -20,2 °F) (bulk liquid) estimated
Evaporation rate	< 1 (Ethyl Ether =1)
Flammability (solid, gas)	Flammable gas.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1,8 %
Flammability limit - upper (%)	9,5 %
Vapour pressure	2500 - 3500 mm Hg @20 °C (calculated aerosol)
Vapour density	2 - 3 (Air = 1)
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not soluble in water
Solubility (other)	Not available.
Partition coefficient (n-octanol/water)	Not established
Auto-ignition temperature	Not established
Decomposition temperature	Not established
Viscosity	3100 - 4000 cP (bulk liquid)
Explosive properties	Not available.
Oxidizing properties	Not available.

9.2. Other information

Heat of combustion	> 30 kJ/g

Percent volatile	65 %
Specific gravity	0,77 - 0,8 @20 °C
VOC (Weight %)	65 % per State and Federal Consumer Product Regulations

SECTION 10: Stability and reactivity

10.1. Reactivity	This product may react with oxidizing agents.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	Hazardous polymerisation does not occur.
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

Ingestion	May cause discomfort if swallowed.
Inhalation	Vapours have a narcotic effect and may cause headache, fatigue, dizziness and nausea. May cause irritation to the respiratory system.
Skin contact	Causes skin irritation. Suspected of damaging fertility by skin contact.
Eye contact	Causes serious eye irritation.
Symptoms	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. Vapours have a narcotic effect and may cause headache, fatigue, dizziness and nausea.

11.1. Information on toxicological effects

Acute toxicity Narcotic effects.

Components	Species	Test results
Light Mineral Spirits (CAS 64742-88-7)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Inhalation		
LC50	Cat	> 6,4 mg/l
	Rat	> 0,1 mg/l
Oral		
LD50	Rat	> 5000 mg/kg
N-HEXANE (CAS 110-54-3)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
		> 5 ml/kg
Inhalation		
LC50	Mouse	48000 mg/l, 4 Hours
	Rat	> 5000 ppm
		> 31,86 mg/l
Oral		
LD50	Rat	24 ml/kg
		24 mg/kg
	Wistar rat	49 mg/kg
Petroleum Gases, Liquefied, Sweetened (CAS 68476-86-8)		
Acute		
Inhalation		
LC100	Cat	90 %
LC50	Mouse	1237 mg/l

Components	Species	Test results
		52,04 %
	Rat	> 13023 ppm
		1355 mg/l
Petroleum Oil (CAS 64742-52-5)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Inhalation		
LC50	Rat	> 2,5 mg/l
Oral		
LD50	Rat	> 2000 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.

Reproductive toxicity Suspected of damaging fertility.

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 Not an aspiration hazard.

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
N-HEXANE (CAS 110-54-3)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	2,101 - 2,981 mg/l, 96 hours

12.2. Persistence and degradability Not inherently biodegradable.

12.3. Bioaccumulative potential No data available for this product.

Partition coefficient n-octanol/water (log Kow)

2,2-Dimethylbutane	3,82
2,3-Dimethylbutane	3,42
2-Methylpentane	3,74
3-Methylpentane	3,6
N-HEXANE	3,9

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
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
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]
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
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 (hexanes), MARINE POLLUTANT
14.3. Transport hazard class(es)	
Class	2
Subsidiary risk	-
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.

ADN; ADR; IATA; IMDG; RID

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

N-HEXANE (CAS 110-54-3)

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

Petroleum Gases, Liquefied, Sweetened (CAS 68476-86-8)
Petroleum Oil (CAS 64742-52-5)

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

Petroleum Gases, Liquefied, Sweetened (CAS 68476-86-8)
Petroleum Oil (CAS 64742-52-5)

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

2,2-Dimethylbutane (CAS 75-83-2)
2,3-Dimethylbutane (CAS 79-29-8)
2-Methylpentane (CAS 107-83-5)
3-Methylpentane (CAS 96-14-0)
Light Mineral Spirits (CAS 64742-88-7)
N-HEXANE (CAS 110-54-3)
Petroleum Gases, Liquefied, Sweetened (CAS 68476-86-8)
Petroleum Oil (CAS 64742-52-5)

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

N-HEXANE (CAS 110-54-3)
Petroleum Gases, Liquefied, Sweetened (CAS 68476-86-8)
Petroleum Oil (CAS 64742-52-5)

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	R11 Highly flammable. R12 Extremely flammable. R36/38 Irritating to eyes and skin. R38 Irritating to skin. R45 May cause cancer. R46 May cause heritable genetic damage. R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R60 May impair fertility. R62 Possible risk of impaired fertility. R65 Harmful: may cause lung damage if swallowed. R67 Vapours may cause drowsiness and dizziness. H220 Extremely flammable gas. H225 Highly flammable liquid and vapour. H280 Contains gas under pressure; may explode 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.
H340 May cause genetic defects.
H350 May cause cancer.
H361f Suspected of damaging fertility.
H373 May cause damage to organs through prolonged or repeated exposure.
H411 Toxic 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.