

Page 1 of 15
Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
Revision date / version: 19.03.2020 / 0012
Replacing version dated / version: 01.06.2017 / 0011
Valid from: 19.03.2020
PDF print date: 14.06.2021
LM 301 A Contact-Oil

Safety data sheet according to Regulation (EC) No 1907/2006, Annex II

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

1.1 Product identifier

LM 301 A Contact-Oil

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

Relevant identified uses of the substance or mixture:

See definition of the substance or mixture.

Sector of use [SU]:

SU 3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

SU21 - Consumer uses: Private households (=general public = consumers)

SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Chemical product category [PC]:

PC17 - Hydraulic fluids

PC24 - Lubricants, greases, release products

Process category [PROC]:

PROC 7 - Industrial spraying

PROC 8a - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

PROC 8b - Transfer of substance or mixture (charging and discharging) at dedicated facilities

PROC 9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

PROC10 - Roller application or brushing

PROC11 - Non industrial spraying

PROC13 - Treatment of articles by dipping and pouring

PROC17 - Lubrication at high energy conditions in metal working operation

PROC18 - General greasing/lubrication at high kinetic energy conditions

PROC19 - Manual activities involving hand contact

PROC20 - Use of functional fluids in small devices

Article Categories [AC]:

AC99 - Not required.

Environmental Release Category [ERC]:

ERC 2 - Formulation into mixture

ERC 4 - Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

ERC 7 - Use of functional fluid at industrial site

ERC 8a - Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

ERC 8c - Widespread use leading to inclusion into/onto article (indoor)

ERC 8d - Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

ERC 8f - Widespread use leading to inclusion into/onto article (outdoor)

ERC 9a - Widespread use of functional fluid (indoor)

ERC 9b - Widespread use of functional fluid (outdoor)

Uses advised against:

No information available at present.

1.3 Details of the supplier of the safety data sheet

LIQUI MOLY GmbH

Jerg-Wieland-Str. 4

89081 Ulm-Lehr

Tel.: (+49) 0731-1420-0

Fax: (+49) 0731-1420-88

Qualified person's e-mail address: info@chemical-check.de, k.schnurbusch@chemical-check.de Please DO NOT use for requesting Safety Data Sheets.

1.4 Emergency telephone number

Emergency information services / official advisory body:

Page 2 of 15
 Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
 Revision date / version: 19.03.2020 / 0012
 Replacing version dated / version: 01.06.2017 / 0011
 Valid from: 19.03.2020
 PDF print date: 14.06.2021
 LM 301 A Contact-Oil

Telephone number of the company in case of emergencies:
 +49 (0) 700 / 24 112 112 (LMR)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) 1272/2008 (CLP)

Hazard class	Hazard category	Hazard statement
STOT SE	3	H336-May cause drowsiness or dizziness.
Aquatic Chronic	2	H411-Toxic to aquatic life with long lasting effects.
Aerosol	1	H222-Extremely flammable aerosol.
Asp. Tox.	1	H304-May be fatal if swallowed and enters airways.
Aerosol	1	H229-Pressurised container: May burst if heated.

2.2 Label elements

Labeling according to Regulation (EC) 1272/2008 (CLP)



Danger

H336-May cause drowsiness or dizziness. H411-Toxic to aquatic life with long lasting effects. H222-Extremely flammable aerosol. H229-Pressurised container: May burst if heated.

P101-If medical advice is needed, have product container or label at hand. P102-Keep out of reach of children.

P210-Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P211-Do not spray on an open flame or other ignition source. P251-Do not pierce or burn, even after use. P261-Avoid breathing vapours or spray. P273-Avoid release to the environment.

P312-Call a POISON CENTRE / doctor if you feel unwell.

P405-Store locked up. P410+P412-Protect from sunlight. Do not expose to temperatures exceeding 50 °C.

P501-Dispose of contents / container to an approved waste disposal facility.

EUH066-Repeated exposure may cause skin dryness or cracking.

Without adequate ventilation, formation of explosive mixtures may be possible.

Pentane

2.3 Other hazards

The mixture does not contain any vPvB substance (vPvB = very persistent, very bioaccumulative) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).

The mixture does not contain any PBT substance (PBT = persistent, bioaccumulative, toxic) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).

When using: development of explosive vapour/air mixture possible.

SECTION 3: Composition/information on ingredients

3.1 Substances

Page 3 of 15
 Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
 Revision date / version: 19.03.2020 / 0012
 Replacing version dated / version: 01.06.2017 / 0011
 Valid from: 19.03.2020
 PDF print date: 14.06.2021
 LM 301 A Contact-Oil

n.a.

3.2 Mixtures

Butane	
Registration number (REACH)	---
Index	601-004-00-0
EINECS, ELINCS, NLP, REACH-IT List-No.	203-448-7
CAS	106-97-8
content %	1-50
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Flam. Gas 1A, H220

Propane	
Registration number (REACH)	---
Index	601-003-00-5
EINECS, ELINCS, NLP, REACH-IT List-No.	200-827-9
CAS	74-98-6
content %	1-50
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Flam. Gas 1A, H220

Pentane		Substance for which an EU exposure limit value applies.
Registration number (REACH)	---	
Index	601-006-00-1	
EINECS, ELINCS, NLP, REACH-IT List-No.	203-692-4	
CAS	109-66-0	
content %	30-40	
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Aquatic Chronic 2, H411 Asp. Tox. 1, H304 STOT SE 3, H336 Flam. Liq. 2, H225	

Isobutane	
Registration number (REACH)	---
Index	601-004-00-0
EINECS, ELINCS, NLP, REACH-IT List-No.	200-857-2
CAS	75-28-5
content %	1-<10
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Flam. Gas 1A, H220

Impurities, test data and additional information may have been taken into account in classifying and labelling the product.

For the text of the H-phrases and classification codes (GHS/CLP), see Section 16.

The substances named in this section are given with their actual, appropriate classification!

For substances that are listed in appendix VI, table 3.1 of the regulation (EC) no. 1272/2008 (CLP regulation) this means that all notes that may be given here for the named classification have been taken into account.

SECTION 4: First aid measures

4.1 Description of first aid measures

First-aiders should ensure they are protected!

Never pour anything into the mouth of an unconscious person!

Inhalation

Remove person from danger area.

Supply person with fresh air and consult doctor according to symptoms.

Skin contact

Wash thoroughly using copious water - remove contaminated clothing immediately. If skin irritation occurs (redness etc.), consult doctor.

Eye contact

Wash thoroughly for several minutes using copious water. Seek medical help if necessary.

Keep Data Sheet available.

Ingestion

Rinse the mouth thoroughly with water.

Do not induce vomiting - give copious water to drink. Consult doctor immediately.

4.2 Most important symptoms and effects, both acute and delayed

If applicable delayed symptoms and effects can be found in section 11 and the absorption route in section 4.1.

Page 4 of 15
Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
Revision date / version: 19.03.2020 / 0012
Replacing version dated / version: 01.06.2017 / 0011
Valid from: 19.03.2020
PDF print date: 14.06.2021
LM 301 A Contact-Oil

The following may occur:

Coughing
Headaches

Effects/damages the central nervous system

In certain cases, the symptoms of poisoning may only appear after an extended period / after several hours.

4.3 Indication of any immediate medical attention and special treatment needed

Indications for the physician:

Symptomatic treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

CO₂
Extinction powder
Foam

Unsuitable extinguishing media

High volume water jet

5.2 Special hazards arising from the substance or mixture

In case of fire the following can develop:

Oxides of carbon
Toxic pyrolysis products.

Explosive vapour/air or gas/air mixtures.

In case of spreading near the ground, flashback to distance sources of ignition is possible.

5.3 Advice for firefighters

Protective respirator with independent air supply.

According to size of fire

Full protection, if necessary.

Cool container at risk with water.

Dispose of contaminated extinction water according to official regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Remove possible causes of ignition - do not smoke.

Ensure sufficient supply of air.

Avoid inhalation, and contact with eyes or skin.

6.2 Environmental precautions

If leakage occurs, dam up.

Resolve leaks if this possible without risk.

Prevent from entering drainage system.

Prevent surface and ground-water infiltration, as well as ground penetration.

6.3 Methods and material for containment and cleaning up

If spray or gas escapes, ensure ample fresh air is available.

Active substance:

Soak up with absorbent material (e.g. universal binding agent) and dispose of according to Section 13.

6.4 Reference to other sections

For personal protective equipment see Section 8 and for disposal instructions see Section 13.

SECTION 7: Handling and storage

In addition to information given in this section, relevant information can also be found in section 8 and 6.1.

7.1 Precautions for safe handling

7.1.1 General recommendations

Ensure good ventilation.

Keep away from sources of ignition - Do not smoke.

Take precautions against electrostatic charges.

Do not use on hot surfaces.

GB

Page 5 of 15
 Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
 Revision date / version: 19.03.2020 / 0012
 Replacing version dated / version: 01.06.2017 / 0011
 Valid from: 19.03.2020
 PDF print date: 14.06.2021
 LM 301 A Contact-Oil

Eating, drinking, smoking, as well as food-storage, is prohibited in work-room.
 Observe directions on label and instructions for use.
 Use working methods according to operating instructions.

7.1.2 Notes on general hygiene measures at the workplace

General hygiene measures for the handling of chemicals are applicable.
 Wash hands before breaks and at end of work.
 Keep away from food, drink and animal feedingstuffs.
 Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

7.2 Conditions for safe storage, including any incompatibilities

Keep out of access to unauthorised individuals.
 Not to be stored in gangways or stair wells.
 Store product closed and only in original packing.
 Do not store with oxidizing agents.
 Observe special regulations for aerosols!
 Store in a well ventilated place.
 Keep protected from direct sunlight and temperatures over 50°C.

7.3 Specific end use(s)

No information available at present.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Chemical Name	Butane	Content %:1-50
WEL-TWA: 600 ppm (1450 mg/m ³)	WEL-STEL: 750 ppm (1810 mg/m ³)	---
Monitoring procedures:	- Compur - KITA-221 SA (549 459) - OSHA PV2010 (n-Butane) - 1993	
BMGV: ---	Other information: ---	

Chemical Name	Propane	Content %:1-50
WEL-TWA: 1000 ppm (ACGIH)	WEL-STEL: ---	---
Monitoring procedures:	- Compur - KITA-125 SA (549 954) - OSHA PV2077 (Propane) - 1990	
BMGV: ---	Other information: ---	

Chemical Name	Pentane	Content %:30-40
WEL-TWA: 1800 mg/m ³ (600 ppm) (WEL), 3000 mg/m ³ (1000 ppm) (EU)	WEL-STEL: ---	---
Monitoring procedures:	- Draeger - Pentane 100/a (67 24 701) - Compur - KITA-113 SB(C) (549 368) - DFG (D) (Lösungsmittelgemische Meth. Nr. 1), DFG (E) (Solvent mixtures 1) - 1998, 2002 - NIOSH 1500 (HYDROCARBONS, BP 36°-216 °C) - 2003 - NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996	
BMGV: ---	Other information: ---	

Chemical Name	Isobutane	Content %:1-<10
WEL-TWA: 1000 ppm (EX) (ACGIH)	WEL-STEL: ---	---
Monitoring procedures:	- Compur - KITA-113 SB(C) (549 368)	
BMGV: ---	Other information: ---	

Pentane						
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - water, sporadic (intermittent) release		PNEC	880	µg/l	
	Environment - freshwater		PNEC	230	µg/l	
	Environment - marine		PNEC	230	µg/l	
	Environment - sewage treatment plant		PNEC	3600	µg/l	

Page 6 of 15
 Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
 Revision date / version: 19.03.2020 / 0012
 Replacing version dated / version: 01.06.2017 / 0011
 Valid from: 19.03.2020
 PDF print date: 14.06.2021
 LM 301 A Contact-Oil

	Environment - sediment, freshwater		PNEC	1,2	mg/kg dw	
	Environment - sediment, marine		PNEC	1,2	mg/kg dw	
	Environment - soil		PNEC	0,55	mg/kg dw	
Consumer	Human - oral	Long term, systemic effects	DNEL	214	mg/kg bw/d	
Consumer	Human - dermal	Long term, systemic effects	DNEL	214	mg/kg bw/d	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	643	mg/m3	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	3000	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	432	mg/kg bw/d	

WEL-TWA = Workplace Exposure Limit - Long-term exposure limit (8-hour TWA (= time weighted average) reference period) EH40. AGW = "Arbeitsplatzgrenzwert" (workplace limit value, Germany).
 (8) = Inhalable fraction (Directive 2017/164/EU, Directive 2004/37/CE). (9) = Respirable fraction (Directive 2017/164/EU, Directive 2004/37/CE). (11) = Inhalable fraction (Directive 2004/37/CE). (12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (Directive 2004/37/CE). | WEL-STEL = Workplace Exposure Limit - Short-term exposure limit (15-minute reference period).
 (8) = Inhalable fraction (2017/164/EU, 2017/2398/EU). (9) = Respirable fraction (2017/164/EU, 2017/2398/EU). (10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU). | BMGV = Biological monitoring guidance value EH40. BGW = "Biologischer Grenzwert" (biological limit value, Germany) | Other information: Sen = Capable of causing occupational asthma. Sk = Can be absorbed through skin. Carc = Capable of causing cancer and/or heritable genetic damage.
 ** = The exposure limit for this substance is repealed through the TRGS 900 (Germany) of January 2006 with the goal of revision.
 (13) = The substance can cause sensitisation of the skin and of the respiratory tract (Directive 2004/37/CE), (14) = The substance can cause sensitisation of the skin (Directive 2004/37/CE).

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Ensure good ventilation. This can be achieved by local suction or general air extraction.
 If this is insufficient to maintain the concentration under the WEL or AGW values, suitable breathing protection should be worn.
 Applies only if maximum permissible exposure values are listed here.
 Suitable assessment methods for reviewing the effectiveness of protection measures adopted include metrological and non-metrological investigative techniques.
 These are specified by e.g. EN 14042.
 EN 14042 "Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents".

8.2.2 Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable.
 Wash hands before breaks and at end of work.
 Keep away from food, drink and animal feedingstuffs.
 Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection:
 Tight fitting protective goggles (EN 166) with side protection, with danger of splashes.

Skin protection - Hand protection:
 Solvent resistant protective gloves (EN 374).
 If applicable
 Protective Neoprene® / polychloroprene gloves (EN 374).
 Protective PVC gloves (EN 374).
 Minimum layer thickness in mm:

>= 0,5
 Permeation time (penetration time) in minutes:
 >= 480

The breakthrough times determined in accordance with EN 16523-1 were not obtained under practical conditions.
 The recommended maximum wearing time is 50% of breakthrough time.
 Protective hand cream recommended.

Page 7 of 15
 Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
 Revision date / version: 19.03.2020 / 0012
 Replacing version dated / version: 01.06.2017 / 0011
 Valid from: 19.03.2020
 PDF print date: 14.06.2021
 LM 301 A Contact-Oil

Skin protection - Other:
 Protective working garments (e.g. safety shoes EN ISO 20345, long-sleeved protective working garments).

Respiratory protection:
 Normally not necessary.
 At high concentrations:
 Filter A P3 (EN 14387), code colour brown, white

Thermal hazards:
 If applicable, these are included in the individual protective measures (eye/face protection, skin protection, respiratory protection).

Additional information on hand protection - No tests have been performed.
 In the case of mixtures, the selection has been made according to the knowledge available and the information about the contents.
 Selection of materials derived from glove manufacturer's indications.
 Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account.
 Selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to manufacturer.
 In the case of mixtures, the resistance of glove materials cannot be predicted and must therefore be tested before use.
 The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

8.2.3 Environmental exposure controls

No information available at present.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state:	Aerosol. Active substance: liquid.
Colour:	Yellow
Odour:	Characteristic
Odour threshold:	Not determined
pH-value:	n.a.
Melting point/freezing point:	Not determined
Initial boiling point and boiling range:	Not determined
Flash point:	n.a.
Evaporation rate:	Not determined
Flammability (solid, gas):	Not determined
Lower explosive limit:	Not determined
Upper explosive limit:	Not determined
Vapour pressure:	Not determined
Vapour density (air = 1):	Not determined
Density:	0,65 g/ml
Bulk density:	Not determined
Solubility(ies):	Not determined
Water solubility:	Not determined
Partition coefficient (n-octanol/water):	Not determined
Auto-ignition temperature:	Not determined
Decomposition temperature:	Not determined
Viscosity:	n.a.
Explosive properties:	Not determined
Oxidising properties:	No

9.2 Other information

Miscibility:	Not determined
Fat solubility / solvent:	Not determined
Conductivity:	Not determined
Surface tension:	Not determined
Solvents content:	Not determined

SECTION 10: Stability and reactivity

10.1 Reactivity

See also Subsection 10.2 to 10.6.
 The product has not been tested.

Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
 Revision date / version: 19.03.2020 / 0012
 Replacing version dated / version: 01.06.2017 / 0011
 Valid from: 19.03.2020
 PDF print date: 14.06.2021
 LM 301 A Contact-Oil

10.2 Chemical stability

See also Subsection 10.1 to 10.6.
 Stable with proper storage and handling.

10.3 Possibility of hazardous reactions

See also Subsection 10.1 to 10.6.

10.4 Conditions to avoid

See also section 7.
 Heating, open flame, ignition sources
 Pressure increase will result in danger of bursting.

10.5 Incompatible materials

See also section 7.
 Avoid contact with oxidizing agents.

10.6 Hazardous decomposition products

See also Subsection 10.1 to 10.5.
 See also section 5.2

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Possibly more information on health effects, see Section 2.1 (classification).

LM 301 A Contact-Oil						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:						n.d.a.
Acute toxicity, by dermal route:						n.d.a.
Acute toxicity, by inhalation:						n.d.a.
Skin corrosion/irritation:						n.d.a.
Serious eye damage/irritation:						n.d.a.
Respiratory or skin sensitisation:						n.d.a.
Germ cell mutagenicity:						n.d.a.
Carcinogenicity:						n.d.a.
Reproductive toxicity:						n.d.a.
Specific target organ toxicity - single exposure (STOT-SE):						n.d.a.
Specific target organ toxicity - repeated exposure (STOT-RE):						n.d.a.
Aspiration hazard:						n.d.a.
Symptoms:						n.d.a.
Other information:						Classification according to calculation procedure.

Butane						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by inhalation:	LC50	658	mg/l/4h	Rat		
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Germ cell mutagenicity:					OECD 473 (In Vitro Mammalian Chromosome Aberration Test)	Negative
Germ cell mutagenicity:				Human being	OECD 473 (In Vitro Mammalian Chromosome Aberration Test)	Negative
Germ cell mutagenicity:				Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative
Aspiration hazard:						No

Page 9 of 15
 Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
 Revision date / version: 19.03.2020 / 0012
 Replacing version dated / version: 01.06.2017 / 0011
 Valid from: 19.03.2020
 PDF print date: 14.06.2021
 LM 301 A Contact-Oil

Symptoms:						ataxia, breathing difficulties, drowsiness, unconsciousness, frostbite, disturbed heart rhythm, headaches, cramps, intoxication, dizziness, nausea and vomiting.
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.:	NOAEL	21,394	mg/l	Rat	OECD 422 (Combined Repeated Dose Tox. Study with the Reproduction/Developm. Tox. Screening Test)	

Propane

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by inhalation:	LC50	658	mg/l/4h	Rat		
Acute toxicity, by inhalation:	LC50	260000	ppmV/4h	Rat		Gasses, Male, Analogous conclusion
Skin corrosion/irritation:						Not irritant
Serious eye damage/irritation:						Not irritant
Germ cell mutagenicity:					OECD 473 (In Vitro Mammalian Chromosome Aberration Test)	Negative
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Reproductive toxicity (Developmental toxicity):	NOAEC	21,641	mg/l		OECD 422 (Combined Repeated Dose Tox. Study with the Reproduction/Developm. Tox. Screening Test)	
Aspiration hazard:						No
Symptoms:						breathing difficulties, unconsciousness, frostbite, headaches, cramps, mucous membrane irritation, dizziness, nausea and vomiting.
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.:	NOAEL	7,214	mg/l	Rat	OECD 422 (Combined Repeated Dose Tox. Study with the Reproduction/Developm. Tox. Screening Test)	
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.:	LOAEL	21,641	mg/l	Rat	OECD 422 (Combined Repeated Dose Tox. Study with the Reproduction/Developm. Tox. Screening Test)	

Pentane

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>16000	mg/kg	Rat		

Page 11 of 15
 Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
 Revision date / version: 19.03.2020 / 0012
 Replacing version dated / version: 01.06.2017 / 0011
 Valid from: 19.03.2020
 PDF print date: 14.06.2021
 LM 301 A Contact-Oil

Other information:							According to the recipe, contains no AOX.
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Butane							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	24,11	mg/l		QSAR	
12.1. Toxicity to daphnia:	LC50	48h	14,22	mg/l		QSAR	
12.3. Bioaccumulative potential:	Log Pow		2,98				A notable biological accumulation potential is not to be expected (LogPow 1-3).
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance

Propane							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.3. Bioaccumulative potential:	Log Pow		2,28				A notable biological accumulation potential is not to be expected (LogPow 1-3).
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance

Pentane							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
12.1. Toxicity to fish:	LC50	96h	9,87	mg/l	Salmo gairdneri		
12.1. Toxicity to fish:	LC50	96h	9,87	mg/l	Oncorhynchus mykiss		
12.1. Toxicity to fish:	LC50	96h	9,99	mg/l	Lepomis macrochirus		
12.1. Toxicity to daphnia:	EC50	48h	9,74	mg/l	Daphnia magna		
12.2. Persistence and degradability:		8d	70	%			
12.3. Bioaccumulative potential:	Log Pow		3,39				calculated value

Isobutane							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.3. Bioaccumulative potential:							A notable biological accumulation potential is not to be expected (LogPow 1-3).
12.1. Toxicity to fish:	LC50	96h	27,98	mg/l			
12.1. Toxicity to algae:	EC50	96h	7,71	mg/l			
12.2. Persistence and degradability:							Readily biodegradable
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance

SECTION 13: Disposal considerations

Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
 Revision date / version: 19.03.2020 / 0012
 Replacing version dated / version: 01.06.2017 / 0011
 Valid from: 19.03.2020
 PDF print date: 14.06.2021
 LM 301 A Contact-Oil

13.1 Waste treatment methods

For the substance / mixture / residual amounts

EC disposal code no.:

The waste codes are recommendations based on the scheduled use of this product.

Owing to the user's specific conditions for use and disposal, other waste codes may be allocated under certain circumstances. (2014/955/EU)

16 05 04 gases in pressure containers (including halons) containing hazardous substances

Recommendation:

Sewage disposal shall be discouraged.

Pay attention to local and national official regulations.

Implement substance recycling.

E.g. suitable incineration plant.

For contaminated packing material

Pay attention to local and national official regulations.

If applicable

Return to manufacturer with residual pressure.

Do not perforate, cut up or weld uncleaned container.

Residues may present a risk of explosion.

SECTION 14: Transport information

General statements

14.1. UN number: 1950

Transport by road/by rail (ADR/RID)

14.2. UN proper shipping name:

UN 1950 AEROSOLS

14.3. Transport hazard class(es): 2.1

14.4. Packing group: -

Classification code:

5F

LQ: 1 L

14.5. Environmental hazards: environmentally hazardous

Tunnel restriction code: D



Transport by sea (IMDG-code)

14.2. UN proper shipping name:

AEROSOLS (PENTANES)

14.3. Transport hazard class(es): 2.1

14.4. Packing group: -

EmS: F-D, S-U

Marine Pollutant: Yes

14.5. Environmental hazards: environmentally hazardous



Transport by air (IATA)

14.2. UN proper shipping name:

Aerosols, flammable

14.3. Transport hazard class(es): 2.1

14.4. Packing group: -

14.5. Environmental hazards: Not applicable



14.6. Special precautions for user

Persons employed in transporting dangerous goods must be trained.

All persons involved in transporting must observe safety regulations.

Precautions must be taken to prevent damage.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Freighted as packaged goods rather than in bulk, therefore not applicable.

Minimum amount regulations have not been taken into account.

Danger code and packing code on request.

Comply with special provisions.

SECTION 15: Regulatory information

Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
 Revision date / version: 19.03.2020 / 0012
 Replacing version dated / version: 01.06.2017 / 0011
 Valid from: 19.03.2020
 PDF print date: 14.06.2021
 LM 301 A Contact-Oil

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

Observe restrictions:

Comply with national regulations/laws governing the protection of young people at work (national implementation of the Directive 94/33/EC)!
 Comply with trade association/occupational health regulations.

Directive 2012/18/EU ("Seveso III"), Annex I, Part 1 - The following categories apply to this product (others may also need to be considered according to storage, handling etc.):

Hazard categories	Notes to Annex I	Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of - Lower-tier requirements	Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of - Upper-tier requirements
E2		200	500
P3a	11.1	150 (netto)	500 (netto)

The Notes to Annex 1 of Directive 2012/18/EU, in particular those named in the tables here and notes 1-6, must be taken into account when assigning categories and qualifying quantities.

Directive 2012/18/EU ("Seveso III"), Annex I, Part 2 - This product contains the substances listed below:

Entry Nr	Dangerous substances	Notes to Annex I	Qualifying quantity (tonnes) for the application of - Lower-tier requirements	Qualifying quantity (tonnes) for the application of - Upper-tier requirements
18	Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas	19	50	200

The Notes to Annex 1 of Directive 2012/18/EU, in particular those named in the tables here and notes 1-6, must be taken into account when assigning categories and qualifying quantities.

Directive 2010/75/EU (VOC):

~ 85 %

15.2 Chemical safety assessment

A chemical safety assessment is not provided for mixtures.

SECTION 16: Other information

Revised sections:

2

Employee training in handling dangerous goods is required.
 These details refer to the product as it is delivered.
 Employee instruction/training in handling hazardous materials is required.

Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EG) 1272/2008 (CLP):

Classification in accordance with regulation (EC) No. 1272/2008 (CLP)	Evaluation method used
STOT SE 3, H336	Classification according to calculation procedure.
Aquatic Chronic 2, H411	Classification according to calculation procedure.
Aerosol 1, H222	Classification according to calculation procedure.
Asp. Tox. 1, H304	Classification according to calculation procedure.
Aerosol 1, H229	Classification based on the form or physical state.

The following phrases represent the posted Hazard Class and Risk Category Code (GHS/CLP) of the product and the constituents (specified in Section 2 and 3).

H225 Highly flammable liquid and vapour.
 H304 May be fatal if swallowed and enters airways.
 H336 May cause drowsiness or dizziness.

Page 14 of 15
 Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
 Revision date / version: 19.03.2020 / 0012
 Replacing version dated / version: 01.06.2017 / 0011
 Valid from: 19.03.2020
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 LM 301 A Contact-Oil

H411 Toxic to aquatic life with long lasting effects.
 H220 Extremely flammable gas.

STOT SE — Specific target organ toxicity - single exposure - narcotic effects
 Aquatic Chronic — Hazardous to the aquatic environment - chronic
 Aerosol — Aerosols
 Asp. Tox. — Aspiration hazard
 Flam. Gas — Flammable gases - Flammable gas
 Flam. Liq. — Flammable liquid

Any abbreviations and acronyms used in this document:

acc., acc. to according, according to
 ADR Accord européen relatif au transport international des marchandises Dangereuses par Route (= European Agreement concerning the International Carriage of Dangerous Goods by Road)
 AOX Adsorbable organic halogen compounds
 approx. approximately
 Art., Art. no. Article number
 ASTM ASTM International (American Society for Testing and Materials)
 ATE Acute Toxicity Estimate
 BAM Bundesanstalt für Materialforschung und -prüfung (Federal Institute for Materials Research and Testing, Germany)
 BAuA Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (= Federal Institute for Occupational Health and Safety, Germany)
 BSEF The International Bromine Council
 bw body weight
 CAS Chemical Abstracts Service
 CLP Classification, Labelling and Packaging (REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures)
 CMR carcinogenic, mutagenic, reproductive toxic
 DMEL Derived Minimum Effect Level
 DNEL Derived No Effect Level
 dw dry weight
 e.g. for example (abbreviation of Latin 'exempli gratia'), for instance
 EC European Community
 ECHA European Chemicals Agency
 EEC European Economic Community
 EINECS European Inventory of Existing Commercial Chemical Substances
 ELINCS European List of Notified Chemical Substances
 EN European Norms
 EPA United States Environmental Protection Agency (United States of America)
 etc. et cetera
 EU European Union
 EVAL Ethylene-vinyl alcohol copolymer
 Fax. Fax number
 gen. general
 GHS Globally Harmonized System of Classification and Labelling of Chemicals
 GWP Global warming potential
 IARC International Agency for Research on Cancer
 IATA International Air Transport Association
 IBC (Code) International Bulk Chemical (Code)
 IMDG-code International Maritime Code for Dangerous Goods
 incl. including, inclusive
 IUCLID International Uniform Chemical Information Database
 IUPAC International Union for Pure Applied Chemistry
 LC50 Lethal Concentration to 50 % of a test population
 LD50 Lethal Dose to 50% of a test population (Median Lethal Dose)
 LQ Limited Quantities
 MARPOL International Convention for the Prevention of Marine Pollution from Ships
 n.a. not applicable
 n.av. not available
 n.c. not checked
 n.d.a. no data available
 OECD Organisation for Economic Co-operation and Development
 org. organic

Page 15 of 15

Safety data sheet according to Regulation (EC) No 1907/2006, Annex II

Revision date / version: 19.03.2020 / 0012

Replacing version dated / version: 01.06.2017 / 0011

Valid from: 19.03.2020

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LM 301 A Contact-Oil

PBT persistent, bioaccumulative and toxic

PE Polyethylene

PNEC Predicted No Effect Concentration

ppm parts per million

PVC Polyvinylchloride

REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (REGULATION (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals)

REACH-IT List-No. 9xx-xxx-x No. is automatically assigned, e.g. to pre-registrations without a CAS No. or other numerical identifier. List Numbers do not have any legal significance, rather they are purely technical identifiers for processing a submission via REACH-IT.

RID Règlement concernant le transport International ferroviaire de marchandises Dangereuses (= Regulation concerning the International Carriage of Dangerous Goods by Rail)

SVHC Substances of Very High Concern

Tel. Telephone

UN RTDG United Nations Recommendations on the Transport of Dangerous Goods

VOC Volatile organic compounds

vPvB very persistent and very bioaccumulative

wwt wet weight

The statements made here should describe the product with regard to the necessary safety precautions - they are not meant to guarantee definite characteristics - but they are based on our present up-to-date knowledge.

No responsibility.

These statements were made by:

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