

Safety data sheet

according to 1907/2006/EC, Article 31.

Printing date: 30.06.2023

Version: 5 (replaces version 4)

Revision: 30.06.2023

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

- **Product identifier**
- **Trade name:** Muc – Off Off-Road All-Weather Chain Lube
- **Article number:** 20452
- **UFI:** CF12-W0S4-Q007-7RRR
- **Relevant identified uses of the substance or mixture and uses advised against -**
- **Application of the substance / the mixture** Lubricant
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:** Muc-Off Ltd
UK - Muc-Off Ltd, Unit 23 Branksome Business Park, Bourne Valley Road, Poole, Dorset, BH12 1DW
EU- Muc-Off Ltd, Unit 3D North Point House, North Point Business Park, New Mallow Road, Cork, Ireland, T23 AT2P. Tel: +44(0)1202 307790
- **Email:** info@muc-off.com
- **Further information obtainable from:** Research & Development: Email: info@muc-off.com
- **Emergency telephone number:** NHS 111/NHS 24/NHS Direct 111 / 0845 4647 or call a doctor

SECTION 2: Hazards identification

- **Classification of the substance or mixture**



Aerosol 1 H222-H229 Extremely flammable aerosol. Pressurised container: May burst if heated.



Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



STOT SE 3 H336 May cause drowsiness or dizziness.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.

- **Label elements**

- **GHS label elements**

The product is classified and labelled according to the Globally Harmonised System (GHS).

- **Hazard pictograms**



GHS02 GHS07 GHS09

- **Signal word** Danger

- **Hazard-determining components of labelling:**

Pentane

- **Hazard statements**

H222-H229 Extremely flammable aerosol. Pressurised container: May burst if heated.

H336 May cause drowsiness or dizziness.

H411 Toxic to aquatic life with long lasting effects.

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· Precautionary statements

- 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.
- P260 Do not breathe mist/vapours/spray.
- P271 Use only outdoors or in a well-ventilated area.
- P273 Avoid release to the environment.
- P280 Wear protective gloves / eye protection.
- P304+P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 Call a POISON CENTER/doctor if you feel unwell.
- P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Additional information:

EUH066 Repeated exposure may cause skin dryness or cracking.

· Other hazards**· Results of PBT and vPvB assessment****· PBT:** Not applicable.**· vPvB:** Not applicable.**SECTION 3: Composition/information on ingredients****· Mixtures****· Description:** Active substance with propellant**· Dangerous components:**

CAS: 109-66-0 EINECS: 203-692-4 Reg.nr.: 01-2119459286-30	Pentane Flam. Liq. 2, H225; Asp. Tox. 1, H304; Aquatic Chronic 2, H411; STOT SE 3, H336, EUH066	25-<50%
CAS: 106-97-8 EINECS: 203-448-7 Reg.nr.: 01-2119474691-32	butane (containing < 0.1% butadiene (203-450-8), Note K) Flam. Gas 1A, H220; Press. Gas (Comp.), H280	10-<25%
CAS: 74-98-6 EINECS: 200-827-9 Reg.nr.: 01-2119486944-21	propane Flam. Gas 1A, H220; Press. Gas (Comp.), H280	10-<25%
CAS: 75-28-5 EINECS: 200-857-2 Reg.nr.: 01-2119485395-27	isobutane (containing < 0,1 % butadiene (203-450-8), Note K) Flam. Gas 1A, H220; Press. Gas (Comp.), H280	1-<2.5%
CAS: 84418-50-8 EINECS: 282-762-6 Reg.nr.: 01-2119988500-34	Naphthenic acids, zinc salts, basic Skin Sens. 1, H317; Aquatic Chronic 3, H412	0.1-<1%

· Additional information:

Aerosols and containers fitted with a solid atomizer containing substances or mixtures classified as hazardous by aspiration shall not be labelled for that hazard.

The text of the hazard statements mentioned here can be found in chapter 16.

SECTION 4: First aid measures**· Description of first aid measures****· After inhalation:** Supply fresh air; consult doctor in case of complaints.**· After skin contact:** Generally the product does not irritate the skin.**· After eye contact:** Rinse opened eye for several minutes under running water.**· After swallowing:** Do not induce vomiting; call for medical help immediately.**· Most important symptoms and effects, both acute and delayed** No further relevant information available.

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- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
Water haze
Fire-extinguishing powder
Carbon dioxide
Alcohol resistant foam
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Mount respiratory protective device.

SECTION 6: Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **Information about fire - and explosion protection:**
Do not spray onto a naked flame or any incandescent material.
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Pressurised container: protect from sunlight and do not expose to temperatures exceeding 50°C, i.e. electric lights. Do not pierce or burn, even after use.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Observe official regulations on storing packagings with pressurised containers.
- **Information about storage in one common storage facility:**
Observe official regulations on storing packagings with pressurised containers.
- **Further information about storage conditions:**
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

· Control parameters

· Ingredients with limit values that require monitoring at the workplace:

109-66-0 Pentane

WEL Long-term value: 1800 mg/m³, 600 ppm

106-97-8 butane (containing < 0.1% butadiene (203-450-8), Note K)

WEL Short-term value: 1810 mg/m³, 750 ppm
 Long-term value: 1450 mg/m³, 600 ppm
 Carc (if more than 0.1% of buta-1.3-diene)

74-98-6 propane

OEL Long-term value: 1800 mg/m³, 1000 ppm
 Additioneel ingevuld tbv klant voor Hfdst3 SDS

75-28-5 isobutane (containing < 0,1 % butadiene (203-450-8), Note K)

OEL Long-term value: 2400 mg/m³, 1000 ppm
 Additioneel ingevuld obv klant voor Hfdst 3 SDS

· DNELs

109-66-0 Pentane

Oral	DNEL Long term-systemic	214 mg/kg bw/day (Consumer)
Dermal	DNEL Long term-systemic	214 mg/kg bw/day (Consumer)
		432 mg/kg bw/day (Worker)
Inhalative	DNEL Long term-systemic	643 mg/m ³ (Consumer)
		3000 mg/m ³ (Worker)

· **Additional information:** The lists valid during the making were used as basis.

· Exposure controls

· **Appropriate engineering controls** No further data; see section 7.

· **Individual protection measures, such as personal protective equipment**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.
 Wash hands before breaks and at the end of work.
 General ventilation

· **Respiratory protection:**

Use suitable respiratory protective device in case of insufficient ventilation.
 Filter A2/P2

· **Hand protection**



Protective gloves

Solvent resistant gloves

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Nitrile rubber, NBR

Recommended thickness of the material: ≥ 0.5 mm

· **Penetration time of glove material**

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

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- **Eye/face protection**

Safety glasses



Tightly sealed goggles

- **Body protection:**

Use protective suit. (EN-13034/6)

Full skin covering antistatic, chemical and oil resistant clothing and safety shoes are recommended. (EN1149; EN340&EN ISO 13688; EN13034-6).

- **Environmental exposure controls** Use a suitable container to prevent environmental contamination.

SECTION 9: Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

· Physical state	Aerosol
· Colour:	Light brown
· Odour:	Sweetish
· Odour threshold:	Not determined.
· Melting point/freezing point:	Undetermined.
· Boiling point or initial boiling point and boiling range	-44.5 °C
· Flammability	Not applicable.
· Lower and upper explosion limit	
· Lower:	1.4 Vol %
· Upper:	10.9 Vol %
· Flash point:	-97 °C
· Ignition Temperature	285 °C
· pH	Mixture is non-polar/aprotic.
· Viscosity:	
· Kinematic viscosity	Not determined.
· Dynamic:	Not determined
· Solubility	
· water:	Not miscible or difficult to mix.
· Partition coefficient n-octanol/water (log value)	Not determined.
· Vapour pressure at 20 °C:	8300 hPa
· Density and/or relative density	
· Density at 20 °C:	0.649 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.

- **Other information**

- **Appearance:**

- **Form:** Aerosol

- **Important information on protection of health and environment, and on safety.**

- **Ignition temperature:** Product is not selfigniting.
- **Explosive properties:** Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

- **Solvent content:**

- **Organic solvents:** 73.8 %

- **Solids content:** 0.4 %

- **Change in condition**

- **Evaporation rate** Not applicable.

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· Information with regard to physical hazard classes

· Explosives	Void
· Flammable gases	Void
· Aerosols	Extremely flammable aerosol. Pressurised container: May burst if heated.
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	Void
· Flammable solids	Void
· Self-reactive substances and mixtures	Void
· Pyrophoric liquids	Void
· Pyrophoric solids	Void
· Self-heating substances and mixtures	Void
· Substances and mixtures, which emit flammable gases in contact with water	Void
· Oxidising liquids	Void
· Oxidising solids	Void
· Organic peroxides	Void
· Corrosive to metals	Void
· Desensitised explosives	Void

SECTION 10: Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

· LD/LC50 values relevant for classification:
109-66-0 Pentane

Oral	LD50	>5000 mg/kg (Rat)
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- **STOT-single exposure** May cause drowsiness or dizziness.
- **Aspiration hazard** May be fatal if swallowed and enters airways.
- **Information on other hazards**

· Endocrine disrupting properties

None of the ingredients is listed.

SECTION 12: Ecological information
· Toxicity
· Aquatic toxicity:
109-66-0 Pentane

NOEC (72h)	7.51 mg/l (Pseudokirchneriella subcapitata)
EC50 (72h)	10.7 mg/l (Pseudokirchneriella subcapitata)

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LC50 (96h)	4.26 mg/l (Oncorhynchus mykiss)
EC50 (48h)	2.7 mg/l (Daphnia magna)

- **Persistence and degradability** Not easily biodegradable
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
- **Other adverse effects**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms

SECTION 13: Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

- **UN number or ID number**
- **ADR, ADN, IMDG, IATA** UN1950
- **UN proper shipping name**
- **ADR, ADN** UN1950 AEROSOLS, ENVIRONMENTALLY HAZARDOUS
- **IMDG** AEROSOLS, MARINE POLLUTANT
- **IATA** AEROSOLS, flammable
- **Transport hazard class(es)**
- **ADR**
- 

- **Class** 2 5F Gases.
- **Label** 2.1
- **ADN**
- **ADN/R Class:** 2 5F

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· **IMDG**

· **Class** 2.1 Gases.
 · **Label** 2.1

· **IATA**

· **Class** 2.1 Gases.
 · **Label** 2.1

· **Packing group**

· **ADR, IMDG, IATA** Void

· **Environmental hazards:** Product contains environmentally hazardous substances:
 Pentane
 · **Marine pollutant:** Symbol (fish and tree)
 · **Special marking (ADR):** Symbol (fish and tree)

· **Special precautions for user** Warning: Gases.
 · **Hazard identification number (Kemler code):** -
 · **EMS Number:** F-D,S-U
 · **Stowage Code** SW1 Protected from sources of heat.
 SW22 For AEROSOLS with a maximum capacity of 1 litre:
 Category A. For AEROSOLS with a capacity above 1 litre:
 Category B. For WASTE AEROSOLS: Category C, Clear
 of living quarters.
 · **Segregation Code** SG69 For AEROSOLS with a maximum capacity of 1 litre:
 Segregation as for class 9. Stow "separated from" class 1
 except for division 1.4.
 For AEROSOLS with a capacity above 1 litre:
 Segregation as for the appropriate subdivision of class 2.
 For WASTE AEROSOLS:
 Segregation as for the appropriate subdivision of class 2.

· **Maritime transport in bulk according to IMO instruments** Not applicable.

· **Transport/Additional information:**

· **ADR**
 · **Limited quantities (LQ)** 1L
 · **Excepted quantities (EQ)** Code: E0
 Not permitted as Excepted Quantity
 · **Transport category** 2
 · **Tunnel restriction code** D

· **IMDG**
 · **Limited quantities (LQ)** 1L
 · **Excepted quantities (EQ)** Code: E0
 Not permitted as Excepted Quantity

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· **UN "Model Regulation":** UN 1950 AEROSOLS, 2.1, ENVIRONMENTALLY HAZARDOUS

SECTION 15: Regulatory information

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

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **Seveso category**

P3a FLAMMABLE AEROSOLS

E2 Hazardous to the Aquatic Environment

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 150 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 t

· **National regulations:**

· **Breakdown regulations:**

Class	Share in %
NK	50-<75

· **VOC-CH** 73.79 %

· **VOC-EU** 479.0 g/l

· **Danish MAL Code** 2-1

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

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.

H317 May cause an allergic skin reaction.

H336 May cause drowsiness or dizziness.

H411 Toxic to aquatic life with long lasting effects.

H412 Harmful to aquatic life with long lasting effects.

EUH066 Repeated exposure may cause skin dryness or cracking.

· **Classification according to Regulation (EC) No 1272/2008**

Physical and chemical properties: The classification is based on the results of the mixtures tested. Health hazards, Environmental hazards: The method of classification of mixtures based on the constituents of the mixture (sum formula).

· **Contact:** Email: info@muc-off.com

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

MAL-Code: Måleteknisk Arbejdshygiejnisk Luftbehov (Regulation for the labeling concerning inhalation hazards, Denmark)

DNEL: Derived No-Effect Level (UK REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Gas 1A: Flammable gases – Category 1A

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Aerosol 1: Aerosols – Category 1

Press. Gas (Comp.): Gases under pressure – Compressed gas

Flam. Liq. 2: Flammable liquids – Category 2

Skin Sens. 1: Skin sensitisation – Category 1

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

Asp. Tox. 1: Aspiration hazard – Category 1

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

· *** Data compared to the previous version altered. ***

GB

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

- **Product identifier**
- **Trade name:** Muc-Off Motorcycle Chain Cleaner
- **Article number:** 650
- **UFI :** EYV1-K0VG-S00H-U0FD
- **Relevant identified uses of the substance or mixture and uses advised against -**
- **Application of the substance / the mixture** Cleaner solvent
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Muc-Off Ltd
UK - Muc-Off Ltd, Unit 23 Branksome Business Park, Bourne Valley Road, Poole, Dorset, BH12 1DW
- EU- Muc-Off Ltd, Unit 3D North Point House, North Point Business Park, New Mallow Road, Cork, Ireland, T23 AT2P Tel: +44(0)1202 307790 Email: info@muc-off.com
- **Further information obtainable from:** Research & Development: info@muc-off.com
- **Emergency telephone number:** NHS 111/NHS 24/NHS Direct 111 / 0845 4647 or call a doctor

SECTION 2: Hazards identification

- **Classification of the substance or mixture**



flame

Aerosol 1 H222-H229 Extremely flammable aerosol. Pressurised container: May burst if heated.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.

- **Label elements**

- **GHS label elements**

The product is classified and labelled according to the Globally Harmonised System (GHS).

- **Hazard pictograms**



GHS02

- **Signal word** Danger

- **Hazard-determining components of labelling:**

Hydrocarbons, C10-C13, n-alkanes, cyclic, <2% aromates, Benzene <0.1%

- **Hazard statements**

H222-H229 Extremely flammable aerosol. Pressurised container: May burst if heated.

- **Precautionary statements**

- 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.
- P260 Do not breathe mist/vapours/spray.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves / eye protection.
- P312 Call a POISON CENTER/doctor if you feel unwell.
- P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

- **Additional information:**

EUH066 Repeated exposure may cause skin dryness or cracking.

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Trade name: Muc-Off Motorcycle Chain Cleaner

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- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **Mixtures**
- **Description:** Cleansing agent

· **Dangerous components:**

EC number: 918-481-9 Reg.nr.: 01-2119457273-39	Hydrocarbons, C10-C13, n-alkanes, cyclic, <2% aromates, Benzene <0.1% Asp. Tox. 1, H304, EUH066	50-<75%
CAS: 106-97-8 EINECS: 203-448-7 Reg.nr.: 01-2119474691-32	butane (containing < 0.1% butadiene (203-450-8), Note K) Flam. Gas 1A, H220; Press. Gas (Comp.), H280	10-<25%
CAS: 74-98-6 EINECS: 200-827-9 Reg.nr.: 01-2119486944-21	propane Flam. Gas 1A, H220; Press. Gas (Comp.), H280	10-<25%
CAS: 75-28-5 EINECS: 200-857-2 Reg.nr.: 01-2119485395-27	isobutane (containing < 0,1 % butadiene (203-450-8), Note K) Flam. Gas 1A, H220; Press. Gas (Comp.), H280	1-<2.5%

· **Ingredients according to detergents guideline 648/2004/EC**

aliphatic hydrocarbons	≥15 - <30%
non-ionic surfactants	≥5 - <15%
perfumes	<5%

· **Additional information:**

Aerosols and containers fitted with a solid atomizer containing substances or mixtures classified as hazardous by aspiration shall not be labelled for that hazard.
The text of the hazard statements mentioned here can be found in chapter 16.

SECTION 4: First aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** Do not induce vomiting; call for medical help immediately.
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
Water haze
Fire-extinguishing powder
Carbon dioxide
Alcohol resistant foam
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.

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- **Advice for firefighters**
- **Protective equipment:** Mount respiratory protective device.

SECTION 6: Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **Information about fire - and explosion protection:**
Do not spray onto a naked flame or any incandescent material.
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Pressurised container: protect from sunlight and do not expose to temperatures exceeding 50°C, i.e. electric lights. Do not pierce or burn, even after use.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Observe official regulations on storing packagings with pressurised containers.
- **Information about storage in one common storage facility:**
Observe official regulations on storing packagings with pressurised containers.
- **Further information about storage conditions:**
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

Hydrocarbons, C10-C13, n-alkanes, cyclic, <2% aromates, Benzene <0.1%

 OEL Short-term value: 1200 mg/m³, 184 ppm

106-97-8 butane (containing < 0.1% butadiene (203-450-8), Note K)

 WEL Short-term value: 1810 mg/m³, 750 ppm
 Long-term value: 1450 mg/m³, 600 ppm
 Carc (if more than 0.1% of buta-1,3-diene)

74-98-6 propane

 OEL Long-term value: 1800 mg/m³, 1000 ppm
 Additioneel ingevuld tbv klant voor Hfdst3 SDS

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75-28-5 isobutane (containing < 0,1 % butadiene (203-450-8), Note K)

OEL Long-term value: 2400 mg/m³, 1000 ppm
 Additioneel ingevuld obv klant voor Hfdst 3 SDS

· **Additional information:** The lists valid during the making were used as basis.

· **Exposure controls**

· **Appropriate engineering controls** No further data; see section 7.

· **Individual protection measures, such as personal protective equipment**

· **General protective and hygienic measures:**

Wash hands before breaks and at the end of work.

Do not inhale gases / fumes / aerosols.

General ventilation

· **Respiratory protection:**

Use suitable respiratory protective device in case of insufficient ventilation.

Filter A2/P2

· **Hand protection**

Wear gloves for the protection against chemicals according to EN 374



Protective gloves

Solvent resistant gloves

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Nitrile rubber, NBR

Recommended thickness of the material: ≥ 0.5 mm

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye/face protection**

Safety glasses



Tightly sealed goggles

· **Body protection:**

Use protective suit. (EN-13034/6)

Full skin covering antistatic, chemical and oil resistant clothing and safety shoes are recommended. (EN1149; EN340&EN ISO 13688; EN13034-6).

· **Environmental exposure controls** Use a suitable container to prevent environmental contamination.

SECTION 9: Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Physical state**

Aerosol

· **Colour:**

According to product specification

· **Odour:**

Characteristic

· **Odour threshold:**

Not determined.

· **Melting point/freezing point:**

Undetermined.

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· Boiling point or initial boiling point and boiling range	-44.5 °C
· Flammability	Not applicable.
· Lower and upper explosion limit	
· Lower:	0.7 Vol %
· Upper:	10.9 Vol %
· Flash point:	-97 °C
· Ignition Temperature	236 °C
· pH	Mixture is non-polar/aprotic.
· Viscosity:	
· Kinematic viscosity	Not determined.
· Dynamic:	Not determined
· Solubility	
· water:	Not miscible or difficult to mix.
· Partition coefficient n-octanol/water (log value)	Not determined.
· Vapour pressure at 20 °C:	8300 hPa
· Density and/or relative density	
· Density at 20 °C:	0.702 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Other information	
· Appearance:	
· Form:	Aerosol
· Important information on protection of health and environment, and on safety.	
· Ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Solvent content:	
· Organic solvents:	94.8 %
· Solids content:	0.2 %
· Change in condition	
· Evaporation rate	Not applicable.
· Information with regard to physical hazard classes	
· Explosives	Void
· Flammable gases	Void
· Aerosols	Extremely flammable aerosol. Pressurised container: May burst if heated.
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	Void
· Flammable solids	Void
· Self-reactive substances and mixtures	Void
· Pyrophoric liquids	Void
· Pyrophoric solids	Void
· Self-heating substances and mixtures	Void
· Substances and mixtures, which emit flammable gases in contact with water	Void
· Oxidising liquids	Void
· Oxidising solids	Void
· Organic peroxides	Void
· Corrosive to metals	Void
· Desensitised explosives	Void

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SECTION 10: Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values relevant for classification:**

Hydrocarbons, C10-C13, n-alkanes, cyclic, <2% aromates, Benzene <0.1%

Oral	LD50	>5000 mg/kg (Rat)
Dermal	LD50	>2000 mg/kg (Rabbit)
Inhalative	LC50 (4h)	4951 mg/l (Rat)

- **Aspiration hazard** May be fatal if swallowed and enters airways.
- **Information on other hazards**

· **Endocrine disrupting properties**

None of the ingredients is listed.

SECTION 12: Ecological information

· **Toxicity**

· **Aquatic toxicity:**

Hydrocarbons, C10-C13, n-alkanes, cyclic, <2% aromates, Benzene <0.1%

EL0 (48h)	1000 mg/l (Daphnia magna)
EL0 (72h)	1000 mg/l (Pseudokirchneriella subcapitata)
LL0 (96h)	1000 mg/l (Oncorhynchus mykiss)

- **Persistence and degradability** Not easily biodegradable
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
- **Other adverse effects**
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

SECTION 13: Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

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- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

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SECTION 14: Transport information

· UN number or ID number	UN1950
· ADR, ADN, IMDG, IATA	
· UN proper shipping name	UN1950 AEROSOLS
· ADR, ADN	AEROSOLS
· IMDG	AEROSOLS, flammable
· IATA	
· Transport hazard class(es)	
· ADR	
	
· Class	2 5F Gases.
· Label	2.1
· ADN	
· ADN/R Class:	2 5F
· IMDG, IATA	
	
· Class	2.1 Gases.
· Label	2.1
· Packing group	
· ADR, IMDG, IATA	Void
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Warning: Gases.
· Hazard identification number (Kemler code):	-
· EMS Number:	F-D,S-U
· Stowage Code	SW1 Protected from sources of heat. SW22 For AEROSOLS with a maximum capacity of 1 litre: Category A. For AEROSOLS with a capacity above 1 litre: Category B. For WASTE AEROSOLS: Category C, Clear of living quarters.
· Segregation Code	SG69 For AEROSOLS with a maximum capacity of 1 litre: Segregation as for class 9. Stow "separated from" class 1 except for division 1.4. For AEROSOLS with a capacity above 1 litre: Segregation as for the appropriate subdivision of class 2. For WASTE AEROSOLS: Segregation as for the appropriate subdivision of class 2.
· Maritime transport in bulk according to IMO instruments	Not applicable.

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· Transport/Additional information:

· ADR

· Limited quantities (LQ)

1L

· Excepted quantities (EQ)

Code: E0

Not permitted as Excepted Quantity

· Transport category

2

· Tunnel restriction code

D

· IMDG

· Limited quantities (LQ)

1L

· Excepted quantities (EQ)

Code: E0

Not permitted as Excepted Quantity

· UN "Model Regulation":

UN 1950 AEROSOLS, 2.1

SECTION 15: Regulatory information

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

· Directive 2012/18/EU

· Named dangerous substances - ANNEX I None of the ingredients is listed.

· Seveso category P3a FLAMMABLE AEROSOLS

· Qualifying quantity (tonnes) for the application of lower-tier requirements 150 t

· Qualifying quantity (tonnes) for the application of upper-tier requirements 500 t

· National regulations:

· Breakdown regulations:

Class	Share in %
NK	75-<100

· VOC-CH 94.82 %

· VOC-EU 665.6 g/l

· Danish MAL Code 3-1

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

H304 May be fatal if swallowed and enters airways.

EUH066 Repeated exposure may cause skin dryness or cracking.

· Classification according to Regulation (EC) No 1272/2008

Physical and chemical properties: The classification is based on the results of the mixtures tested. Health hazards, Environmental hazards: The method of classification of mixtures based on the constituents of the mixture (sum formula).

· Department issuing SDS: Research & Development

· Contact: info@muc-off.com

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

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CAS: Chemical Abstracts Service (division of the American Chemical Society)

MAL-Code: Måleteknisk Arbejdshygiejnisk Luftbehov (Regulation for the labeling concerning inhalation hazards, Denmark)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Gas 1A: Flammable gases – Category 1A

Aerosol 1: Aerosols – Category 1

Press. Gas (Comp.): Gases under pressure – Compressed gas

Asp. Tox. 1: Aspiration hazard – Category 1

· *** Data compared to the previous version altered. ***

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