HHS 2000 LUBRICANT SPRAY 500ML

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5.3	04/18/2017	320549-00012	Date of first issue: 04/08/2011

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

1.1 Product identifier

Trade name	:	HHS 2000 LUBRICANT SPRAY 500ML
Product code	:	00893 106

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

Use of the Substance/Mixture	:	Lubricant

1.3 Details of the supplier of the safety data sheet

Company	:	Würth SA (Pty) Ltd G1 Isando Industrial Park Gewel Street, Isando Ext. 3 1600 Gauteng
Telephone	:	+27 11 281-1000
Telefax	:	+27 11 974-9711
E-mail address of person responsible for the SDS	:	prodsafe@wuerth.com

1.4 Emergency telephone number

Advisory office in case of poisoning: +27 11 922-1164. Telephone number of the company in case of emergencies: +27 11 281-1000 (08:00-16:30 h)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Aerosols, Category 1	H222: Extremely flammable aerosol. H229: Pressurised container: May burst if heated.
Skin irritation, Category 2	H315: Causes skin irritation.
Specific target organ toxicity - single exposure, Category 3	H336: May cause drowsiness or dizziness.
Chronic aquatic toxicity, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :
H222 Extremely flammable aerosol.
H229 Pressurised container: May burst if heated.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

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 spray.
P271 Use only outdoors or in a well-ventilated area.

Storage:

P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F.

Hazardous components which must be listed on the label:
Hydrocarbons, C6, isoalkanes, <5% n-hexane

2.3 Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Hydrocarbons, C6, isoalkanes, <5% n-hexane	Not Assigned 01-2119484651-34	Flam. Liq.2; H225 Skin Irrit.2; H315 STOT SE3; H336 Asp. Tox.1; H304 Aquatic Chronic2; H411	>= 30 - < 50
n-Pentane	109-66-0 203-692-4 601-006-00-1	Flam. Liq.2; H225 STOT SE3; H336 Asp. Tox.1; H304 Aquatic Chronic2;	>= 2,5 - < 10

		H411	
n-Hexane	110-54-3 203-777-6 601-037-00-0	Flam. Liq.2; H225 Skin Irrit.2; H315 Repr.2; H361fd STOT SE3; H336 STOT RE2; H373 Asp. Tox.1; H304 Aquatic Chronic2; H411	>= 1 - < 2,5

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.

Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.

If inhaled : If inhaled, remove to fresh air.
Get medical attention.

In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.

In case of eye contact : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists.

If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention.
Rinse mouth thoroughly with water.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Causes skin irritation.
May cause drowsiness or dizziness.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Flash back possible over considerable distance.
Vapours may form explosive mixtures with air.
Exposure to combustion products may be a hazard to health.
If the temperature rises there is danger of the vessels bursting due to the high vapor pressure.

Hazardous combustion products : Carbon oxides

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Remove all sources of ignition.
Use personal protective equipment.
Follow safe handling advice and personal protective equipment recommendations.

6.2 Environmental precautions

Environmental precautions : Discharge into the environment must be avoided.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g. by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages

cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Non-sparking tools should be used.
Soak up with inert absorbent material.
Suppress (knock down) gases/vapours/mists with a water spray jet.
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : Use with local exhaust ventilation.
Use only in an area equipped with explosion proof exhaust ventilation.

Advice on safe handling : Do not get on skin or clothing.
Do not breathe vapours or spray mist.
Do not swallow.
Avoid contact with eyes.
Handle in accordance with good industrial hygiene and safety practice.
Keep away from heat and sources of ignition.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment.

Do not spray on an open flame or other ignition source.

Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store locked up. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Do not pierce or burn, even after use. Keep cool. Protect from sunlight.

Advice on common storage : Keep away from food, drink and animal feedingstuffs.
Do not store together with oxidizing and self-igniting products.
To be observed: TRGS 510

Do not store with the following product types:
Self-reactive substances and mixtures
Organic peroxides
Oxidizing agents
Flammable solids
Pyrophoric liquids
Pyrophoric solids
Self-heating substances and mixtures
Substances and mixtures, which in contact with water, emit flammable gases
Explosives

Other data : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Hydrocarbons, C6, isoalkanes, <5% n-hexane	64742-49-0	TWA OEL-RL	500 ppm 1.800 mg/m3	ZA OEL
Further information	Recommended Limit			
		STEL OEL-RL	1.000 ppm 3.600 mg/m3	ZA OEL
Further information	Recommended Limit			
n-Pentane	109-66-0	TWA OEL-RL	600 ppm 1.800 mg/m3	ZA OEL
Further information	Recommended Limit			
		STEL OEL-RL	750 ppm 2.250 mg/m3	ZA OEL
Further information	Recommended Limit			
		TWA	1.000 ppm 3.000 mg/m3	2006/15/EC

Further information	Indicative			
Butane	106-97-8	TWA OEL-RL	600 ppm 1.430 mg/m3	ZA OEL
Further information	Recommended Limit			
		STEL OEL-RL	750 ppm 1.780 mg/m3	ZA OEL
Further information	Recommended Limit			
n-Hexane	110-54-3	TWA OEL-RL	20 ppm 70 mg/m3	ZA OEL
Further information	Recommended Limit			
		TWA	20 ppm 72 mg/m3	2006/15/EC
Further information	Indicative			

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
n-Hexane	110-54-3	2,5-Hexanedione: 5 mg/g Creatinine (Urine)	End of shift	ZA BEI
		n-Hexane: (end exhaled air)		ZA BEI

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Hydrocarbons, C6, isoalkanes, <5% n-hexane	Workers	Inhalation	Long-term systemic effects	5306 mg/m3
	Workers	Skin contact	Long-term systemic effects	13964 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	1131 mg/m3
	Consumers	Skin contact	Long-term systemic effects	1377 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	1301 mg/kg bw/day
n-Pentane	Workers	Inhalation	Long-term systemic effects	3000 mg/m3
	Workers	Skin contact	Long-term systemic effects	432 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	643 mg/m3
	Consumers	Skin contact	Long-term systemic effects	214 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	214 mg/kg bw/day
Benzene, mono-C10-13-alkyl derivs., distn. residues	Workers	Skin contact	Long-term systemic effects	96 mg/kg bw/day
n-Hexane	Workers	Skin contact	Long-term systemic	11 mg/kg

			effects	bw/day
	Workers	Inhalation	Long-term systemic effects	75 mg/m3
	Consumers	Skin contact	Long-term systemic effects	5,3 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	16 mg/m3
	Consumers	Ingestion	Long-term systemic effects	4 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Residual oils (petroleum), hydrotreated	Oral (Secondary Poisoning)	9,33 mg/kg food
n-Pentane	Fresh water	0,23 mg/l
	Marine water	0,23 mg/l
	Intermittent use/release	0,88 mg/l
	Sewage treatment plant	3,6 mg/l
	Fresh water sediment	1,2 mg/kg
	Marine sediment	1,2 mg/kg
	Soil	0,55 mg/kg
Benzene, mono-C10-13-alkyl derivs., distn. residues	Fresh water	0,000075 mg/l
	Marine water	0,000007 mg/l
	Intermittent use/release	0,001 mg/l
	Sewage treatment plant	2 mg/l
	Fresh water sediment	1761 mg/kg
	Marine sediment	1761 mg/kg

8.2 Exposure controls

Engineering measures

Minimize workplace exposure concentrations.
Use only in an area equipped with explosion proof exhaust ventilation.
Use with local exhaust ventilation.

Personal protective equipment

Eye protection : Wear the following personal protective equipment:
Safety glasses

Hand protection
Material : Nitrile rubber
Break through time : 480 min
Glove thickness : 0,45 mm

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Skin and body protection	:	Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential. Wear the following personal protective equipment: Flame retardant antistatic protective clothing. Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).
Respiratory protection	:	Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.
Filter type	:	Self-contained breathing apparatus

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	Aerosol containing a liquefied gas
Propellant	:	Isobutane, Propane, Butane
Colour	:	brown
Odour	:	solvent-like
Odour Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	Not applicable
Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Extremely flammable aerosol.
Upper explosion limit / Upper flammability limit	:	11,0 %(V)
Lower explosion limit / Lower flammability limit	:	1,0 %(V)
Vapour pressure	:	Not applicable
Relative vapour density	:	Not applicable

Density	:	0,742 g/cm3 (20 °C)
Solubility(ies)		
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	200 °C
Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

9.2 Other information

Particle size	:	Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

Not classified as a reactivity hazard.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Extremely flammable aerosol. Vapours may form explosive mixture with air. If the temperature rises there is danger of the vessels bursting due to the high vapor pressure. Can react with strong oxidizing agents.

10.4 Conditions to avoid

Conditions to avoid	:	Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid	:	Oxidizing agents

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Components:

Hydrocarbons, C6, isoalkanes, <5% n-hexane:

Acute oral toxicity : LD50 (Rat): 16.750 mg/kg
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): 259,354 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 3.350 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from similar materials

n-Pentane:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 25,3 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
Remarks: Based on data from similar materials

n-Hexane:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 31,86 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Components:

Hydrocarbons, C6, isoalkanes, <5% n-hexane:

Species: Rabbit
Method: OECD Test Guideline 404
Result: Skin irritation

n-Pentane:

Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Assessment: Repeated exposure may cause skin dryness or cracking.

n-Hexane:

Species: Rabbit
Result: Skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:

Hydrocarbons, C6, isoalkanes, <5% n-hexane:

Species: Rabbit
Result: No eye irritation
Remarks: Based on data from similar materials

n-Pentane:

Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation

n-Hexane:

Species: Rabbit
Result: No eye irritation

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

Hydrocarbons, C6, isoalkanes, <5% n-hexane:

Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Result: negative
Remarks: Based on data from similar materials

n-Pentane:

Test Type: Maximisation Test
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

n-Hexane:

Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Result: negative

Germ cell mutagenicity

Not classified based on available information.

Components:

Hydrocarbons, C6, isoalkanes, <5% n-hexane:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
Remarks: Based on data from similar materials

: Test Type: Chromosome aberration test in vitro
Result: negative
Remarks: Based on data from similar materials

: Test Type: In vitro mammalian cell gene mutation test
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Species: Rat
Application Route: inhalation (vapour)
Result: negative

n-Pentane:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Result: negative

: Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: inhalation (vapour)
Method: Directive 67/548/EEC, Annex V, B.12.
Result: negative

n-Hexane:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

: Test Type: In vitro mammalian cell gene mutation test
Result: positive

Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Mouse
Application Route: inhalation (vapour)
Result: negative

Carcinogenicity

Not classified based on available information.

Components:

Hydrocarbons, C6, isoalkanes, <5% n-hexane:

Species: Rat
Application Route: inhalation (vapour)
Exposure time: 2 yr
Result: negative
Remarks: Based on data from similar materials

Species: Mouse
Application Route: inhalation (vapour)
Exposure time: 2 yr
Result: negative
Remarks: Based on data from similar materials

n-Hexane:

Species: Rat
Application Route: inhalation (vapour)
Exposure time: 2 Years
Method: OECD Test Guideline 451
Result: negative

Reproductive toxicity

Not classified based on available information.

Components:

Hydrocarbons, C6, isoalkanes, <5% n-hexane:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: inhalation (vapour) Result: negative Remarks: Based on data from similar materials
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat Application Route: inhalation (vapour) Result: negative Remarks: Based on data from similar materials

n-Pentane:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: inhalation (vapour) Method: OECD Test Guideline 416 Result: negative Remarks: Based on data from similar materials
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rabbit Application Route: inhalation (vapour) Result: negative Remarks: Based on data from similar materials

n-Hexane:

Reproductive toxicity - Assessment	:	Some evidence of adverse effects on sexual function and fertility, based on animal experiments., Some evidence of adverse effects on development, based on animal experiments.

STOT - single exposure

May cause drowsiness or dizziness.

Components:

Hydrocarbons, C6, isoalkanes, <5% n-hexane:

Assessment: May cause drowsiness or dizziness.

n-Pentane:

Assessment: May cause drowsiness or dizziness.

n-Hexane:
Assessment: May cause drowsiness or dizziness.

STOT - repeated exposure
Not classified based on available information.

Components:

n-Hexane:
Target Organs: Central nervous system
Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

Hydrocarbons, C6, isoalkanes, <5% n-hexane:
Species: Rat, male
NOAEL: 10,504 mg/l
Application Route: inhalation (vapour)
Exposure time: 90 Days
Remarks: Based on data from similar materials

n-Pentane:
Species: Rat
NOAEL: > 20,5 mg/l
Application Route: inhalation (vapour)
Exposure time: 13 Weeks
Method: OECD Test Guideline 413

n-Hexane:
Species: Rat
LOAEL: 10,6 mg/l
Application Route: inhalation (vapour)
Exposure time: 16 Weeks

Aspiration toxicity
Not classified based on available information.

Components:

Hydrocarbons, C6, isoalkanes, <5% n-hexane:
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

n-Pentane:
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

n-Hexane:
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Experience with human exposure

Components:

n-Hexane:

Inhalation	:	Target Organs: Central nervous system

SECTION 12: Ecological information

12.1 Toxicity

Components:

Hydrocarbons, C6, isoalkanes, <5% n-hexane:

Toxicity to fish	:	LL50 (Oncorhynchus mykiss (rainbow trout)): > 10 - 100 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 203 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): > 1 - 10 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae	:	EL50 (Selenastrum capricornutum (green algae)): > 10 - 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201 Remarks: Based on data from similar materials NOELR (Selenastrum capricornutum (green algae)): 0,1 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOELR: > 0,1 - 1 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211 Remarks: Based on data from similar materials

n-Pentane:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 4,26 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 2,7 mg/l Exposure time: 48 h
Toxicity to algae	:	ErC50 (Scenedesmus quadricauda (Green algae)): 10,7 mg/l Exposure time: 72 h Method: OECD Test Guideline 201

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Chronic aquatic toxicity	:	Toxic to aquatic life with long lasting effects.

n-Hexane:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 2,5 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 3,88 mg/l Exposure time: 48 h
Toxicity to algae	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 55 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials

12.2 Persistence and degradability

Components:

Hydrocarbons, C6, isoalkanes, <5% n-hexane:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 98 % Exposure time: 28 d Method: OECD Test Guideline 301F Remarks: Based on data from similar materials

n-Pentane:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 87 % Exposure time: 28 d

n-Hexane:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 98 % Exposure time: 28 d Remarks: Based on data from similar materials

12.3 Bioaccumulative potential

Components:

Hydrocarbons, C6, isoalkanes, <5% n-hexane:

Partition coefficient: n-octanol/water : log Pow: 3,6

n-Pentane:

Partition coefficient: n-octanol/water : log Pow: 3,45

n-Hexane:

Partition coefficient: n-octanol/water : log Pow: 4

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Not relevant

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Empty containers retain residue and can be dangerous.
Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.
If not otherwise specified: Dispose of as unused product.
Please ensure aerosol cans are sprayed completely empty (including propellant)

SECTION 14: Transport information

14.1 UN number

ADN	:	UN 1950
ADR	:	UN 1950
RID	:	UN 1950
IMDG	:	UN 1950
IATA	:	UN 1950

14.2 UN proper shipping name

ADN	:	AEROSOLS
ADR	:	AEROSOLS
RID	:	AEROSOLS
IMDG	:	AEROSOLS (Hydrocarbons, C6, isoalkanes, <5% n-hexane, n-Pentane)
IATA	:	Aerosols, flammable

14.3 Transport hazard class(es)

ADN	:	2
ADR	:	2
RID	:	2
IMDG	:	2.1
IATA	:	2.1

14.4 Packing group

ADN

Packing group	:	Not assigned by regulation
Classification Code	:	5F
Labels	:	2.1

ADR

Packing group	:	Not assigned by regulation
Classification Code	:	5F
Labels	:	2.1
Tunnel restriction code	:	(D)

RID

Packing group	:	Not assigned by regulation
Classification Code	:	5F
Hazard Identification Number	:	23
Labels	:	2.1

IMDG

Packing group	:	Not assigned by regulation
Labels	:	2.1
EmS Code	:	F-D, S-U

IATA (Cargo)

Packing instruction (cargo	:	203

aircraft)
Packing instruction (LQ) : Y203
Packing group : Not assigned by regulation
Labels : Flammable Gas

IATA (Passenger)
Packing instruction (passenger aircraft) : 203
Packing instruction (LQ) : Y203
Packing group : Not assigned by regulation
Labels : Flammable Gas

14.5 Environmental hazards

ADN
Environmentally hazardous : yes

ADR
Environmentally hazardous : yes

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : yes

14.6 Special precautions for user

Not applicable

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

Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information

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

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Full text of H-Statements

H225 : Highly flammable liquid and vapour.
H304 : May be fatal if swallowed and enters airways.
H315 : Causes skin irritation.
H336 : May cause drowsiness or dizziness.
H361fd : Suspected of damaging fertility. Suspected of damaging the unborn child.
H373 : May cause damage to organs through prolonged or repeated exposure.
H411 : Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Aquatic Chronic	:	Chronic aquatic toxicity
Asp. Tox.	:	Aspiration hazard
Flam. Liq.	:	Flammable liquids
Repr.	:	Reproductive toxicity
Skin Irrit.	:	Skin irritation
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure
2006/15/EC	:	Europe. Indicative occupational exposure limit values
ZA BEI	:	South Africa. Hazardous Chemical Substances Regulations, Biological Exposure Indices.
ZA OEL	:	South Africa. Hazardous Chemical Substances Regulations, Occupational Exposure Limits
2006/15/EC / TWA	:	Limit Value - eight hours
ZA OEL / TWA OEL-RL	:	Long term occupational exposure limits - recommended limit
ZA OEL / STEL OEL-RL	:	Short term occupational exposure limits - recommended limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

Sources of key data used to compile the Safety Data	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agen-

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Classification of the mixture:		**Classification procedure:**
Aerosol 1	H222, H229	Based on product data or assessment
Skin Irrit. 2	H315	Calculation method
STOT SE 3	H336	Calculation method
Aquatic Chronic 2	H411	Calculation method

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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