



SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 as amended by Commission Regulation (EU) 2020/878 and
Regulation (EC) No. 1272/2008

Issuing Date 26-Jun-2023

Revision Date 26-Jun-2023

Revision Number 1

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

1.1. Product identifier

Product Name 5W-40 Heavy-Duty Synthetic Diesel Oil

Product Code(s) ADO

Synonyms None

Pure substance/mixture Mixture

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

Recommended use Diesel oil

Uses advised against Avoid formation of mists

1.3. Details of the supplier of the safety data sheet

Manufacturer

AMSOIL INC.
One AMSOIL Center
Superior, WI 54880, USA
T: +1 715-392-7101

For further information, please contact

E-mail address compliance@amsoil.com

1.4. Emergency telephone number

Emergency telephone CHEMTREC International: +1 703-741-5970

Emergency telephone - §45 - (EC)1272/2008

Europe 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Chronic aquatic toxicity Category 3 - (H412)

2.2. Label elements

Hazard statements

H412 - Harmful to aquatic life with long lasting effects.

Precautionary Statements - EU (§28, 1272/2008)

P273 - Avoid release to the environment.

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

Unknown aquatic toxicity

Contains 0 % of components with unknown hazards to the aquatic environment.

2.3. Other hazards

Causes mild skin irritation. Harmful to aquatic life.

Endocrine Disruptor Information Contains a known or suspected endocrine disruptor.

Chemical name	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation	EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances
Phenol, dodecyl-, branched	Endocrine disrupting properties	Endocrine disrupting properties

Chemical name	Endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100(3) or Commission Regulation (EU) 2018/605(4)
Phenol, dodecyl-, branched	Endocrine disrupting properties

SECTION 3: Composition/information on ingredients**3.1 Substances**

Not applicable

3.2 Mixtures

Chemical name	Weight-%	REACH registration number	EC No (EU Index No)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
Hydrogenated base oil 64742-54-7	55-60	No data available	(649-467-00-8) 265-157-1	Carc. 1B [*L](H350)	-	-	-
Hydrogenated base oil 64742-54-7	20-25	No data available	(649-467-00-8) 265-157-1	Carc. 1B (H350) (*L)	-	-	-
Hydrogenated base oil 64742-65-0	10-15	No data available	(649-474-00-6) 265-169-7	Carc. 1B (*L) (H350)	-	-	-
bis(nonylphenyl)amine 36878-20-3	2-4	No data available	253-249-4	Aquatic Chronic 4 (H413)	-	-	-
Phosphorodithioic acid, mixed O,O-bis(1,3-dimethyl butyl and iso-Pr) esters, zinc salts 84605-29-8	0.5-1.5	No data available	283-392-8	Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Aquatic Chronic 2 (H411)	Skin Irrit. 2 :: C>=6.25% Eye Dam. 1 :: C>12.5% Eye Irrit. 2 :: 10%<C<=12.5 %	-	-
Benzene, polypropene derivatives, sulfonated, calcium salts 75975-85-8	0.1-0.5	No data available	No information available	Eye Irrit. 2 (H319) Skin Sens. 1B; H317	SCL Skin Sens. 1B; H317: C > 10%	-	-
Phenol, 2,6-bis(1,1-dimethylet	< 0.1	No data available	204-881-4	Aquatic Chronic 1	-	1	1

hyl)-4-methyl-128-37-0				(H410)			
Phenol, dodecyl-, branched 121158-58-5	< 0.1	No data available	(604-092-00-9) 310-154-3	Skin Corr. 1C (H314) Eye Dam. 1 (H318) Repr. 1B (H360F) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	-	10	10
Diphenylamine 122-39-4	< 0.1	No data available	(612-026-00-5) 204-539-4	Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) Eye Irrit. 2 (H319) STOT RE 2 (H373) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	-	-	-
2-methylpropan-1-ol 78-83-1	< 0.01	No data available	(603-108-00-1) 201-148-0	Skin Irrit. 2 (H315) Eye Dam. 1 (H318) STOT SE 3 (H335) STOT SE 3 (H336) Flam. Liq. 3 (H226)	-	-	-
Nonane 111-84-2	< 0.01	No data available	203-913-4	Flam. Liq. 3 (H226) Skin Irrit. 2 (H315) STOT SE 3 (H336) Asp. Tox. 1 (H304) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	-	-	-
Hydrogen sulphide 7783-06-4	< 0.01	No data available	(016-001-00-4) 231-977-3	Acute Tox. 2 (H330) Aquatic Acute 1 (H400) Flam. Gas 1 (H220) Press. Gas	-	-	-
Benzene 71-43-2	< 0.01	-	(601-020-00-8) 200-753-7	Skin Irrit. 2 (H315)	-	-	-

				Eye Irrit. 2 (H319) Muta. 1B (H340) Carc. 1A (H350) STOT RE 1 (H372) Asp. Tox. 1 (H304) Flam. Liq. 2 (H225)			
Toluene 108-88-3	< 0.01	-	(601-021-00-3) 203-625-9	Skin Irrit. 2 (H315) Repr. 2 (H361d) STOT SE 3 (H336) STOT RE 2 (H373) Asp. Tox. 1 (H304) Flam. Liq. 2 (H225)	-	-	-
Naphthalene 91-20-3	< 0.01	No data available	(601-052-00-2) 202-049-5	Acute Tox. 4 (H302) Carc. 2 (H351) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	-	-	-
Ethylbenzene 100-41-4	< 0.01	No data available	(601-023-00-4) 202-849-4	Acute Tox. 4 (H332) STOT RE 2 (H373) Asp. Tox. 1 (H304) Flam. Liq. 2 (H225)	-	-	-

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate

If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATE_{mix}) for classifying a mixture based on its components

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapour - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Hydrogenated base oil 64742-54-7	15015	5005	No data available	No data available	No data available
Hydrogenated base oil 64742-54-7	15015	5005	No data available	No data available	No data available
Hydrogenated base oil 64742-65-0	15015	5005	2.4024	No data available	No data available
bis(nonylphenyl)amine 36878-20-3	5005	No data available	No data available	No data available	No data available

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapour - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Phosphorodithioic acid, mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts 84605-29-8	3100	2002	2.3023	No data available	No data available
Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl- 128-37-0	2932.93	2002	No data available	No data available	No data available
Phenol, dodecyl-, branched 121158-58-5	No data available	15000	No data available	No data available	No data available
Diphenylamine 122-39-4	1120	2002	No data available	No data available	No data available
2-methylpropan-1-ol 78-83-1	2460	3400	27.2973	No data available	No data available
Nonane 111-84-2	No data available	No data available	No data available	16.7853	No data available
Hydrogen sulphide 7783-06-4	No data available	No data available	No data available	No data available	501
Benzene 71-43-2	810	8208.2	44.66	No data available	No data available
Toluene 108-88-3	2600	12000	12.5	No data available	No data available
Naphthalene 91-20-3	1110	1120	0.4004	No data available	No data available
Ethylbenzene 100-41-4	3500	15400	17.4	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	Get medical attention immediately if symptoms occur. Show this safety data sheet to the doctor in attendance.
Inhalation	Remove person to fresh air and keep comfortable for breathing.
Eye contact	Rinse thoroughly with plenty of water, also under the eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Skin contact	Wash skin with soap and water. Take off contaminated clothing. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms	Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness
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and difficulty breathing. May cause gastrointestinal discomfort if consumed in large amounts. May cause temporary eye irritation. Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation in susceptible persons. Prolonged contact may cause redness and irritation.

Effects of Exposure No information available.

4.3. Indication of any immediate medical attention and special treatment needed

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Water spray, carbon dioxide (CO₂), dry chemical, alcohol-resistant foam. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Containers can burst or explode when heated, due to excessive pressure build-up. Thermal decomposition can lead to release of irritating gases and vapours.

Hazardous combustion products Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

5.3. Advice for firefighters

Specific/special fire-fighting measures Fires need to be assessed to determine appropriate protocols and safety measures for firefighting, including establishing safe zones, extinguishing media to be used, firefighter protection, and actions to control or extinguish the fire.

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation. Use personal protective equipment as required. See section 8 for more information.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13). Clean contaminated surface thoroughly. After cleaning, flush away traces with water.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections For additional information see: Section 8: Exposure controls/personal protection; Section 12: Ecological information; Section 13: Disposal considerations.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

Advice on safe handling Avoid contact with used product.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Do not reuse empty containers. Store away from incompatible materials. See section 10 for more information.

Storage class (TRGS 510) LGK 10.

7.3. Specific end use(s)

Specific use(s). The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters**

Exposure Limits Under conditions which may generate mists, the following exposure limits are recommended: Long-term exposure limit (8-hour TWA): 5 mg/m³. Short-term exposure limit (15-minute): 10 mg/m³.

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia
Phenol, 2,6-bis(1,1-dimethylethyl)- -4-methyl- 128-37-0	-	TWA: 10 mg/m ³	TWA: 2 mg/m ³	STEL: 50 mg/m ³ TWA: 10 mg/m ³	TWA: 10 mg/m ³
Diphenylamine 122-39-4	-	TWA: 0.7 ppm TWA: 5 mg/m ³ STEL 1.4 ppm STEL 10 mg/m ³ H*	TWA: 10 mg/m ³	TWA: 10 mg/m ³	TWA: 10 mg/m ³ STEL: 20 mg/m ³
2-methylpropan-1-ol 78-83-1	-	TWA: 50 ppm TWA: 150 mg/m ³ STEL 200 ppm STEL 600 mg/m ³	TWA: 50 ppm TWA: 154 mg/m ³	-	TWA: 50 ppm TWA: 154 mg/m ³ STEL: 75 ppm STEL: 231 mg/m ³ *
Nonane 111-84-2	-	-	TWA: 200 ppm TWA: 1065 mg/m ³	-	-
Hydrogen sulphide 7783-06-4	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³	TWA: 5 ppm TWA: 7 mg/m ³ STEL 5 ppm STEL 7 mg/m ³ Ceiling: 5 ppm Ceiling: 7 mg/m ³	TWA: 1.64 ppm TWA: 2.3 mg/m ³ STEL: 4 ppm STEL: 5.61 mg/m ³	STEL: 10 ppm STEL: 14 mg/m ³ TWA: 5 ppm TWA: 7 mg/m ³	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³
Benzene 71-43-2	TWA: 0.2 ppm TWA: 0.66 mg/m ³	H*	TWA: 1 ppm TWA: 3.25 mg/m ³	TWA: 3.25 mg/m ³ TWA: 1 ppm	TWA: 1 ppm TWA: 3.25 mg/m ³

	*		D*	K*	*
Toluene 108-88-3	TWA: 50 ppm TWA: 192 mg/m ³ *	TWA: 50 ppm TWA: 190 mg/m ³ STEL 100 ppm STEL 380 mg/m ³ H*	TWA: 20 ppm TWA: 77 mg/m ³ STEL: 100 ppm STEL: 384 mg/m ³ D*	STEL: 100 ppm STEL: 384.0 mg/m ³ TWA: 50 ppm TWA: 192.0 mg/m ³ K*	TWA: 50 ppm TWA: 192 mg/m ³ STEL: 100 ppm STEL: 384 mg/m ³ *
Naphthalene 91-20-3	TWA: 10 ppm TWA: 50 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³ H*	TWA: 10 ppm TWA: 53 mg/m ³ STEL: 15 ppm STEL: 80 mg/m ³ D*	STEL: 75.0 mg/m ³ TWA: 50.0 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³
Ethylbenzene 100-41-4	TWA: 100 ppm TWA: 442 mg/m ³ STEL: 200 ppm STEL: 884 mg/m ³ *	TWA: 100 ppm TWA: 440 mg/m ³ STEL 200 ppm STEL 880 mg/m ³ H*	TWA: 20 ppm TWA: 87 mg/m ³ STEL: 125 ppm STEL: 551 mg/m ³ D*	STEL: 545 mg/m ³ TWA: 435 mg/m ³ K*	TWA: 100 ppm TWA: 442 mg/m ³ STEL: 200 ppm STEL: 884 mg/m ³ *
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
Phenol, 2,6-bis(1,1-dimethylethyl) -4-methyl- 128-37-0	-	-	TWA: 10 mg/m ³ STEL: 20 mg/m ³	-	TWA: 10 mg/m ³ STEL: 20 mg/m ³
Diphenylamine 122-39-4	-	TWA: 10 mg/m ³ Ceiling: 20 mg/m ³ D*	TWA: 5 mg/m ³ STEL: 10 mg/m ³	TWA: 10 mg/m ³	TWA: 5 mg/m ³ STEL: 10 mg/m ³
2-methylpropan-1-ol 78-83-1	-	TWA: 300 mg/m ³ Ceiling: 600 mg/m ³ D*	Ceiling: 50 ppm Ceiling: 150 mg/m ³ H*	TWA: 50 ppm TWA: 150 mg/m ³	TWA: 150 mg/m ³ TWA: 50 ppm STEL: 75 ppm STEL: 230 mg/m ³ iho*
Nonane 111-84-2	-	-	TWA: 200 ppm TWA: 1050 mg/m ³ STEL: 400 ppm STEL: 2100 mg/m ³	TWA: 150 ppm TWA: 800 mg/m ³ STEL: 200 ppm STEL: 1100 mg/m ³	TWA: 200 ppm TWA: 1100 mg/m ³ STEL: 250 ppm STEL: 1300 mg/m ³
Hydrogen sulphide 7783-06-4	STEL: 14 mg/m ³ STEL: 10 ppm TWA: 7 mg/m ³ TWA: 5 ppm	TWA: 7 mg/m ³ Ceiling: 14 mg/m ³	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 14 mg/m ³ STEL: 10 ppm	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³
Benzene 71-43-2	* TWA: 1 ppm TWA: 3.25 mg/m ³	TWA: 3 mg/m ³ Ceiling: 10 mg/m ³ D*	TWA: 0.5 ppm TWA: 1.6 mg/m ³ H* STEL: 1 ppm STEL: 3.2 mg/m ³	TWA: 0.5 ppm TWA: 1.5 mg/m ³ STEL: 3 ppm STEL: 9 mg/m ³ A*	TWA: 1 ppm TWA: 3.25 mg/m ³ iho*
Toluene 108-88-3	* STEL: 100 ppm STEL: 384 mg/m ³ TWA: 50 ppm TWA: 192 mg/m ³	TWA: 200 mg/m ³ Ceiling: 500 mg/m ³ D*	TWA: 25 ppm TWA: 94 mg/m ³ H* STEL: 384 mg/m ³ STEL: 100 ppm	TWA: 50 ppm TWA: 192 mg/m ³ STEL: 100 ppm STEL: 384 mg/m ³ A*	TWA: 25 ppm TWA: 81 mg/m ³ STEL: 100 ppm STEL: 380 mg/m ³ iho*
Naphthalene 91-20-3	TWA: 10 ppm TWA: 50 mg/m ³	TWA: 50 mg/m ³ Ceiling: 100 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 20 ppm STEL: 100 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³	TWA: 1 ppm TWA: 5 mg/m ³ STEL: 2 ppm STEL: 10 mg/m ³
Ethylbenzene 100-41-4	* STEL: 200 ppm STEL: 884 mg/m ³ TWA: 100 ppm TWA: 442 mg/m ³	TWA: 200 mg/m ³ Ceiling: 500 mg/m ³ D*	TWA: 50 ppm TWA: 217 mg/m ³ H* STEL: 434 mg/m ³ STEL: 100 ppm	S+ TWA: 100 ppm TWA: 442 mg/m ³ STEL: 200 ppm STEL: 884 mg/m ³ A*	TWA: 50 ppm TWA: 220 mg/m ³ STEL: 200 ppm STEL: 880 mg/m ³ iho*
Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
Phenol,	TWA: 10 mg/m ³	TWA: 10 mg/m ³	TWA: 10 mg/m ³	TWA: 10 mg/m ³	-

2,6-bis(1,1-dimethylethyl)-4-methyl-128-37-0			Peak: 40 mg/m ³		
Diphenylamine 122-39-4	TWA: 10 mg/m ³	TWA: 5 mg/m ³ H*	TWA: 5 mg/m ³ Peak: 10 mg/m ³ *	TWA: 10 mg/m ³ STEL: 20 mg/m ³	-
2-methylpropan-1-ol 78-83-1	TWA: 50 ppm TWA: 150 mg/m ³	TWA: 100 ppm TWA: 310 mg/m ³	TWA: 100 ppm TWA: 310 mg/m ³ Peak: 100 ppm Peak: 310 mg/m ³	TWA: 100 ppm TWA: 300 mg/m ³ STEL: 100 ppm STEL: 300 mg/m ³	-
Nonane 111-84-2	TWA: 200 ppm TWA: 1050 mg/m ³ STEL: 1500 mg/m ³	-	-	-	-
Hydrogen sulphide 7783-06-4	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³	TWA: 5 ppm TWA: 7.1 mg/m ³	TWA: 5 ppm TWA: 7.1 mg/m ³ Peak: 10 ppm Peak: 14.2 mg/m ³	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³	TWA: 7 mg/m ³ TWA: 5 ppm STEL: 14 mg/m ³ STEL: 10 ppm
Benzene 71-43-2	TWA: 1 ppm TWA: 3.25 mg/m ³ STEL: 1500 mg/m ³ *	H*	*	TWA: 3.25 mg/m ³ TWA: 1.0 ppm *	TWA: 1 ppm TWA: 3.25 mg/m ³ b*
Toluene 108-88-3	TWA: 20 ppm TWA: 76.8 mg/m ³ STEL: 100 ppm STEL: 384 mg/m ³ *	TWA: 50 ppm TWA: 190 mg/m ³ H*	TWA: 50 ppm TWA: 190 mg/m ³ Peak: 100 ppm Peak: 380 mg/m ³ *	TWA: 50 ppm TWA: 192 mg/m ³ STEL: 100 ppm STEL: 384 mg/m ³ *	TWA: 190 mg/m ³ TWA: 50 ppm STEL: 384 mg/m ³ STEL: 100 ppm b*
Naphthalene 91-20-3	TWA: 10 ppm TWA: 50 mg/m ³	TWA: 0.4 ppm TWA: 2 mg/m ³ H*	*	TWA: 10 ppm TWA: 50 mg/m ³	TWA: 50 mg/m ³ TWA: 10 ppm
Ethylbenzene 100-41-4	TWA: 20 ppm TWA: 88.4 mg/m ³ STEL: 100 ppm STEL: 442 mg/m ³ *	TWA: 20 ppm TWA: 88 mg/m ³ H*	TWA: 20 ppm TWA: 88 mg/m ³ Peak: 40 ppm Peak: 176 mg/m ³ *	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 125 ppm STEL: 545 mg/m ³	TWA: 100 ppm TWA: 442 mg/m ³ STEL: 200 ppm STEL: 884 mg/m ³ b*
Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl-128-37-0	TWA: 2 mg/m ³ STEL: 6 mg/m ³	-	TWA: 2 mg/m ³	-	-
Diphenylamine 122-39-4	TWA: 10 mg/m ³ STEL: 20 mg/m ³	-	TWA: 10 mg/m ³	-	TWA: 4 mg/m ³ STEL: 12 mg/m ³
2-methylpropan-1-ol 78-83-1	TWA: 150 mg/m ³ TWA: 50 ppm STEL: 225 mg/m ³ STEL: 75 ppm	-	TWA: 50 ppm TWA: 152 mg/m ³	TWA: 10 mg/m ³	O* TWA: 10 mg/m ³
Nonane 111-84-2	TWA: 200 ppm TWA: 1050 mg/m ³ STEL: 600 ppm STEL: 3150 mg/m ³	-	TWA: 200 ppm TWA: 1049 mg/m ³	TWA: 100 mg/m ³ STEL: 300 mg/m ³	TWA: 150 ppm TWA: 800 mg/m ³ STEL: 200 ppm STEL: 1100 mg/m ³
Hydrogen sulphide 7783-06-4	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 14 mg/m ³ STEL: 10 ppm	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³	TWA: 1 ppm TWA: 1.4 mg/m ³ STEL: 5 ppm STEL: 7 mg/m ³	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³ Ceiling: 15 ppm Ceiling: 20 mg/m ³
Benzene 71-43-2	TWA: 1 ppm TWA: 3.25 mg/m ³ STEL: 3 ppm STEL: 9.75 mg/m ³	TWA: 3.25 mg/m ³ TWA: 1 ppm cute*	TWA: 0.5 ppm TWA: 1.6 mg/m ³ STEL: 2.5 ppm STEL: 8 mg/m ³	TWA: 1 ppm TWA: 3.25 mg/m ³ Ada*	O* TWA: 1 ppm TWA: 3.25 mg/m ³ STEL: 6 ppm

	Sk*		cute*		STEL: 19 mg/m ³
Toluene 108-88-3	TWA: 192 mg/m ³ TWA: 50 ppm STEL: 384 mg/m ³ STEL: 100 ppm Sk*	TWA: 50 ppm TWA: 192 mg/m ³ cute*	TWA: 20 ppm TWA: 75.4 mg/m ³	TWA: 14 ppm TWA: 50 mg/m ³ STEL: 40 ppm STEL: 150 mg/m ³ Ada*	O* TWA: 50 ppm TWA: 192 mg/m ³ STEL: 100 ppm STEL: 384 mg/m ³
Naphthalene 91-20-3	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 30 ppm STEL: 150 mg/m ³	-	TWA: 10 ppm TWA: 52 mg/m ³ cute*	TWA: 10 ppm TWA: 50 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³
Ethylbenzene 100-41-4	TWA: 100 ppm TWA: 442 mg/m ³ STEL: 200 ppm STEL: 884 mg/m ³ Sk*	TWA: 100 ppm TWA: 442 mg/m ³ STEL: 200 ppm STEL: 884 mg/m ³ cute*	TWA: 20 ppm TWA: 87 mg/m ³	TWA: 100 ppm TWA: 442 mg/m ³ STEL: 200 ppm STEL: 884 mg/m ³ Ada*	O* TWA: 100 ppm TWA: 442 mg/m ³ STEL: 200 ppm STEL: 884 mg/m ³
Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
Diphenylamine 122-39-4	-	-	-	TWA: 5 mg/m ³ STEL: 10 mg/m ³	TWA: 8 mg/m ³
2-methylpropan-1-ol 78-83-1	-	-	-	Ceiling: 25 ppm Ceiling: 75 mg/m ³ H*	STEL: 200 mg/m ³ TWA: 100 mg/m ³ skóra*
Nonane 111-84-2	-	-	-	TWA: 100 ppm TWA: 525 mg/m ³ STEL: 150 ppm STEL: 656.25 mg/m ³	-
Hydrogen sulphide 7783-06-4	STEL: 14 mg/m ³ STEL: 10 ppm TWA: 7 mg/m ³ TWA: 5 ppm	STEL: 14 mg/m ³ STEL: 10 ppm TWA: 7 mg/m ³ TWA: 5 ppm	TWA: 1.64 ppm TWA: 2.3 mg/m ³	TWA: 5 ppm TWA: 7 mg/m ³ Ceiling: 10 ppm Ceiling: 14 mg/m ³	STEL: 14 mg/m ³ TWA: 7 mg/m ³
Benzene 71-43-2	-	-	TWA: 0.2 ppm TWA: 0.7 mg/m ³ H*	TWA: 0.2 ppm TWA: 0.66 mg/m ³ STEL: 0.6 ppm STEL: 1.98 mg/m ³ H*	TWA: 1.6 mg/m ³ skóra*
Toluene 108-88-3	Peau* STEL: 100 ppm STEL: 384 mg/m ³ TWA: 50 ppm TWA: 192 mg/m ³	skin* STEL: 100 ppm STEL: 384 mg/m ³ TWA: 50 ppm TWA: 192 mg/m ³	TWA: 39 ppm TWA: 150 mg/m ³ STEL: 100 ppm STEL: 384 mg/m ³	TWA: 25 ppm TWA: 94 mg/m ³ STEL: 37.5 ppm STEL: 141 mg/m ³ H*	STEL: 200 mg/m ³ TWA: 100 mg/m ³ skóra*
Naphthalene 91-20-3	TWA: 10 ppm TWA: 50 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 16 ppm STEL: 80 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 20 ppm STEL: 75 mg/m ³	STEL: 50 mg/m ³ TWA: 20 mg/m ³ skóra*
Ethylbenzene 100-41-4	Peau* STEL: 200 ppm STEL: 884 mg/m ³ TWA: 100 ppm TWA: 442 mg/m ³	skin* STEL: 200 ppm STEL: 884 mg/m ³ TWA: 100 ppm TWA: 442 mg/m ³	TWA: 48.6 ppm TWA: 215 mg/m ³ STEL: 97.3 ppm STEL: 430 mg/m ³ H*	TWA: 5 ppm TWA: 20 mg/m ³ STEL: 10 ppm STEL: 30 mg/m ³ H*	STEL: 400 mg/m ³ TWA: 200 mg/m ³ skóra*
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
Phenol, 2,6-bis(1,1-dimethylethyl)- 4-methyl- 128-37-0	TWA: 2 mg/m ³	-	-	TWA: 10 mg/m ³ STEL: 40 mg/m ³	TWA: 10 mg/m ³
Diphenylamine 122-39-4	TWA: 10 mg/m ³	TWA: 4 mg/m ³ STEL: 6 mg/m ³	-	TWA: 5 mg/m ³ STEL: 10 mg/m ³ K*	TWA: 10 mg/m ³
2-methylpropan-1-ol 78-83-1	TWA: 50 ppm	TWA: 33 ppm TWA: 100 mg/m ³ STEL: 66 ppm	TWA: 100 ppm TWA: 310 mg/m ³	TWA: 100 ppm TWA: 310 mg/m ³ STEL: 100 ppm	TWA: 50 ppm TWA: 154 mg/m ³

		STEL: 200 mg/m ³		STEL: 310 mg/m ³	
Nonane 111-84-2	TWA: 200 ppm	TWA: 700 mg/m ³ STEL: 1000 mg/m ³	TWA: 800 mg/m ³ TWA: 150 ppm Ceiling: 1100 mg/m ³	-	TWA: 200 ppm TWA: 1065 mg/m ³
Hydrogen sulphide 7783-06-4	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³	TWA: 5 ppm TWA: 7 mg/m ³ Ceiling: 14 mg/m ³	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³	TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³
Benzene 71-43-2	TWA: 1 ppm TWA: 3.25 mg/m ³ STEL: 2.5 ppm Cutânea*	TWA: 1 ppm TWA: 3.25 mg/m ³ P*	TWA: 1.0 ppm TWA: 3.25 mg/m ³ STEL: 5.0 ppm STEL: 16.25 mg/m ³ K*	TWA: 1 ppm TWA: 3.25 mg/m ³ K*	TWA: 1 ppm TWA: 3.25 mg/m ³ vía dérmica*
Toluene 108-88-3	TWA: 50 ppm TWA: 192 mg/m ³ STEL: 100 ppm STEL: 384 mg/m ³ Cutânea*	TWA: 50 ppm TWA: 192 mg/m ³ STEL: 100 ppm STEL: 384 mg/m ³ P*	TWA: 50 ppm TWA: 192 mg/m ³ K* Ceiling: 384 mg/m ³	TWA: 50 ppm TWA: 192 mg/m ³ STEL: 100 ppm STEL: 384 mg/m ³ K*	TWA: 50 ppm TWA: 192 mg/m ³ STEL: 100 ppm STEL: 384 mg/m ³ vía dérmica*
Naphthalene 91-20-3	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 15 ppm Cutânea*	TWA: 10 ppm TWA: 50 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³ K* Ceiling: 80 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 10 ppm STEL: 50 mg/m ³ K*	TWA: 10 ppm TWA: 53 mg/m ³ STEL: 15 ppm STEL: 80 mg/m ³ vía dérmica*
Ethylbenzene 100-41-4	TWA: 100 ppm TWA: 442 mg/m ³ STEL: 200 ppm STEL: 884 mg/m ³ Cutânea*	TWA: 100 ppm TWA: 442 mg/m ³ STEL: 200 ppm STEL: 884 mg/m ³ P*	TWA: 100 ppm TWA: 442 mg/m ³ K* Ceiling: 884 mg/m ³	TWA: 100 ppm TWA: 442 mg/m ³ STEL: 200 ppm STEL: 884 mg/m ³ K*	TWA: 100 ppm TWA: 441 mg/m ³ STEL: 200 ppm STEL: 884 mg/m ³ vía dérmica*
Chemical name	Sweden		Switzerland		United Kingdom
Phenol, 2,6-bis(1,1-dimethylethyl)-4-met hyl- 128-37-0	-		TWA: 10 mg/m ³ STEL: 40 mg/m ³		TWA: 10 mg/m ³ STEL: 30 mg/m ³
Diphenylamine 122-39-4	NGV: 4 mg/m ³ Vägledande KGV: 12 mg/m ³		TWA: 10 mg/m ³ H*		TWA: 10 mg/m ³ STEL: 20 mg/m ³
2-methylpropan-1-ol 78-83-1	NGV: 50 ppm NGV: 150 mg/m ³ Vägledande KGV: 75 ppm Vägledande KGV: 250 mg/m ³ H*		TWA: 50 ppm TWA: 150 mg/m ³ STEL: 50 ppm STEL: 150 mg/m ³		TWA: 50 ppm TWA: 154 mg/m ³ STEL: 75 ppm STEL: 231 mg/m ³
Nonane 111-84-2	NGV: 150 ppm NGV: 800 mg/m ³ NGV: 350 mg/m ³		TWA: 200 ppm TWA: 1050 mg/m ³		-
Hydrogen sulphide 7783-06-4	NGV: 5 ppm NGV: 7 mg/m ³ Bindande KGV: 10 ppm Bindande KGV: 14 mg/m ³		TWA: 5 ppm TWA: 7.1 mg/m ³ STEL: 10 ppm STEL: 14.2 mg/m ³		TWA: 5 ppm TWA: 7 mg/m ³ STEL: 10 ppm STEL: 14 mg/m ³
Benzene 71-43-2	NGV: 0.5 ppm NGV: 1.5 mg/m ³ Bindande KGV: 3 ppm Bindande KGV: 9 mg/m ³ H*		TWA: 0.2 ppm TWA: 0.7 mg/m ³ H*		TWA: 1 ppm TWA: 3.25 mg/m ³ STEL: 3 ppm STEL: 9.75 mg/m ³ Sk*
Toluene 108-88-3	NGV: 50 ppm NGV: 192 mg/m ³ Bindande KGV: 100 ppm Bindande KGV: 384 mg/m ³ H*		TWA: 50 ppm TWA: 190 mg/m ³ STEL: 200 ppm STEL: 760 mg/m ³ H*		TWA: 50 ppm TWA: 191 mg/m ³ STEL: 100 ppm STEL: 384 mg/m ³ Sk*
Naphthalene 91-20-3	NGV: 10 ppm NGV: 50 mg/m ³		TWA: 10 ppm TWA: 50 mg/m ³		-

	Vägledande KGV: 15 ppm Vägledande KGV: 80 mg/m ³	H*	
Ethylbenzene 100-41-4	NGV: 50 ppm NGV: 220 mg/m ³ Bindande KGV: 200 ppm Bindande KGV: 884 mg/m ³ H*	TWA: 50 ppm TWA: 220 mg/m ³ STEL: 50 ppm STEL: 220 mg/m ³ H*	TWA: 100 ppm TWA: 441 mg/m ³ STEL: 125 ppm STEL: 552 mg/m ³ Sk*

Biological occupational exposure limits

Chemical name	European Union	Austria	Bulgaria	Croatia	Czech Republic
Diphenylamine 122-39-4	-	10 g/dL Hemoglobin (blood - not provided) 12 g/dL Hemoglobin (blood - not provided) 79 - 97 fL mean corpuscular volume (blood - not provided) 3.2 million/ μ L Erythrocytes (blood - not provided) 3.8 million/ μ L Erythrocytes (blood - not provided) 4000 Leukocytes/ μ L (blood - not provided) 13000 Leukocytes/ μ L (blood - not provided) 130000 Thrombocytes/ μ L (blood - not provided) 150000 Thrombocytes/ μ L (blood - not provided) ≤ 50 U/l (- Serum transaminases SGOT not provided) ≤ 35 U/l (- Serum transaminases SGOT not provided) ≤ 50 U/l (- Serum transaminases SGPT not provided) ≤ 35 U/l (- Serum transaminases SGPT not provided) ≤ 66 U/l (- Serum transaminases GGT not provided) ≤ 39 U/l (- Serum transaminases GGT	-	-	-

		not provided) (urine - one time yearly urine cytological examination)			
Benzene 71-43-2	-	10 g/dL Hemoglobin (blood - by the first screening and once yearly or for work in cokery plants every six months) 12 g/dL Hemoglobin (blood - by the first screening and once yearly or for work in cokery plants every six months) 79 - 97 fL mean corpuscular volume (blood - by the first screening and once yearly or for work in cokery plants every six months) 3.8 million/μL Erythrocytes (blood - by the first screening and once yearly or for work in cokery plants every six months) 3.2 million/μL Erythrocytes (blood - by the first screening and once yearly or for work in cokery plants every six months) 13000 Leukocytes/μL (blood - by the first screening and once yearly or for work in cokery plants every six months) 4000 Leukocytes/μL (blood - by the first screening and once yearly or for work in cokery plants every six months) 130000 Thrombocytes/μL (blood - by the first screening and once yearly or for work in cokery plants every six months) 150000 Thrombocytes/μL	2.0 mg/L - urine (Trans, trans-Muconic acid) - at the end of exposure or end of work shift 0.045 mg/g Creatinine - urine (S-Phenyl Mercapturic acid) - at the end of exposure or end of work shift	28 μg/L - blood (Benzene) - right at the end of the work shift 46 μg/g Creatinine - urine (S-Phenylmercapturic acid) - at the end of the work shift	0.024 μmol/mmol Creatinine (urine - S-Phenylmercapturic acid end of shift) 0.05 mg/g Creatinine (urine - S-Phenylmercapturic acid end of shift) 1.2 μmol/mmol Creatinine (urine - trans,trans-Muconic acid end of shift) 1.5 mg/g Creatinine (urine - trans,trans-Muconic acid end of shift)

		(blood - by the first screening and once yearly or for work in cokery plants every six months) 1.6 mg/L (urine - t,t-Muconic acid after end of work day, at the end of a work week/end of the shift)			
Toluene 108-88-3	-	10 g/dL Hemoglobin (blood - by the first screening and once yearly) 12 g/dL Hemoglobin (blood - by the first screening and once yearly) 3.2 million/ μ L Erythrocytes (blood - by the first screening and once yearly) 3.8 million/ μ L Erythrocytes (blood - by the first screening and once yearly) 4000 Leukocytes/ μ L (blood - by the first screening and once yearly) 13000 Leukocytes/ μ L (blood - by the first screening and once yearly) 130000 Thrombocytes/ μ L (blood - by the first screening and once yearly) 150000 Thrombocytes/ μ L (blood - by the first screening and once yearly) 0.8 mg/L (urine - o-Cresol after end of work day, at the end of a work week/end of the shift)	1.6 mmol/mmol Creatinine - urine (Hippuric acid) - at the end of exposure or end of work shift	1.0 mg/L - blood (Toluene) - at the end of the work shift 20 ppm - final exhaled air (Toluene) - during exposure 2.50 g/g Creatinine - urine (Hippuric acid) - at the end of the work shift 1.0 mg/g Creatinine - urine (o-Cresol) - at the end of the work shift	1.6 μ mol/mmol Creatinine (urine - o-Cresol end of shift) 1000 μ mol/mmol Creatinine (urine - Hippuric acid end of shift) 1.5 mg/g Creatinine (urine - o-Cresol end of shift) 1600 mg/g Creatinine (urine - Hippuric acid end of shift)
Ethylbenzene 100-41-4	-	-	2000 mg/g Creatinine - urine (Mandelic acid and Phenylglyoxylic acid - total) - at the end of exposure or end of work shift	1.50 mg/L - blood (Ethylbenzene) - during exposure 1.50 g/g Creatinine - urine (Mandelic acid) - at the end of the work shift and at the end of the working week	1100 μ mol/mmol Creatinine (urine - Mandelic acid end of shift) 1500 mg/g Creatinine (urine - Mandelic acid end of shift)

Chemical name	Denmark	Finland	France	Germany DFG	Germany TRGS
Phenol, 2,6-bis(1,1-dimethylethyl)- 4-methyl- 128-37-0	-	-	-	7 µg/L - BAR (end of exposure or end of shift) urine	-
Benzene 71-43-2	-	-	5 mg/L - urine (Muconic acid) - end of shift	0.3 µg/g Creatinine - BAR (end of exposure or end of shift) urine 150 µg/g Creatinine - BAR (end of exposure or end of shift) urine 0.3 µg/L - BAR (end of exposure or end of shift) urine 0.5 µg/L - (end of exposure or end of shift) - urine 0.8 µg/L - (end of exposure or end of shift) - urine 1.5 µg/L - (end of exposure or end of shift) - urine 2.75 µg/L - (end of exposure or end of shift) - urine 5.0 µg/L - (end of exposure or end of shift) - urine 7.5 µg/L - (end of exposure or end of shift) - urine 12.5 µg/L - (end of exposure or end of shift) - urine 300 µg/g Creatinine - (end of exposure or end of shift) - urine 500 µg/g Creatinine - (end of exposure or end of shift) - urine 750 µg/g Creatinine - (end of exposure or end of shift) - urine 1200 µg/g Creatinine - (end of exposure or end of shift) - urine 1.5 µg/g Creatinine - (end of exposure or end of shift) - urine 3 µg/g Creatinine - (end of exposure or end of shift) - urine 5 µg/g Creatinine - (end of exposure or end of shift) - urine 12 µg/g Creatinine -	-

				(end of exposure or end of shift) - urine 25 µg/g Creatinine - (end of exposure or end of shift) - urine 45 µg/g Creatinine - (end of exposure or end of shift) - urine 90 µg/g Creatinine - (end of exposure or end of shift) - urine	
Toluene 108-88-3	-	500 nmol/L (blood - Toluene in the morning after a working day)	1 mg/L - venous blood (Toluene) - end of shift 2500 mg/g creatinine - urine (Hippuric acid) - end of shift	600 µg/L (whole blood - Toluene immediately after exposure) 75 µg/L (urine - Toluene end of shift) 1.5 mg/L (urine - o-Cresol (after hydrolysis) for long-term exposures: at the end of the shift after several shifts) 1.5 mg/L (urine - o-Cresol (after hydrolysis) end of shift) 600 µg/L - BAT (immediately after exposure) blood 75 µg/L - BAT (end of exposure or end of shift) urine 1.5 mg/L - BAT (for long-term exposures: at the end of the shift after several shifts) urine 1.5 mg/L - BAT (end of exposure or end of shift) urine	600 µg/L (whole blood - Toluene immediately after exposure) 75 µg/L (urine - Toluene end of shift) 1.5 mg/L (urine - o-Cresol (after hydrolysis) for long-term exposures: at the end of the shift after several shifts) 1.5 mg/L (urine - o-Cresol (after hydrolysis) end of shift)
Naphthalene 91-20-3	-	-	-	35 µg/L - BAR (end of exposure or end of shift) urine 35 µg/L - BAR (for long-term exposures: at the end of the shift after several shifts) urine 4000 µg/L - (end of exposure or end of shift) - urine 13500 µg/L - (end of exposure or end of shift) - urine 23300 µg/L - (end of exposure or end of shift) - urine 34200 µg/L - (end	-

				of exposure or end of shift) - urine 30 µg/L - (end of exposure or end of shift) - urine 60 µg/L - (end of exposure or end of shift) - urine 175 µg/L - (end of exposure or end of shift) - urine 280 µg/L - (end of exposure or end of shift) - urine 390 µg/L - (end of exposure or end of shift) - urine 220 µg/L - (end of exposure or end of shift) - urine 500 µg/L - (end of exposure or end of shift) - urine 1500 µg/L - (end of exposure or end of shift) - urine 2300 µg/L - (end of exposure or end of shift) - urine 3300 µg/L - (end of exposure or end of shift) - urine	
Ethylbenzene 100-41-4	-	5.2 mmol/L (urine - Mandelic acid after the shift after a working week or exposure period)	1500 mg/g creatinine - urine (Mandelic acid) - end of shift at end of workweek	250 mg/g Creatinine (urine - Mandelic acid plus Phenylglyoxylic acid end of shift) 250 mg/g Creatinine - BAT (end of exposure or end of shift) urine 130 mg/g Creatinine - (end of exposure or end of shift) - urine 250 mg/g Creatinine - (end of exposure or end of shift) - urine 330 mg/g Creatinine - (end of exposure or end of shift) - urine 670 mg/g Creatinine - (end of exposure or end of shift) - urine 1300 mg/g Creatinine - (end of exposure or end of	250 mg/g Creatinine (urine - Mandelic acid plus Phenylglyoxylic acid end of shift)

				shift) - urine	
Chemical name	Hungary	Ireland	Italy MDLPS	Italy AIDII	
Benzene 71-43-2	0.04 mg/g Creatinine (urine - s-Phenyl mercapturic acid end of shift) 0.22 µmol/mmol Creatinine (urine - s-Phenyl mercapturic acid end of shift)	25 µg/g Creatinine (urine - s-Phenylmercapturic acid end of shift) 500 µg/g Creatinine (urine - t,t-Muconic acid end of shift)	-	25 µg/g Creatinine - urine (S-Phenylmercapturic acid) - end of shift 500 µg/g Creatinine - urine (t,t-Muconic acid) - end of shift	
Toluene 108-88-3	1 mg/g Creatinine (urine - o-Cresol end of shift) 1 µmol/mmol Creatinine (urine - o-Cresol end of shift)	0.02 mg/L (blood - Toluene prior to last shift of workweek) 0.03 mg/L (urine - Toluene end of shift) 0.3 mg/g Creatinine (urine - o-Cresol end of shift)	-	0.3 mg/g Creatinine - urine (o-Cresol (with hydrolysis)) - end of shift 0.03 mg/L - urine (Toluene) - end of shift 0.02 mg/L - blood (Toluene) - prior to last shift of workweek	
Naphthalene 91-20-3	-	-	-	- () - end of shift	
Ethylbenzene 100-41-4	1500 mg/g Creatinine (urine - Mandelic acid at end of workweek, end of shift) 1110 µmol/mmol Creatinine (urine - Mandelic acid at end of workweek, end of shift)	0.7 g/g Creatinine (urine - sum of Mandelic acid and Phenylglyoxylic acid end of shift at end of workweek) 0.7 g (end-exhaled air - not critical)	-	0.15 g/g Creatinine - urine (Sum of Mandelic acid and Phenylglyoxylic acid) - end of shift at end of workweek	
Chemical name	Latvia	Luxembourg	Romania	Slovakia	
Benzene 71-43-2	46 µg/g Creatinine - urine (Phenol) - end of shift 28 µg/L - blood () - end of shift	-	25 µg/g Creatinine - urine (S-Phenylmercapturic acid) - end of shift 500 µg/g Creatinine - urine (Trans, trans-muconic acid) - end of shift 50 mg/L - urine (total Phenols) - end of shift	-	
Toluene 108-88-3	1.6 g/g Creatinine - urine (Hippuric acid) - end of shift 0.05 mg/L - blood (Toluene) - end of shift	-	2 g/L - urine (Hippuric acid) - end of shift 3 mg/L - urine (o-Cresol) - end of shift	600 µg/L (blood - Toluene end of exposure or work shift) 1.5 mg/L (urine - o-Cresol after all work shifts) 1.5 mg/L (urine - o-Cresol end of exposure or work shift) 1600 mg/g creatinine (- Hippuric acid end of exposure or work shift)	
Ethylbenzene 100-41-4	-	-	1.5 g/g Creatinine - urine (Mandelic acid) - end of work week	12 mg/L (urine - 2 and 4-Ethylphenol end of exposure or work shift) 1600 mg/L (urine - Mandelic acid and Phenylglycolic acid end of exposure or work shift)	
Chemical name	Slovenia	Spain	Switzerland	United Kingdom	
Benzene 71-43-2	5 µg/L - urine (Benzene) - at the end of the work	0.045 mg/g Creatinine (urine - S-Phenyl	8 µg/g creatinine (urine - S-Phenyl-mercapturic	-	

	shift 0.025 mg/g Creatinine - urine ((S)-Phenylmercapturic acid) - at the end of the work shift 500 µg/g Creatinine - urine (trans, trans-Muconic acid) - at the end of the work shift	mercapturic acid end of exposure or end of shift) 2 mg/L (urine - trans, trans-Muconic acid end of exposure or end of shift)	acid end of shift) 0.004 µmol/mmol creatinine (urine - S-Phenyl-mercapturic acid end of shift)	
Toluene 108-88-3	600 µg/L - blood (Toluene) - immediately after exposure 1.5 mg/L - urine (o-Cresol (after hydrolysis)) - at the end of the work shift; for long-term exposure: at the end of the work shift after several consecutive workdays 75 µg/L - urine (Toluene) - at the end of the work shift	0.6 mg/L (urine - o-Cresol end of shift) 0.05 mg/L (blood - Toluene start of last shift of workweek) 0.08 mg/L (urine - Toluene end of shift)	600 µg/L (whole blood - Toluene end of shift) 6.48 µmol/L (whole blood - Toluene end of shift) 2 g/g creatinine (urine - Hippuric acid end of shift, and after several shifts (for long-term exposures)) 1.26 mmol/mmol creatinine (urine - Hippuric acid end of shift, and after several shifts (for long-term exposures)) 0.5 mg/L (urine - o-Cresol end of shift, and after several shifts (for long-term exposures)) 4.62 µmol/L (urine - o-Cresol end of shift, and after several shifts (for long-term exposures)) 75 µg/L (urine - Toluene end of shift)	-
Ethylbenzene 100-41-4	250 mg/g Creatinine - urine (Mandelic acid and Phenylglyoxylic acid) - at the end of the work shift	700 mg/g Creatinine (urine - Mandelic acid plus Phenylglyoxylic acid end of workweek)	600 mg/g creatinine (urine - Mandelic acid and Phenylglyoxylacid end of shift)	-

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
Hydrogenated base oil 64742-54-7	-	0.97 mg/kg bw/day [4] [6]	2.73 mg/m ³ [4] [6] 5.58 mg/m ³ [5] [6]
Hydrogenated base oil 64742-54-7	-	0.97 mg/kg bw/day [4] [6]	2.73 mg/m ³ [4] [6] 5.58 mg/m ³ [5] [6]
Hydrogenated base oil 64742-65-0	-	0.97 mg/kg bw/day [4] [6]	2.73 mg/m ³ [4] [6] 5.58 mg/m ³ [5] [6]
bis(nonylphenyl)amine 36878-20-3	-	5 mg/kg bw/day [4] [6]	-
Phosphorodithioic acid, mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts 84605-29-8	-	12.1 mg/kg bw/day [4] [6]	8.31 mg/m ³ [4] [6]
Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl- 128-37-0	-	0.5 mg/kg bw/day [4] [6]	3.5 mg/m ³ [4] [6]
Phenol, dodecyl-, branched 121158-58-5	-	0.25 mg/kg bw/day [4] [6] 166 mg/kg bw/day [4] [7]	44.18 mg/m ³ [4] [7]
2-methylpropan-1-ol	-	-	310 mg/m ³ [5] [6]

Chemical name	Oral	Dermal	Inhalation
78-83-1			
Nonane 111-84-2	-	773 mg/kg bw/day [4] [6]	2035 mg/m ³ [4] [6]
Hydrogen sulphide 7783-06-4	-	-	7 mg/m ³ [4] [6] 14 mg/m ³ [4] [7] 7 mg/m ³ [5] [6] 14 mg/m ³ [5] [7]
Ethylbenzene 100-41-4	-	180 mg/kg bw/day [4] [6]	77 mg/m ³ [4] [6] 293 mg/m ³ [5] [7]
Toluene 108-88-3	-	384 mg/kg bw/day [4] [6]	192 mg/m ³ [4] [6] 384 mg/m ³ [4] [7] 192 mg/m ³ [5] [6] 384 mg/m ³ [5] [7]
Naphthalene 91-20-3	-	3.57 mg/kg bw/day [4] [6]	25 mg/m ³ [4] [6] 25 mg/m ³ [5] [6]

Notes

[4]	Systemic health effects.
[5]	Local health effects.
[6]	Long term.
[7]	Short term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
Hydrogenated base oil 64742-54-7	0.74 mg/kg bw/day [4] [6]	-	1.19 mg/m ³ [5] [6]
Hydrogenated base oil 64742-54-7	0.74 mg/kg bw/day [4] [6]	-	1.19 mg/m ³ [5] [6]
Hydrogenated base oil 64742-65-0	0.74 mg/kg bw/day [4] [6]	-	1.19 mg/m ³ [5] [6]
bis(nonylphenyl)amine 36878-20-3	0.25 mg/kg bw/day [4] [6]	-	-
Phosphorodithioic acid, mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts 84605-29-8	0.24 mg/kg bw/day [4] [6]	-	2.11 mg/m ³ [4] [6]
Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl- 128-37-0	-	-	0.86 mg/m ³ [4] [6]
Phenol, dodecyl-, branched 121158-58-5	0.075 mg/kg bw/day [4] [6] 1.26 mg/kg bw/day [4] [7]	50 mg/kg bw/day [4] [6] 50 mg/kg bw/day [4] [7]	0.79 mg/m ³ [4] [6] 13.26 mg/m ³ [4] [7]
2-methylpropan-1-ol 78-83-1	-	-	55 mg/m ³ [5] [6]
Nonane 111-84-2	699 mg/kg bw/day [4] [6]	-	608 mg/m ³ [4] [6]
Ethylbenzene 100-41-4	1.6 mg/kg bw/day [4] [6]	-	15 mg/m ³ [4] [6]
Toluene 108-88-3	8.13 mg/kg bw/day [4] [6]	-	56.5 mg/m ³ [4] [6] 226 mg/m ³ [4] [7] 56.5 mg/m ³ [5] [6] 226 mg/m ³ [5] [7]

Notes

[4]	Systemic health effects.
[5]	Local health effects.

[6] Long term.
[7] Short term.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
bis(nonylphenyl)amine 36878-20-3	0.412 mg/L	1 mg/L	0.0412 mg/L	-	-
Phosphorodithioic acid, mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts 84605-29-8	4 µg/L	45 µg/L	4.6 µg/L	-	-
Phenol, 2,6-bis(1,1-dimethylethyl)- 4-methyl- 128-37-0	0.199 µg/L	1.99 µg/L	0.0199 µg/L	-	-
Phenol, dodecyl-, branched 121158-58-5	0.074 µg/L	0.37 µg/L	0.0074 µg/L	-	-
2-methylpropan-1-ol 78-83-1	0.4 mg/L	11 mg/L	0.04 mg/L	-	-
Nonane 111-84-2	3.6 µg/L	14 µg/L	3.6 µg/L	-	-
Hydrogen sulphide 7783-06-4	0.05 µg/L	0.5 µg/L	14.9 µg/L	-	-
Toluene 108-88-3	0.68 mg/L	0.68 mg/L	0.68 mg/L	-	-
Naphthalene 91-20-3	2.4 µg/L	20 µg/L	2.4 µg/L	-	-

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
Hydrogenated base oil 64742-54-7	-	-	-	-	9.33 mg/kg food
Hydrogenated base oil 64742-54-7	-	-	-	-	9.33 mg/kg food
Hydrogenated base oil 64742-65-0	-	-	-	-	9.33 mg/kg food
bis(nonylphenyl)amine 36878-20-3	1 mg/kg sediment dw	0.1 mg/kg sediment dw	-	-	-
Phosphorodithioic acid, mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts 84605-29-8	0.02203 mg/kg sediment dw	0.002203 mg/kg sediment dw	100 mg/L	0.00206 mg/kg soil dw	10.67 mg/kg food
Phenol, 2,6-bis(1,1-dimethylethyl)- 4-methyl- 128-37-0	99.6 µg/kg sediment dw	9.96 µg/kg sediment dw	0.17 mg/L	47.69 µg/kg soil dw	8.33 mg/kg food
Phenol, dodecyl-, branched 121158-58-5	0.226 mg/kg sediment dw	0.0266 mg/kg sediment dw	100 mg/L	0.118 mg/kg soil dw	4 mg/kg food
2-methylpropan-1-ol	1.56 mg/kg	0.156 mg/kg	10 mg/L	0.0765 mg/kg soil	-

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
78-83-1	sediment dw	sediment dw		dw	
Nonane 111-84-2	0.62 mg/kg sediment dw	0.62 mg/kg sediment dw	54 µg/L	0.25 mg/kg soil dw	-
Hydrogen sulphide 7783-06-4	-	-	1.33 mg/L	-	-
Toluene 108-88-3	16.39 mg/kg sediment dw	16.39 mg/kg sediment dw	13.61 mg/L	2.89 mg/kg soil dw	-
Naphthalene 91-20-3	67.2 µg/kg sediment dw	67.2 µg/kg sediment dw	2.9 mg/L	53.3 µg/kg soil dw	-

8.2. Exposure controls

Engineering controls	Ensure adequate ventilation, especially in confined areas.
Personal protective equipment	
Eye/face protection	If there is a risk of contact: Wear safety glasses with side shields (or goggles).
Hand protection	If there is a risk of contact: Wear suitable gloves.
Skin and body protection	If there is a risk of contact: Wear suitable protective clothing.
Respiratory protection	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.
Environmental exposure controls	Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Liquid
Colour	Brown
Odour	Mild hydrocarbon
Odour threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point / freezing point		No data available
Initial boiling point and boiling range		No data available
Flammability		No data available
Flammability Limit in Air		
Upper flammability or explosive limits		No data available
Lower flammability or explosive limits		No data available
Flash point	226 °C	Cleveland Open Cup ASTM D 92
Autoignition temperature		No data available
Decomposition temperature		No data available
pH		No data available
pH (as aqueous solution)		No data available

Kinematic viscosity	90.2 cSt at 40 °C	ASTM D445
	15.2 cSt at 100 °C	
Dynamic viscosity		No data available
Water solubility		No data available
Solubility(ies)		No data available
Partition coefficient		No data available
Vapour pressure		No data available
Relative density	0.8514	No data available
Bulk density		No data available
Liquid Density		No data available
Relative vapour density		No data available
Particle characteristics		
Particle Size		No data available
Particle Size Distribution		No data available

9.2. Other information

Pour Point -42°C [ASTM D 97]

9.2.1. Information with regards to physical hazard classes
Not applicable

9.2.2. Other safety characteristics

No information available

Fire Point 236°C (COC) [ASTM D 92]

SECTION 10: Stability and reactivity**10.1. Reactivity**

Reactivity None under normal use conditions.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid None known based on information supplied.

10.5. Incompatible materials

Incompatible materials None known based on information supplied.

10.6. Hazardous decomposition products

Hazardous decomposition products Ethers. Miscellaneous decomposition products.

SECTION 11: Toxicological information**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

Information on likely routes of exposure**Product Information**

Inhalation	Specific test data for the substance or mixture is not available.
Eye contact	Specific test data for the substance or mixture is not available.
Skin contact	Specific test data for the substance or mixture is not available. Causes mild skin irritation.
Ingestion	Specific test data for the substance or mixture is not available.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms	Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness and difficulty breathing. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation in susceptible persons. May cause temporary eye irritation. Prolonged contact may cause redness and irritation.
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Acute toxicity**Numerical measures of toxicity****Component Information**

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Hydrogenated base oil 64742-54-7	> 15 g/kg (Rat)	> 5000 mg/kg (Rabbit)	-
Hydrogenated base oil 64742-54-7	> 15 g/kg (Rat)	> 5000 mg/kg (Rabbit)	-
Hydrogenated base oil 64742-65-0	> 15000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	> 2400 mg/m ³ (Rat) 4 h
bis(nonylphenyl)amine 36878-20-3	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rat)	-
Phosphorodithioic acid, mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts 84605-29-8	= 3100 mg/kg (Rat) = 3200 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 2.3 mg/L (Rat) 4 h
Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl- 128-37-0	> 6000 mg/kg (Rat)	> 2000 mg/kg (Rat)	-
Phenol, dodecyl-, branched 121158-58-5	-	= 15000 mg/kg (Rabbit)	-
Diphenylamine 122-39-4	= 1120 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	-
2-methylpropan-1-ol 78-83-1	= 2460 mg/kg (Rat)	= 3400 mg/kg (Rabbit)	> 18.18 mg/L (Rat) 6 h
Nonane 111-84-2	-	-	= 3200 ppm (Rat) 4 h
Hydrogen sulphide 7783-06-4	-	-	= 501 ppm (Rat) 4 h
Benzene 71-43-2	> 2000 mg/kg (Rat)	> 8200 mg/kg (Rabbit)	= 44.66 mg/L (Rat) 4 h
Toluene 108-88-3	= 2600 mg/kg (Rat)	= 12000 mg/kg (Rabbit)	= 12.5 mg/L (Rat) 4 h
Naphthalene 91-20-3	= 1110 mg/kg (Rat)	= 1120 mg/kg (Rabbit)	> 0.4 mg/L (Rat) 4 h
Ethylbenzene	= 3500 mg/kg (Rat)	= 15400 mg/kg (Rabbit)	= 17.4 mg/L (Rat) 4 h

100-41-4			
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Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients. Causes mild skin irritation.

Component Information	
Hydrogenated base oil (64742-54-7)	
Method	OECD Test No. 404: Acute Dermal Irritation/Corrosion
Species	Rabbit
Exposure route	Dermal
Effective dose	0.5 mL
Exposure time	24 hours
Results	non-irritant

Phosphorodithioic acid, mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts (84605-29-8)	
Method	OECD Test No. 404: Acute Dermal Irritation/Corrosion
Species	Rabbit
Exposure route	Dermal
Effective dose	0.5 mL
Exposure time	4 hours
Results	Irritant

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Component Information	
Hydrogenated base oil (64742-54-7)	
Species	Rabbit
Exposure route	Eye
Effective dose	0.1 mL
Exposure time	72 hours
Results	non-irritant

Phosphorodithioic acid, mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts (84605-29-8)	
Species	Rabbit
Exposure route	Eye
Effective dose	0.1 mL
Results	Eye Damage

Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

Component Information	
Hydrogenated base oil (64742-54-7)	
Method	OECD Test No. 429: Skin Sensitisation: Local Lymph Node Assay
Species	Guinea pig
Exposure route	Dermal
Results	Not a skin sensitiser

Germ cell mutagenicity Based on available data, the classification criteria are not met.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as mutagenic.

Chemical name	European Union
Benzene	Muta. 1B

Carcinogenicity The supplier declares that it can be shown that the substance(s) contain less than 3% DMSO extract as measured by IP 346.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	European Union
Hydrogenated base oil	Carc. 1B
Hydrogenated base oil	Not classified
Hydrogenated base oil	Carc. 1B
Benzene	Carc. 1A
Naphthalene	Carc. 2

Reproductive toxicity Based on available data, the classification criteria are not met.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as reproductive toxins.

Chemical name	European Union
Phenol, dodecyl-, branched	Repr. 1B
Toluene	Repr. 2

STOT - single exposure Based on available data, the classification criteria are not met.

STOT - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard Due to the viscosity, this product does not present an aspiration hazard.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties No information available.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Harmful to aquatic life with long lasting effects.

Unknown aquatic toxicity Contains 0 % of components with unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Hydrogenated base oil 64742-54-7	-	LC50: >5000mg/L (96h, Oncorhynchus mykiss)	-	EC50: >1000mg/L (48h, Daphnia magna)
Hydrogenated base oil 64742-54-7	-	LC50: >5000mg/L (96h, Oncorhynchus mykiss)	-	EC50: >1000mg/L (48h, Daphnia magna)
Hydrogenated base oil 64742-65-0	-	LC50: >5000mg/L (96h, Oncorhynchus mykiss)	-	EC50: >1000mg/L (48h, Daphnia magna)
bis(nonylphenyl)amine 36878-20-3	-	LC50: >1000mg/L (96h, Pimephales promelas)	-	-
Phosphorodithioic acid, mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts 84605-29-8	-	LC50: =4.5mg/L (96h, Oncorhynchus mykiss)	-	EC50: =23mg/L (48h, Daphnia magna)
Phenol,	EC50: >0.42mg/L (72h,	-	-	-

2,6-bis(1,1-dimethylethyl)-4-methyl-128-37-0	Desmodesmus subspicatus)			
Diphenylamine 122-39-4	EC50: =1.5mg/L (72h, Scenedesmus subspicatus)	LC50: 3.47 - 4.14mg/L (96h, Pimephales promelas)	-	EC50: 1.69 - 2.46mg/L (48h, Daphnia magna)
2-methylpropan-1-ol 78-83-1	-	LC50: =375mg/L (96h, Pimephales promelas) LC50: 1370 - 1670mg/L (96h, Pimephales promelas) LC50: 1480 - 1730mg/L (96h, Lepomis macrochirus) LC50: 1120 - 1520mg/L (96h, Oncorhynchus mykiss)	-	EC50: =1300mg/L (48h, Daphnia magna) EC50: 1070 - 1933mg/L (48h, Daphnia magna)
Hydrogen sulphide 7783-06-4	-	LC50: =0.0448mg/L (96h, Lepomis macrochirus) LC50: =0.016mg/L (96h, Pimephales promelas)	-	-
Benzene 71-43-2	EC50: =29mg/L (72h, Pseudokirchneriella subcapitata)	LC50: =22.49mg/L (96h, Lepomis macrochirus)	-	EC50: =10mg/L (48h, Daphnia magna)
Toluene 108-88-3	EC50: >433mg/L (96h, Pseudokirchneriella subcapitata) EC50: =12.5mg/L (72h, Pseudokirchneriella subcapitata)	LC50: 15.22 - 19.05mg/L (96h, Pimephales promelas) LC50: =12.6mg/L (96h, Pimephales promelas) LC50: 5.89 - 7.81mg/L (96h, Oncorhynchus mykiss) LC50: 14.1 - 17.16mg/L (96h, Oncorhynchus mykiss) LC50: =5.8mg/L (96h, Oncorhynchus mykiss) LC50: 11.0 - 15.0mg/L (96h, Lepomis macrochirus) LC50: =54mg/L (96h, Oryzias latipes) LC50: =28.2mg/L (96h, Poecilia reticulata) LC50: 50.87 - 70.34mg/L (96h, Poecilia reticulata)	-	EC50: 5.46 - 9.83mg/L (48h, Daphnia magna) EC50: =11.5mg/L (48h, Daphnia magna)
Naphthalene 91-20-3	-	LC50: 0.91 - 2.82mg/L (96h, Oncorhynchus mykiss)	-	EC50: 1.09 - 3.4mg/L (48h, Daphnia magna)
Ethylbenzene 100-41-4	EC50: >438mg/L (96h, Pseudokirchneriella subcapitata)	LC50: 11.0 - 18.0mg/L (96h, Oncorhynchus mykiss)	-	EC50: 1.8 - 2.4mg/L (48h, Daphnia magna)

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation**Component Information**

Chemical name	Partition coefficient
Phosphorodithioic acid, mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts	0.56
Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl-	5.1
Phenol, dodecyl-, branched	7.14
Diphenylamine	3.4
2-methylpropan-1-ol	1
Hydrogen sulphide	0.45
Benzene	2.13
Toluene	2.73
Naphthalene	3.4
Ethylbenzene	3.6

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB.

Chemical name	PBT and vPvB assessment
Hydrogenated base oil 64742-54-7	The substance is not PBT / vPvB
Hydrogenated base oil 64742-54-7	The substance is not PBT / vPvB
Hydrogenated base oil 64742-65-0	The substance is not PBT / vPvB
Phosphorodithioic acid, mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts 84605-29-8	The substance is not PBT / vPvB
Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl- 128-37-0	The substance is not PBT / vPvB
Phenol, dodecyl-, branched 121158-58-5	The substance is not PBT / vPvB
2-methylpropan-1-ol 78-83-1	The substance is not PBT / vPvB
Nonane 111-84-2	The substance is not PBT / vPvB
Hydrogen sulphide 7783-06-4	PBT assessment does not apply
Benzene 71-43-2	The substance is not PBT / vPvB
Toluene 108-88-3	The substance is not PBT / vPvB
Naphthalene 91-20-3	The substance is not PBT / vPvB
Ethylbenzene 100-41-4	The substance is not PBT / vPvB

12.6. Endocrine disrupting properties

Endocrine disrupting properties This product does not contain any known or suspected endocrine disruptors.

12.7. Other adverse effects

Other adverse effects No information available.

SECTION 13: Disposal considerations**13.1. Waste treatment methods**

Waste from residues/unused products	Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
Contaminated packaging	Do not reuse empty containers.
Waste codes / waste designations according to EWC / AVV	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

IMDG	Not regulated
14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not applicable
14.5 Environmental hazards	Not applicable
14.6 Special Precautions for Users	
Special Provisions	None
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID	Not regulated
14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not applicable
14.5 Environmental hazards	Not applicable
14.6 Special Precautions for Users	
Special Provisions	None

ADR	Not regulated
14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not applicable
14.5 Environmental hazards	Not applicable
14.6 Special Precautions for Users	
Special Provisions	None

IATA	Not regulated
14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not applicable
14.5 Environmental hazards	Not applicable
14.6 Special Precautions for Users	
Special Provisions	None
Note:	None

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**National regulations****France****Occupational Illnesses (R-463-3, France)**

Chemical name	French RG number
Diphenylamine 122-39-4	RG 15, RG 15bis
2-methylpropan-1-ol 78-83-1	RG 84
Nonane 111-84-2	RG 84
Benzene 71-43-2	RG 4, RG 4bis, RG 84
Toluene 108-88-3	RG 4bis, RG 84
Ethylbenzene 100-41-4	RG 84

Netherlands

Chemical name	Netherlands - List of Carcinogens	Netherlands - List of Mutagens	Netherlands - List of Reproductive Toxins
Phenol, dodecyl-, branched	-	-	Fertility Category 1B
Benzene	Present	Present	-
Toluene	-	-	Development Category 2

European Union

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

Authorisations and/or restrictions on use:

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorisation per REACH Annex XIV
Hydrogenated base oil - 64742-54-7	28. 75.	-
Hydrogenated base oil - 64742-54-7	28. 75.	-
Hydrogenated base oil - 64742-65-0	28. 75.	-
Phenol, dodecyl-, branched - 121158-58-5	30. 75.	-
Diphenylamine - 122-39-4	75.	-
2-methylpropan-1-ol - 78-83-1	75.	-
Benzene - 71-43-2	72. 5. 28. 29. 75.	-
Toluene - 108-88-3	48. 75.	-

Naphthalene - 91-20-3	75.	-
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Persistent Organic Pollutants

Not applicable

Export Notification requirements

This product contains substances which are regulated pursuant to Regulation (EC) No. 649/2012 of the European parliament and of the council concerning the export and import of dangerous chemicals

Chemical name	European Export/Import Restrictions per (EC) 649/2012 - Annex Number
Diphenylamine - 122-39-4	I.1 I.2
Benzene - 71-43-2	I.1

Named dangerous substances per Seveso Directive (2012/18/EU)

Chemical name	Lower-tier requirements (tons)	Upper-tier requirements (tons)
Hydrogen sulphide - 7783-06-4	5	20

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

EU - Water Framework Directive (2000/60/EC)

Chemical name	EU - Water Framework Directive (2000/60/EC)
Benzene - 71-43-2	Priority substance
Naphthalene - 91-20-3	Priority substance

EU - Environmental Quality Standards (2008/105/EC)

Chemical name	EU - Environmental Quality Standards (2008/105/EC)
Benzene - 71-43-2	Priority substance
Naphthalene - 91-20-3	Priority substance

International Inventories

Contact supplier for inventory compliance status

15.2. Chemical safety assessment**Chemical Safety Report**

No information available

SECTION 16: Other information**Key or legend to abbreviations and acronyms used in the safety data sheet****Full text of H-Statements referred to under section 3**

H220 - Extremely flammable gas
 H225 - Highly flammable liquid and vapour
 H226 - Flammable liquid and vapour
 H301 - Toxic if swallowed
 H302 - Harmful if swallowed
 H304 - May be fatal if swallowed and enters airways
 H311 - Toxic in contact with skin
 H314 - Causes severe skin burns and eye damage
 H315 - Causes skin irritation
 H318 - Causes serious eye damage
 H319 - Causes serious eye irritation
 H330 - Fatal if inhaled
 H331 - Toxic if inhaled

H332 - Harmful if inhaled
 H335 - May cause respiratory irritation
 H336 - May cause drowsiness or dizziness
 H340 - May cause genetic defects
 H350 - May cause cancer
 H351 - Suspected of causing cancer
 H360F - May damage fertility
 H361d - Suspected of damaging the unborn child
 H372 - Causes damage to organs through prolonged or repeated exposure
 H373 - May cause damage to organs through prolonged or repeated exposure
 H400 - Very toxic to aquatic life
 H410 - Very toxic to aquatic life with long lasting effects
 H411 - Toxic to aquatic life with long lasting effects
 H413 - May cause long lasting harmful effects to aquatic life

Legend

ATE: Acute Toxicity Estimate
 SVHC: Substances of Very High Concern for Authorisation:
 PBT: Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
 vPvB: Very Persistent and very Bioaccumulative (vPvB) Chemicals

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
SCBA	Self-contained breathing apparatus		

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
 European Chemicals Agency (ECHA) (ECHA_API)
 EPA (Environmental Protection Agency)
 Acute Exposure Guideline Level(s) (AEGL(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 Hazardous Substance Database

International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

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End of Safety Data Sheet