



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 12-Jun-2023

Revision Date 12-Jun-2023

Revision Number 1

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

1.1. Product identifier

Product Name Dominator®2-Cycle Racing Oil

Product Code(s) TDR

Synonyms None

Pure substance/mixture Mixture

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

Recommended use Lubricating 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 (Poland): 48-223988029
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

Skin corrosion/irritation	Category 2 - (H315)
Serious eye damage/eye irritation	Category 2 - (H319)
Specific target organ toxicity — single exposure	Category 3 - (H336)
Category 3 Narcotic effects	
Chronic aquatic toxicity	Category 3 - (H412)

2.2. Label elements

Contains Hydrogenated base oil, Hydrogenated base oil, Hydrogenated base oil



Signal word
Warning

Hazard statements

H315 - Causes skin irritation
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H412 - Harmful to aquatic life with long lasting effects

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

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves and eye/face protection
P312 - Call a POISON CENTER or doctor if you feel unwell
P321 - Specific treatment (see .? on this label)
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

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

2.3. Other hazards

Harmful to aquatic life.

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors.

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)
Synthetic Ester -	25-30	No data available	No information available	Skin. Irrit. 2 (H315) Eye Irrit. 2 (H319)	-	-	-
Hydrogenated base oil 64742-54-7	25-30	No data available	(649-467-00-8) 265-157-1	Carc. 1B (H350) (*L)	-	-	-
Hydrogenated base oil 64742-47-8	10-15	No data available	(649-422-00-2) 265-149-8	Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) AquaticChronic	-	-	-

				2(H411) Flam. Liq. 3 (H226) STOT SE 3 (H336) Eye Irrit. 2A (H319)			
Hydrogenated base oil 64742-48-9	10-15	No data available	(649-327-00-6) 265-150-3	Flam. Liq. 3 (H226) Skin Irrit. 2 (H315) STOT SE 3 (H336) Asp. Tox. 1 (H304) Aquatic Chronic 2 (H411) Eye Irrit. 2A (H319)	-	-	-
Hydrogenated base oil 64742-95-6	1-3	No data available	(649-356-00-4) 265-199-0	Flam. Liq. 3 (H226) Asp. Tox. 1 { H304) STOT SE 3 (H335) STOT SE 3 (H336)	-	-	-
Benzene, 1,2,4-trimethyl- 95-63-6	0.1-1	No data available	(601-043-00-3) 202-436-9	Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335) Aquatic Chronic 2 (H411) Flam. Liq. 3 (H226)	-	-	-
Benzene, 1,3,5-trimethyl- 108-67-8	0.1-1	No data available	(601-025-00-5) 203-604-4	STOT SE 3 (H335) Aquatic Chronic 2 (H411) Flam. Liq. 3 (H226)	STOT SE 3 :: C>=25%	-	-
Hydrogenated base oil 8042-47-5	0.1-1	No data available	232-455-8	Asp. Tox. 1 (H304)	-	-	-
Cumene 98-82-8	0.01-0.1	No data available	(601-024-00-X) 202-704-5	Carc. 1B (H350) STOT SE 3 (H335) Asp. Tox. 1 (H304) Aquatic Chronic 2 (H411)	-	-	-

				Flam. Liq. 3 (H226)			
Xylene 1330-20-7	0.01-0.1	No data available	(601-022-00-9) 215-535-7	Acute Tox. 4 (H312) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Flam. Liq. 3 (H226)	-	-	-
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)	-	-	-
Diphenylamine 122-39-4	< 0.01	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)	-	-	-
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)	-	-	-
n-Propylbenzene 103-65-1	< 0.01	No data available	(601-097-00-8) 203-132-9	STOT SE 3 (H335) Asp. Tox. 1 (H304) Aquatic Chronic 2 (H411) Flam. Liq. 3 (H226)	-	-	-
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)	-	-	-

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 64742-47-8	5005	2002	5.2052	No data available	No data available
Hydrogenated base oil 64742-48-9	6006	5005	8.5085	No data available	No data available
Hydrogenated base oil 64742-95-6	8400	2002	No data available	No data available	No data available
Benzene, 1,2,4-trimethyl- 95-63-6	3280	3163.16	18	No data available	No data available
Benzene, 1,3,5-trimethyl- 108-67-8	No data available	No data available	24	No data available	No data available
Hydrogenated base oil 8042-47-5	5005	No data available	No data available	No data available	No data available
Cumene 98-82-8	1400	10578	No data available	21.557	No data available
Xylene 1330-20-7	3500	4354.35	29.08	No data available	No data available
Ethylbenzene 100-41-4	3500	15400	17.4	No data available	No data available
Diphenylamine 122-39-4	1120	2002	No data available	No data available	No data available
Naphthalene 91-20-3	1110	1120	0.4004	No data available	No data available
n-Propylbenzene 103-65-1	6040	No data available	No data available	225.9372	No data available
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

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	Show this safety data sheet to the doctor in attendance.
Inhalation	Remove person to fresh air and keep comfortable for breathing. Remove to fresh air. IF exposed or concerned: Get medical advice/attention. Get medical attention immediately if symptoms occur.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Ingestion	Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a doctor.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

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

Symptoms	May cause gastrointestinal discomfort if consumed in large amounts. Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness and difficulty breathing. Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation in susceptible persons. May cause redness and tearing of the eyes. Burning sensation. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
Effects of Exposure	No information available.

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

Note to doctors	Treat symptomatically.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Water spray, carbon dioxide (CO ₂), 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. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing.
Other information	Refer to protective measures listed in Sections 7 and 8.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so.
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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.
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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	Avoid contact with used product. Wash hands thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse. Ensure adequate ventilation. Avoid breathing vapours or mists. In case of insufficient ventilation, wear suitable respiratory equipment.
General hygiene considerations	Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing.

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. Keep containers tightly closed in a dry, cool and well-ventilated place.
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
Benzene, 1,2,4-trimethyl- 95-63-6	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³ STEL 30 ppm STEL 150 mg/m ³	-	TWA: 20 ppm TWA: 100.0 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³
Benzene, 1,3,5-trimethyl- 108-67-8	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³ STEL 30 ppm STEL 150 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100.0 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³
Cumene 98-82-8	* STEL: 250 mg/m ³ STEL: 50 ppm TWA: 50 mg/m ³ TWA: 10 ppm	TWA: 10 ppm TWA: 50 mg/m ³ STEL 50 ppm STEL 250 mg/m ³ H*	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ D*	STEL: 50 ppm STEL: 250 mg/m ³ TWA: 10 ppm TWA: 50 mg/m ³ K*	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ *
Xylene 1330-20-7	TWA: 50 ppm TWA: 221 mg/m ³ STEL: 100 ppm STEL: 442 mg/m ³ *	TWA: 50 ppm TWA: 221 mg/m ³ STEL 100 ppm STEL 442 mg/m ³	TWA: 50 ppm TWA: 221 mg/m ³ STEL: 100 ppm STEL: 442 mg/m ³ D*	STEL: 100 ppm STEL: 442 mg/m ³ TWA: 50 ppm TWA: 221.0 mg/m ³ K*	TWA: 50 ppm TWA: 221 mg/m ³ STEL: 100 ppm STEL: 442 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 *
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
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
Benzene 71-43-2	TWA: 0.2 ppm TWA: 0.66 mg/m ³ *	H*	TWA: 1 ppm TWA: 3.25 mg/m ³ D*	TWA: 3.25 mg/m ³ TWA: 1 ppm K*	TWA: 1 ppm TWA: 3.25 mg/m ³ *
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 *
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
Hydrogenated base oil 64742-47-8	-	-	-	TWA: 5 mg/kg STEL: 500 mg/m ³	-
Benzene, 1,2,4-trimethyl- 95-63-6	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 100 mg/m ³ Ceiling: 250 mg/m ³ D*	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 40 ppm	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³

			STEL: 200 mg/m ³		
Benzene, 1,3,5-trimethyl- 108-67-8	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 100 mg/m ³ Ceiling: 250 mg/m ³ D*	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 40 ppm STEL: 200 mg/m ³	-	TWA: 20 ppm TWA: 100 mg/m ³
Cumene 98-82-8	* STEL: 50 ppm STEL: 250 mg/m ³ TWA: 10 ppm TWA: 50 mg/m ³	TWA: 100 mg/m ³ Ceiling: 250 mg/m ³ D*	TWA: 10 ppm TWA: 50 mg/m ³ H* STEL: 250 mg/m ³ STEL: 50 ppm	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ A*	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ iho*
Xylene 1330-20-7	* STEL: 100 ppm STEL: 442 mg/m ³ TWA: 50 ppm TWA: 221 mg/m ³	TWA: 200 mg/m ³ Ceiling: 400 mg/m ³ D*	TWA: 25 ppm TWA: 109 mg/m ³ H* STEL: 442 mg/m ³ STEL: 100 ppm	TWA: 50 ppm TWA: 200 mg/m ³ STEL: 100 ppm STEL: 450 mg/m ³ A*	TWA: 50 ppm TWA: 220 mg/m ³ STEL: 100 ppm STEL: 440 mg/m ³ iho*
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*
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
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
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*
Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
Hydrogenated base oil 64742-47-8	-	TWA:	TWA: 5 mg/m ³ TWA: 50 ppm TWA: 350 mg/m ³ Peak: 20 mg/m ³ Peak: 100 ppm Peak: 700 mg/m ³	-	-
Hydrogenated base oil 64742-48-9	-	-	TWA: 50 ppm TWA: 300 mg/m ³ Peak: 100 ppm Peak: 600 mg/m ³	-	-
Benzene, 1,2,4-trimethyl- 95-63-6	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³ Peak: 40 ppm Peak: 200 mg/m ³	TWA: 25 ppm TWA: 125 mg/m ³	TWA: 100 mg/m ³ TWA: 20 ppm
Benzene, 1,3,5-trimethyl- 108-67-8	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³ Peak: 40 ppm Peak: 200 mg/m ³	TWA: 25 ppm TWA: 125 mg/m ³	TWA: 100 mg/m ³ TWA: 20 ppm
Hydrogenated base oil 8042-47-5	-	TWA: 5 mg/m ³	TWA: 5 mg/m ³ Peak: 20 mg/m ³	-	TWA: 5 mg/m ³

Cumene 98-82-8	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ *	TWA: 10 ppm TWA: 50 mg/m ³ H*	TWA: 10 ppm TWA: 50 mg/m ³ Peak: 40 ppm Peak: 200 mg/m ³ *	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ *	TWA: 50 mg/m ³ TWA: 10 ppm STEL: 250 mg/m ³ STEL: 50 ppm b*
Xylene 1330-20-7	TWA: 50 ppm TWA: 221 mg/m ³ STEL: 100 ppm STEL: 442 mg/m ³ *	TWA: 50 ppm TWA: 220 mg/m ³ H*	TWA: 50 ppm TWA: 220 mg/m ³ Peak: 100 ppm Peak: 440 mg/m ³ *	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 150 ppm STEL: 650 mg/m ³ *	TWA: 221 mg/m ³ TWA: 50 ppm STEL: 442 mg/m ³ STEL: 100 ppm b*
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*
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	-
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
n-Propylbenzene 103-65-1	TWA: 150 mg/m ³ TWA: 1000 mg/m ³ STEL: 1500 mg/m ³	-	-	-	-
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*
Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
Benzene, 1,2,4-trimethyl- 95-63-6	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 60 ppm STEL: 300 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³	-	TWA: 20 ppm TWA: 100 mg/m ³	-
Benzene, 1,3,5-trimethyl- 108-67-8	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 60 ppm STEL: 300 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³	-	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 30 ppm STEL: 150 mg/m ³
Hydrogenated base oil 8042-47-5	-	-	-	TWA: 5 mg/m ³	-
Cumene 98-82-8	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ Sk*	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ cute*	TWA: 50 ppm TWA: 246 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ Ada*	O* TWA: 50 mg/m ³ TWA: 10 ppm STEL: 170 mg/m ³ STEL: 35 ppm
Xylene 1330-20-7	TWA: 50 ppm TWA: 221 mg/m ³ STEL: 100 ppm STEL: 442 mg/m ³ Sk*	TWA: 50 ppm TWA: 221 mg/m ³ STEL: 100 ppm STEL: 442 mg/m ³ cute*	TWA: 100 ppm TWA: 434 mg/m ³ STEL: 150 ppm STEL: 651 mg/m ³	TWA: 50 ppm TWA: 221 mg/m ³ STEL: 100 ppm STEL: 442 mg/m ³ Ada*	O* TWA: 221 mg/m ³ TWA: 50 ppm STEL: 442 mg/m ³ STEL: 100 ppm
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

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
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
Benzene 71-43-2	TWA: 1 ppm TWA: 3.25 mg/m ³ STEL: 3 ppm STEL: 9.75 mg/m ³ Sk*	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 cute*	TWA: 1 ppm TWA: 3.25 mg/m ³ Ada*	O* TWA: 1 ppm TWA: 3.25 mg/m ³ STEL: 6 ppm 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
Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
Hydrogenated base oil 64742-48-9	-	-	-	-	STEL: 900 mg/m ³ TWA: 300 mg/m ³
Benzene, 1,2,4-trimethyl- 95-63-6	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 40 ppm STEL: 200 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 150 mg/m ³ STEL: 30 ppm	STEL: 170 mg/m ³ TWA: 100 mg/m ³ skóra*
Benzene, 1,3,5-trimethyl- 108-67-8	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³	-	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 150 mg/m ³ STEL: 30 ppm	STEL: 170 mg/m ³ TWA: 100 mg/m ³ skóra*
Cumene 98-82-8	Peau* STEL: 50 ppm STEL: 250 mg/m ³ TWA: 10 ppm TWA: 50 mg/m ³	skin* STEL: 50 ppm STEL: 250 mg/m ³ TWA: 10 ppm TWA: 50 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ H*	TWA: 50 mg/m ³ TWA: 10 ppm STEL: 250 mg/m ³ STEL: 50 ppm H*	STEL: 250 mg/m ³ TWA: 50 mg/m ³ skóra*
Xylene 1330-20-7	Peau* STEL: 100 ppm STEL: 442 mg/m ³ TWA: 50 ppm TWA: 221 mg/m ³	skin* STEL: 100 ppm STEL: 442 mg/m ³ TWA: 50 ppm TWA: 221 mg/m ³	TWA: 47.5 ppm TWA: 210 mg/m ³ STEL: 100 ppm STEL: 442 mg/m ³ H*	TWA: 25 ppm TWA: 108 mg/m ³ STEL: 37.5 ppm STEL: 135 mg/m ³ H*	STEL: 200 mg/m ³ TWA: 100 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*
Diphenylamine 122-39-4	-	-	-	TWA: 5 mg/m ³ STEL: 10 mg/m ³	TWA: 8 mg/m ³
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*
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*
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain

Benzene, 1,2,4-trimethyl- 95-63-6	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 40 ppm STEL: 200 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³
Benzene, 1,3,5-trimethyl- 108-67-8	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³ Ceiling: 200 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 40 ppm STEL: 200 mg/m ³	TWA: 20 ppm TWA: 100 mg/m ³
Hydrogenated base oil 8042-47-5	-	-	-	TWA: 5 mg/m ³ STEL: 20 mg/m ³	-
Cumene 98-82-8	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ Cutănea*	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ P*	TWA: 20 ppm TWA: 500 mg/m ³ K* Ceiling: 250 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ K*	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ vía dérmica*
Xylene 1330-20-7	TWA: 50 ppm TWA: 221 mg/m ³ STEL: 100 ppm STEL: 442 mg/m ³ Cutănea*	TWA: 50 ppm TWA: 221 mg/m ³ STEL: 100 ppm STEL: 442 mg/m ³ P*	TWA: 50 ppm TWA: 221 mg/m ³ K* Ceiling: 442 mg/m ³	TWA: 50 ppm TWA: 221 mg/m ³ STEL: 100 ppm STEL: 442 mg/m ³ K*	TWA: 50 ppm TWA: 221 mg/m ³ STEL: 100 ppm STEL: 442 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 Cutănea*	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*
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
Naphthalene 91-20-3	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 15 ppm Cutănea*	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*
Benzene 71-43-2	TWA: 1 ppm TWA: 3.25 mg/m ³ STEL: 2.5 ppm Cutănea*	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 Cutănea*	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*
Chemical name	Sweden		Switzerland		United Kingdom
Hydrogenated base oil 64742-47-8	-		TWA: 50 ppm TWA: 350 mg/m ³ TWA: 5 mg/m ³ STEL: 100 ppm STEL: 700 mg/m ³		-
Hydrogenated base oil 64742-48-9	-		TWA: 50 ppm TWA: 300 mg/m ³ STEL: 100 ppm STEL: 600 mg/m ³		-
Benzene, 1,2,4-trimethyl- 95-63-6	NGV: 20 ppm NGV: 100 mg/m ³ Bindande KGV: 35 ppm Bindande KGV: 170 mg/m ³		-		-
Benzene, 1,3,5-trimethyl- 108-67-8	NGV: 20 ppm NGV: 100 mg/m ³		-		-

	Bindande KGV: 35 ppm Bindande KGV: 170 mg/m ³		
Hydrogenated base oil 8042-47-5	-	TWA: 5 mg/m ³	-
Cumene 98-82-8	NGV: 10 ppm NGV: 50 mg/m ³ Bindande KGV: 50 ppm Bindande KGV: 250 mg/m ³ H*	TWA: 20 ppm TWA: 100 mg/m ³ STEL: 80 ppm STEL: 400 mg/m ³ H*	TWA: 25 ppm TWA: 125 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ Sk*
Xylene 1330-20-7	NGV: 50 ppm NGV: 221 mg/m ³ Bindande KGV: 100 ppm Bindande KGV: 442 mg/m ³ H*	TWA: 50 ppm TWA: 220 mg/m ³ STEL: 100 ppm STEL: 440 mg/m ³ H*	TWA: 50 ppm TWA: 220 mg/m ³ STEL: 100 ppm STEL: 441 mg/m ³ Sk*
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*
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
Naphthalene 91-20-3	NGV: 10 ppm NGV: 50 mg/m ³ Vägledande KGV: 15 ppm Vägledande KGV: 80 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³ H*	-
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*

Biological occupational exposure limits

Chemical name	European Union	Austria	Bulgaria	Croatia	Czech Republic
Benzene, 1,3,5-trimethyl- 108-67-8	-	-	-	400 mg/g Creatinine - urine (Dimethylbenzoic acid (sum of all isomers)) - at the end of the work shift; at chronic exposure in the middle of the working week	-
Cumene 98-82-8	-	-	7 mg/g Creatinine - urine (2-Phenol-2 propanol) - up to two hours after the end of work shift	-	-
Xylene 1330-20-7	-	1.5 g/L (urine - Methylhippuric acid after end of work day, at the end of a work week/end of	-	1.50 mg/L - blood (Xylene) - at the end of the work shift 1.50 g/g Creatinine - urine (Methylhippuric	820 µmol/mmol Creatinine (urine - Methylhippuric acid end of shift) 1400 mg/g

		the shift)		acid) - at the end of the work shift	Creatinine (urine - Methylhippuric 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 µmol/mmol Creatinine (urine - Mandelic acid end of shift) 1500 mg/g Creatinine (urine - Mandelic acid end of shift)
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/µL Erythrocytes (blood - not provided) 3.8 million/µL Erythrocytes (blood - not provided) 4000 Leukocytes/µL (blood - not provided) 13000 Leukocytes/µL (blood - not provided) 130000 Thrombocytes/µL (blood - not provided) 150000 Thrombocytes/µL (blood - not provided) <=50 U/I (- Serum transaminases SGOT not provided) <=35 U/I (- Serum transaminases SGOT not provided) <=50 U/I (- Serum transaminases SGPT not provided) <=35 U/I (- Serum transaminases SGPT not provided) <=66 U/I (- Serum transaminases GGT not provided) <=39 U/I (- 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)
Chemical name	Denmark	Finland	France	Germany DFG	Germany TRGS
Benzene, 1,2,4-trimethyl- 95-63-6	-	-	600 mg/g creatinine - urine (Total Dimethylbenzoic acids (after hydrolysis) in urine) - end of shift after several shifts	400 mg/g Creatinine (urine - Dimethylbenzoic acid (sum of all isomers after hydrolysis) end of shift) 400 mg/g Creatinine	400 mg/g Creatinine (urine - Dimethylbenzoic acid (sum of all isomers after hydrolysis) end of shift) 400 mg/g Creatinine

				(urine - Dimethylbenzoic acid (sum of all isomers after hydrolysis) for long-term exposures: at the end of the shift after several shifts) 400 mg/g Creatinine - BAT (end of exposure or end of shift) urine 400 mg/g Creatinine - BAT (for long-term exposures: at the end of the shift after several shifts) urine	(urine - Dimethylbenzoic acid (sum of all isomers after hydrolysis) for long-term exposures: at the end of the shift after several shifts)
Benzene, 1,3,5-trimethyl- 108-67-8	-	-	600 mg/g creatinine - urine (Total Dimethylbenzoic acids (after hydrolysis)) - end of shift after several shifts	400 mg/g Creatinine (urine - Dimethylbenzoic acid (sum of all isomers after hydrolysis) end of shift) 400 mg/g Creatinine (urine - Dimethylbenzoic acid (sum of all isomers after hydrolysis) for long-term exposures: at the end of the shift after several shifts) 400 mg/g Creatinine - BAT (end of exposure or end of shift) urine 400 mg/g Creatinine - BAT (for long-term exposures: at the end of the shift after several shifts) urine	400 mg/g Creatinine (urine - Dimethylbenzoic acid (sum of all isomers after hydrolysis) end of shift) 400 mg/g Creatinine (urine - Dimethylbenzoic acid (sum of all isomers after hydrolysis) for long-term exposures: at the end of the shift after several shifts)
Cumene 98-82-8	-	-	-	10 mg/g Creatinine (urine - 2-Phenyl-2-propanol (after hydrolysis) end of shift) 10 mg/g Creatinine - BAT (end of exposure or end of shift) urine	10 mg/g Creatinine (urine - 2-Phenyl-2-propanol (after hydrolysis) end of shift)
Xylene 1330-20-7	-	5.0 mmol/L (urine - Methylhippuric acid after the shift)	1500 mg/g creatinine - urine (Methylhippuric acid) - end of shift	2000 mg/L (urine - Methylhippuric(tolur-)acid (all isomers) end of shift) 2000 mg/L - BAT (end of exposure or end of shift) urine	2000 mg/L (urine - Methylhippuric(tolur-)acid (all isomers) end of shift)

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 shift) - urine	250 mg/g Creatinine (urine - Mandelic acid plus Phenylglyoxylic acid 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	
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)
Chemical name	Hungary	Ireland	Italy MDLPS	Italy AIDII	
Xylene 1330-20-7	1500 mg/g Creatinine (urine - Methyl hippuric acid end of shift)	1.5 g/g Creatinine (urine - Methylhippuric acids end of shift)	-	1.5 g/g Creatinine - urine (Methylhippuric acid) - end of shift	

	860 µmol/mmol Creatinine (urine - Methylhippuric acid 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
Naphthalene 91-20-3	-	-	-	- () - end of shift
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
Chemical name	Latvia	Luxembourg	Romania	Slovakia
Cumene 98-82-8	7 µg/g Creatinine - urine (Cumene) - no later than two hours after the end of the shift	-	-	10.6 mg/L (urine - 2-Phenylpropane end of exposure or work shift)
Xylene 1330-20-7	-	-	3 g/L - urine (Methylhippuric acid) - end of shift	1.5 mg/L (blood - Xylene end of exposure or work shift) 2000 mg/L (urine - Methylhippuric 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)
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	-	2 g/L - urine (Hippuric acid) - end of shift 3 mg/L - urine (o-Cresol) -	600 µg/L (blood - Toluene end of exposure or work shift)

	0.05 mg/L - blood (Toluene) - end of shift		end of 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)
Chemical name	Slovenia	Spain	Switzerland	United Kingdom
Benzene, 1,2,4-trimethyl- 95-63-6	400 mg/g Creatinine - urine (Dimethylbenzoic acid (all isomers after hydrolysis)) - at the end of the work shift; for long-term exposure: at the end of the work shift after several consecutive workdays	-	-	-
Benzene, 1,3,5-trimethyl- 108-67-8	400 mg/g Creatinine - urine (Dimethylbenzoic acid (all isomers after hydrolysis)) - at the end of the work shift; for long-term exposure: at the end of the work shift after several consecutive workdays	-	-	-
Cumene 98-82-8	10 mg/g Creatinine - urine (2-Phenyl-2-propanol (after hydrolysis)) - at the end of the work shift	7 mg/g Creatinine (urine - 2-Phenyl-2-propanol end of shift)	20 mg/g creatinine (urine - 2-Phenyl-2-propanol after hydrolysis end of shift) 16.6 µmol/mmol creatinine (urine - 2-Phenyl-2-propanol after hydrolysis end of shift)	-
Xylene 1330-20-7	2 g/L - urine (Methylhippuric acid (all isomers)) - at the end of the work shift	1 g/g Creatinine (urine - Methylhippuric acids end of shift)	2 g/L (urine - Methylhippuric acid end of shift)	650 mmol/mol creatinine - urine (Methyl hippuric acid) - post 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 Phenylglyoxylic acid end of shift)	-
Benzene 71-43-2	5 µg/L - urine (Benzene) - at the end of the work 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	0.045 mg/g Creatinine (urine - S-Phenyl mercapturic acid end of exposure or end of shift) 2 mg/L (urine - trans, trans-Muconic acid end of exposure or end of shift)	8 µg/g creatinine (urine - S-Phenyl-mercapturic 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	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 -	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,	-

	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	Toluene 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 - Toluol end of shift)	
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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/m³ [4] [6] 5.58 mg/m³ [5] [6]
Hydrogenated base oil 64742-48-9	-	-	1286.4 mg/m³ [4] [7] 837.5 mg/m³ [5] [6] 1066.67 mg/m³ [5] [7]
Hydrogenated base oil 64742-95-6	-	-	1286.4 mg/m³ [4] [7] 837.5 mg/m³ [5] [6] 1066.67 mg/m³ [5] [7]
Benzene, 1,2,4-trimethyl- 95-63-6	-	16171 mg/kg bw/day [4] [6]	100 mg/m³ [4] [6] 100 mg/m³ [4] [7] 100 mg/m³ [5] [6] 100 mg/m³ [5] [7]
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene 68411-46-1	-	0.08 mg/kg bw/day [4] [6]	0.6 mg/m³ [4] [6]
Benzene, 1,3,5-trimethyl- 108-67-8	-	16171 mg/kg bw/day [4] [6]	100 mg/m³ [4] [6] 100 mg/m³ [4] [7] 100 mg/m³ [5] [6] 100 mg/m³ [5] [7]
Hydrogenated base oil 8042-47-5	-	217.05 mg/kg bw/day [4] [6]	164.56 mg/m³ [4] [6]
Hydrogenated base oil 72623-86-0	-	0.97 mg/kg bw/day [4] [6]	2.73 mg/m³ [4] [6] 5.58 mg/m³ [5] [6]
Cumene 98-82-8	-	15.4 mg/kg bw/day [4] [6]	100 mg/m³ [4] [6] 250 mg/m³ [5] [7]
2-Naphthalenol, 1-[[4-(phenylazo)phenyl]azo]-, ar-heptyl ar',ar''-Me derivs. 92257-31-3	-	0.04 mg/kg bw/day [4] [6]	0.07 mg/m³ [4] [6]
Xylene 1330-20-7	-	212 mg/kg bw/day [4] [6]	221 mg/m³ [4] [6] 442 mg/m³ [4] [7] 221 mg/m³ [5] [6] 442 mg/m³ [5] [7]
Ethylbenzene 100-41-4	-	180 mg/kg bw/day [4] [6]	77 mg/m³ [4] [6] 293 mg/m³ [5] [7]
Naphthalene 91-20-3	-	3.57 mg/kg bw/day [4] [6]	25 mg/m³ [4] [6] 25 mg/m³ [5] [6]
Toluene	-	384 mg/kg bw/day [4] [6]	192 mg/m³ [4] [6]

Chemical name	Oral	Dermal	Inhalation
108-88-3			384 mg/m ³ [4] [7] 192 mg/m ³ [5] [6] 384 mg/m ³ [5] [7]

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 64742-47-8	18.75 mg/kg bw/day [4] [6]	-	-
Hydrogenated base oil 64742-48-9	-	-	1152 mg/m ³ [4] [7] 178.57 mg/m ³ [5] [6] 640 mg/m ³ [5] [7]
Hydrogenated base oil 64742-95-6	-	-	1152 mg/m ³ [4] [7] 178.57 mg/m ³ [5] [6] 640 mg/m ³ [5] [7]
Benzene, 1,2,4-trimethyl- 95-63-6	15 mg/kg bw/day [4] [6]	-	29.4 mg/m ³ [4] [6] 29.4 mg/m ³ [4] [7] 29.4 mg/m ³ [5] [6] 29.4 mg/m ³ [5] [7]
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene 68411-46-1	0.04 mg/kg bw/day [4] [6]	-	0.14 mg/m ³ [4] [6]
Benzene, 1,3,5-trimethyl- 108-67-8	15 mg/kg bw/day [4] [6]	-	29.4 mg/m ³ [4] [6] 29.4 mg/m ³ [4] [7] 29.4 mg/m ³ [5] [6] 29.4 mg/m ³ [5] [7]
Hydrogenated base oil 8042-47-5	25 mg/kg bw/day [4] [6]	-	34.78 mg/m ³ [4] [6]
Hydrogenated base oil 72623-86-0	0.74 mg/kg bw/day [4] [6]	-	1.19 mg/m ³ [5] [6]
Cumene 98-82-8	5 mg/kg bw/day [4] [6]	-	16.6 mg/m ³ [4] [6]
2-Naphthalenol, 1-[[4-(phenylazo)phenyl]azo]-, ar-heptyl ar',ar''-Me derivs. 92257-31-3	-	-	0.017 mg/m ³ [4] [6]
Xylene 1330-20-7	12.5 mg/kg bw/day [4] [6]	-	65.3 mg/m ³ [4] [6] 260 mg/m ³ [4] [7] 65.3 mg/m ³ [5] [6] 260 mg/m ³ [5] [7]
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.
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[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
Benzene, 1,2,4-trimethyl- 95-63-6	0.12 mg/L	0.12 mg/L	0.12 mg/L	-	-
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene 68411-46-1	0.0338 mg/L	0.51 mg/L	0.00338 mg/L	-	-
Benzene, 1,3,5-trimethyl- 108-67-8	0.101 mg/L	0.101 mg/L	0.101 mg/L	-	-
Cumene 98-82-8	0.035 mg/L	0.012 mg/L	0.0035 mg/L	-	-
Xylene 1330-20-7	0.327 mg/L	0.327 mg/L	0.327 mg/L	-	-
Hydrogenated base oil 64742-94-5	0.001 mg/L	-	0.001 mg/L	-	-
Naphthalene 91-20-3	2.4 µg/L	20 µg/L	2.4 µg/L	-	-
Toluene 108-88-3	0.68 mg/L	0.68 mg/L	0.68 mg/L	-	-

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
Hydrogenated base oil 64742-54-7	-	-	-	-	9.33 mg/kg food
Benzene, 1,2,4-trimethyl- 95-63-6	13.56 mg/kg sediment dw	13.56 mg/kg sediment dw	2.41 mg/L	2.34 mg/kg soil dw	-
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene 68411-46-1	0.446 mg/kg sediment dw	0.0446 mg/kg sediment dw	10 mg/L	1.76 mg/kg soil dw	-
Benzene, 1,3,5-trimethyl- 108-67-8	7.86 mg/kg sediment dw	7.86 mg/kg sediment dw	2.02 mg/L	1.34 mg/kg soil dw	-
Hydrogenated base oil 72623-86-0	-	-	-	-	9.33 mg/kg food
Cumene 98-82-8	3.22 mg/kg sediment dw	0.322 mg/kg sediment dw	200 mg/L	0.624 mg/kg soil dw	-
Xylene 1330-20-7	12.46 mg/kg sediment dw	12.46 mg/kg sediment dw	6.58 mg/L	2.31 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	-
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	-

8.2. Exposure controls**Engineering controls**

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye/face protection	If splashes are likely to occur, wear safety glasses with side-shields.
Hand protection	If there is a risk of contact: Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Wear suitable gloves. Impervious gloves.
Skin and body protection	If there is a risk of contact: Wear suitable protective clothing. Long sleeved 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	Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing.
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	Red
Odour	Mild hydrocarbon
Odour threshold	No information available

Property	Values	Remarks • Method
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	94 °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	35.2 cSt at 40 °C 7.0 cSt at 100 °C	ASTM D445
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	0.8708	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 -54°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 94°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 Strong acids. Strong bases. Strong oxidising agents.

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. May cause irritation of respiratory tract. May cause drowsiness or dizziness.
Eye contact	Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.
Skin contact	Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).
Ingestion	Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Symptoms related to the physical, chemical and toxicological characteristics**Symptoms**

Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation in susceptible persons. May cause gastrointestinal discomfort if consumed in large amounts. Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness and difficulty breathing. Redness. May cause redness and tearing of the eyes. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Acute toxicity**Numerical measures of toxicity**

The following values are calculated based on chapter 3.1 of the GHS document:

ATEmix (oral)	268,800.00 mg/kg
ATEmix (dermal)	64,064.00 mg/kg
ATEmix (inhalation-dust/mist)	46.80 mg/l

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 64742-47-8	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h
Hydrogenated base oil 64742-48-9	> 6000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	> 8500 mg/m ³ (Rat) 4 h
Hydrogenated base oil 64742-95-6	= 8400 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	= 3400 ppm (Rat) 4 h
Benzene, 1,2,4-trimethyl- 95-63-6	= 3280 mg/kg (Rat)	> 3160 mg/kg (Rabbit)	= 18 g/m ³ (Rat) 4 h
Benzene, 1,3,5-trimethyl- 108-67-8	-	-	= 24 g/m ³ (Rat) 4 h
Hydrogenated base oil 8042-47-5	> 5000 mg/kg (Rat)	-	-
Cumene 98-82-8	= 1400 mg/kg (Rat)	= 12300 µL/kg (Rabbit)	> 3577 ppm (Rat) 6 h
Xylene 1330-20-7	= 3500 mg/kg (Rat)	> 4350 mg/kg (Rabbit)	= 29.08 mg/L (Rat) 4 h
Ethylbenzene 100-41-4	= 3500 mg/kg (Rat)	= 15400 mg/kg (Rabbit)	= 17.4 mg/L (Rat) 4 h
Diphenylamine 122-39-4	= 1120 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	-
Naphthalene 91-20-3	= 1110 mg/kg (Rat)	= 1120 mg/kg (Rabbit)	> 0.4 mg/L (Rat) 4 h
n-Propylbenzene 103-65-1	= 6040 mg/kg (Rat)	-	= 65000 ppm (Rat) 2 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

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 skin irritation. May cause skin irritation.

Serious eye damage/eye irritation

Classification based on data available for ingredients. Causes serious eye irritation.

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

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
Hydrogenated base oil	Muta. 1B
Hydrogenated base oil	Muta. 1B
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	Not classified
Hydrogenated base oil	Carc. 1B
Hydrogenated base oil	Carc. 1B
Cumene	Carc. 1B
Naphthalene	Carc. 2
Benzene	Carc. 1A

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
Toluene	Repr. 2

STOT - single exposure May cause drowsiness or dizziness.

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
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Hydrogenated base oil 64742-54-7	-	LC50: >5000mg/L (96h, Oncorhynchus mykiss)	-	EC50: >1000mg/L (48h, Daphnia magna)
Hydrogenated base oil 64742-47-8	-	LC50: =45mg/L (96h, Pimephales promelas) LC50: =2.2mg/L (96h, Lepomis macrochirus) LC50: =2.4mg/L (96h, Oncorhynchus mykiss)	-	-
Hydrogenated base oil 64742-48-9	-	LC50: =2200mg/L (96h, Pimephales promelas)	-	-
Hydrogenated base oil 64742-95-6	-	LC50: =9.22mg/L (96h, Oncorhynchus mykiss)	-	EC50: =6.14mg/L (48h, Daphnia magna)
Benzene, 1,2,4-trimethyl- 95-63-6	-	LC50: 7.19 - 8.28mg/L (96h, Pimephales promelas)	-	EC50: =6.14mg/L (48h, Daphnia magna)
Benzene, 1,3,5-trimethyl- 108-67-8	-	LC50: =3.48mg/L (96h, Pimephales promelas)	-	-
Hydrogenated base oil 8042-47-5	-	LC50: >10000mg/L (96h, Lepomis macrochirus)	-	-
Cumene 98-82-8	EC50: =2.6mg/L (72h, Pseudokirchneriella subcapitata)	LC50: 6.04 - 6.61mg/L (96h, Pimephales promelas) LC50: =4.8mg/L (96h, Oncorhynchus mykiss) LC50: =2.7mg/L (96h, Oncorhynchus mykiss) LC50: =5.1mg/L (96h, Poecilia reticulata)	-	EC50: =0.6mg/L (48h, Daphnia magna) EC50: 7.9 - 14.1mg/L (48h, Daphnia magna)
Xylene 1330-20-7	-	LC50: =13.4mg/L (96h, Pimephales promelas)	-	EC50: =3.82mg/L (48h, water flea) LC50: =0.6mg/L (48h, Gammarus lacustris)
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)
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)
Naphthalene 91-20-3	-	LC50: 0.91 - 2.82mg/L (96h, Oncorhynchus mykiss)	-	EC50: 1.09 - 3.4mg/L (48h, Daphnia magna)
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)	-	EC50: 5.46 - 9.83mg/L (48h, Daphnia magna) EC50: =11.5mg/L (48h, Daphnia magna)

		macrochirus) LC50: =54mg/L (96h, Oryzias latipes) LC50: =28.2mg/L (96h, Poecilia reticulata) LC50: 50.87 - 70.34mg/L (96h, Poecilia reticulata)		
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12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential**Bioaccumulation****Component Information**

Chemical name	Partition coefficient
Benzene, 1,2,4-trimethyl-	3.63
Hydrogenated base oil	6
Cumene	3.55
Xylene	3.15
Ethylbenzene	3.6
Diphenylamine	3.4
Naphthalene	3.4
n-Propylbenzene	3.68
Benzene	2.13
Toluene	2.73

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 64742-47-8	The substance is not PBT / vPvB
Hydrogenated base oil 64742-48-9	The substance is not PBT / vPvB
Hydrogenated base oil 64742-95-6	The substance is not PBT / vPvB
Benzene, 1,2,4-trimethyl- 95-63-6	The substance is not PBT / vPvB
Benzene, 1,3,5-trimethyl- 108-67-8	The substance is not PBT / vPvB
Hydrogenated base oil 8042-47-5	The substance is not PBT / vPvB
Cumene 98-82-8	The substance is not PBT / vPvB
Xylene 1330-20-7	The substance is not PBT / vPvB
Ethylbenzene 100-41-4	The substance is not PBT / vPvB
Naphthalene	The substance is not PBT / vPvB

91-20-3	
Benzene 71-43-2	The substance is not PBT / vPvB
Toluene 108-88-3	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
Hydrogenated base oil 64742-47-8	RG 84
Hydrogenated base oil 64742-48-9	RG 84
Hydrogenated base oil 64742-95-6	RG 84
Benzene, 1,2,4-trimethyl- 95-63-6	RG 84
Benzene, 1,3,5-trimethyl- 108-67-8	RG 84
Hydrogenated base oil 8042-47-5	RG 36bis
Cumene 98-82-8	RG 84
Xylene 1330-20-7	RG 4bis, RG 84
Ethylbenzene 100-41-4	RG 84
Diphenylamine 122-39-4	RG 15, RG 15bis
Benzene 71-43-2	RG 4, RG 4bis, RG 84
Toluene 108-88-3	RG 4bis, RG 84

Netherlands

Chemical name	Netherlands - List of Carcinogens	Netherlands - List of Mutagens	Netherlands - List of Reproductive Toxins
Cumene	Present	-	-
Xylene	-	-	Development Category 2
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 - 64742-48-9	28. 29. 75.	-
Hydrogenated base oil - 64742-95-6	28. 29. 75.	-
Benzene, 1,2,4-trimethyl- - 95-63-6	75.	-
Xylene - 1330-20-7	75.	-
Diphenylamine - 122-39-4	75.	-
Naphthalene - 91-20-3	75.	-
Benzene - 71-43-2	72. 5. 28. 29. 75.	-
Toluene - 108-88-3	48. 75.	-

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)
Hydrogenated base oil - 64742-48-9	-	25000
Hydrogenated base oil - 64742-95-6	-	25000

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

Not applicable

EU - Plant Protection Products (1107/2009/EC)

Chemical name	EU - Plant Protection Products (1107/2009/EC)
Hydrogenated base oil - 8042-47-5	Plant protection agent

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

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

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

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

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

H312 - Harmful in contact with skin

H315 - Causes skin irritation

H319 - Causes serious eye irritation

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

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

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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Disclaimer

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End of Safety Data Sheet