

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

1.1. Product identifier

Trade name or designation of the mixture ACCUSHADE 2K SEALER - DARK GRA

Registration number -

Synonyms None.

Product code MP-127-QT

Issue date 28-April-2015

Version number 01

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

Identified uses Automotive Refinish Primer

Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

Supplier

Company name Quest Automotive Products

Address 600 Nova Drive SE
Massillon, OH 44646
United States

Division Massillon

Telephone General Assistance (330) 830-6000

e-mail rpandrus@quest-ap.com

Contact person Not available.

1.4. Emergency telephone number CHEMTREC (800) 424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

Classification R10, Carc. Cat. 2;R45, Muta. Cat. 2;R46

The full text for all R-phrases is displayed in section 16.

Classification according to Regulation (EC) No 1272/2008 as amended

Physical hazards

Flammable liquids	Category 2	H225 - Highly flammable liquid and vapour.
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Health hazards

Acute toxicity, oral	Category 4	H302 - Harmful if swallowed.
Acute toxicity, inhalation	Category 4	H332 - Harmful if inhaled.
Germ cell mutagenicity	Category 1B	H340 - May cause genetic defects.
Carcinogenicity	Category 1B	H350 - May cause cancer.

Environmental hazards

Hazardous to the aquatic environment, long-term aquatic hazard	Category 3	H412 - Harmful to aquatic life with long lasting effects.
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Hazard summary

Physical hazards Flammable.

Health hazards May cause cancer. May cause heritable genetic damage. Occupational exposure to the substance or mixture may cause adverse health effects.

Environmental hazards Not classified for hazards to the environment.

Specific hazards Prolonged exposure may cause chronic effects.

Main symptoms Direct contact with eyes may cause temporary irritation.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: 1,2,4-Trimethyl benzene, 2-Heptanone, 4-Methyl-2-pentanone, Carbon Black, Ethyl benzene, Titanium dioxide, VM & P NAPHTHA, Xylene

Hazard pictograms

Signal word Danger

Hazard statements

H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H332 Harmful if inhaled.
H340 May cause genetic defects.
H350 May cause cancer.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements**Prevention**

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing vapours.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P330 Rinse mouth.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P312 Call a POISON CENTER/doctor if you feel unwell.
P370 + P378 In case of fire: Use appropriate media to extinguish.

Storage

P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label information 69,82 % of the mixture consists of component(s) of unknown acute oral toxicity. 75,69 % of the mixture consists of component(s) of unknown acute inhalation toxicity. 81,92 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

2.3. Other hazards None known.

SECTION 3: Composition/information on ingredients**3.2. Mixtures****General information**

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
2-Heptanone	5 - < 10	110-43-0 203-767-1	-	606-024-00-3	#
Classification:	DSD: R10, Xn;R20/22				
	CLP: -				

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
n-Butyl acetate	5 - < 10	123-86-4 204-658-1	-	607-025-00-1	
Classification:	DSD: R10, R66-67 CLP: Flam. Liq. 3;H226, STOT SE 3;H336, Aquatic Chronic 3;H412				
Titanium dioxide	5 - < 10	13463-67-7 236-675-5	-	-	
Classification:	DSD: - CLP: Carc. 2;H351				
barium sulfate	3 - < 5	7727-43-7 231-784-4	-	-	
Classification:	DSD: R52/53 CLP: Aquatic Chronic 3;H412				
Xylene	3 - < 5	1330-20-7 215-535-7	-	601-022-00-9	#
Classification:	DSD: R10, Xn;R20/21, Xi;R38 CLP: Flam. Liq. 3;H226, Acute Tox. 4;H312, Skin Irrit. 2;H315, Acute Tox. 4;H332, Aquatic Chronic 2;H411				C C
1,2,4-Trimethyl benzene	1 - < 3	95-63-6 202-436-9	-	601-043-00-3	#
Classification:	DSD: R10, Xn;R20, Xi;R36/37/38, N;R51/53 CLP: Flam. Liq. 3;H226, Skin Irrit. 2;H315, Eye Irrit. 2;H319, Acute Tox. 4;H332, STOT SE 3;H335, Aquatic Chronic 2;H411				
4-Methyl-2-pentanone	1 - < 3	108-10-1 203-550-1	-	606-004-00-4	#
Classification:	DSD: F;R11, Xn;R20, Xi;R36/37, R66 CLP: -				
Carbon Black	1 - < 3	1333-86-4 215-609-9	-	-	
Classification:	DSD: - CLP: -				
Ethyl benzene	1 - < 3	100-41-4 202-849-4	-	601-023-00-4	#
Classification:	DSD: F;R11, Xn;R20 CLP: Flam. Liq. 2;H225, Asp. Tox. 1;H304, Acute Tox. 4;H332, Carc. 2;H351, STOT RE 2;H373, Aquatic Chronic 2;H411				
Toluene	< 1	108-88-3 203-625-9	-	601-021-00-3	#
Classification:	DSD: F;R11, Repr. Cat. 3;R63, Xn;R65-48/20, Xi;R38, R67 CLP: Flam. Liq. 2;H225, Asp. Tox. 1;H304, Skin Irrit. 2;H315, STOT SE 3;H336, Repr. 2;H361d, STOT RE 2;H373, Aquatic Chronic 2;H411				
VM & P NAPHTHA	< 1	8032-32-4 232-453-7	-	649-263-00-9	
Classification:	DSD: Carc. Cat. 2;R45, Muta. Cat. 2;R46, Xn;R65 CLP: -				P P

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
1,2-Dimethybenzene	< 0,3	95-47-6 202-422-2	-	601-022-00-9	#
Classification:	DSD: R10, Xn;R20/21, Xi;R38				C
	CLP: Flam. Liq. 3;H226, Acute Tox. 4;H312, Skin Irrit. 2;H315, Acute Tox. 4;H332, Aquatic Acute 1;H400, Aquatic Chronic 1;H410				C

Other components below reportable levels 60 - < 70

List of abbreviations and symbols that may be used above

CLP: Regulation No. 1272/2008.

DSD: Directive 67/548/EEC.

M: M-factor

vPvB: very persistent and very bioaccumulative substance.

PBT: persistent, bioaccumulative and toxic substance.

#: This substance has been assigned Community workplace exposure limit(s).

Composition comments The full text for all R- and H-phrases is displayed in section 16.

SECTION 4: First aid measures

General information Take off all contaminated clothing immediately. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

4.1. Description of first aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a POISON CENTRE or doctor/physician if you feel unwell.

Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed Direct contact with eyes may cause temporary irritation.

4.3. Indication of any immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards Highly flammable liquid and vapour.

5.1. Extinguishing media

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture Vapours may form explosive mixtures with air. Vapours may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting procedures In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapours and spray mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8.

For emergency responders Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.

6.3. Methods and material for containment and cleaning up Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil etc) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent product from entering drains. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use.

6.4. Reference to other sections For personal protection, see section 8. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid inhalation of vapours and spray mists. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s) Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	MAK	100 mg/m3	
		20 ppm	
	STEL	150 mg/m3	
1,2-Dimethylbenzene (CAS 95-47-6)		30 ppm	
	MAK	221 mg/m3	
	STEL	50 ppm	
2-Heptanone (CAS 110-43-0)		442 mg/m3	
	MAK	100 ppm	
	STEL	237 mg/m3	
		50 ppm	
	STEL	473 mg/m3	

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value	Form
2-Pentanone (CAS 107-87-9)	MAK	100 ppm 700 mg/m3	
	STEL	200 ppm 1400 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	MAK	400 ppm 83 mg/m3	
	STEL	20 ppm 208 mg/m3	
Ethyl 3-ethoxypropionate (CAS 763-69-9)	Ceiling	50 ppm 610 mg/m3	
	MAK	100 ppm 610 mg/m3	
Ethyl benzene (CAS 100-41-4)	Ceiling	100 ppm 880 mg/m3	
	MAK	200 ppm 440 mg/m3	
n-Butyl acetate (CAS 123-86-4)	Ceiling	100 ppm 480 mg/m3	
	MAK	100 ppm 480 mg/m3	
Talc (CAS 14807-96-6)	MAK	100 ppm 2 mg/m3	Respirable fraction.
Titanium dioxide (CAS 13463-67-7)	MAK	5 mg/m3	Respirable dust.
Toluene (CAS 108-88-3)	STEL	10 mg/m3	Respirable dust.
	MAK	190 mg/m3 50 ppm	
Xylene (CAS 1330-20-7)	STEL	380 mg/m3 100 ppm	
	MAK	221 mg/m3 50 ppm	
	STEL	442 mg/m3 100 ppm	

Belgium. Exposure Limit Values.

Components	Type	Value
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3
1,2-Dimethylbenzene (CAS 95-47-6)	STEL	20 ppm 442 mg/m3
	TWA	100 ppm 221 mg/m3
2-Heptanone (CAS 110-43-0)	STEL	50 ppm 475 mg/m3
	TWA	100 ppm 238 mg/m3
2-Pentanone (CAS 107-87-9)	STEL	50 ppm 537 mg/m3
	STEL	150 ppm 208 mg/m3
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	50 ppm 83 mg/m3
	TWA	20 ppm 10 mg/m3
barium sulfate (CAS 7727-43-7)	TWA	10 mg/m3

Belgium. Exposure Limit Values.

Components	Type	Value
Calcium carbonate (CAS 1317-65-3)	TWA	10 mg/m3
Carbon Black (CAS 1333-86-4)	TWA	3,5 mg/m3
Ethyl benzene (CAS 100-41-4)	STEL	551 mg/m3
		125 ppm
	TWA	442 mg/m3
		100 ppm
n-Butyl acetate (CAS 123-86-4)	STEL	964 mg/m3
		200 ppm
	TWA	723 mg/m3
		150 ppm
Talc (CAS 14807-96-6)	TWA	2 mg/m3
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3
Toluene (CAS 108-88-3)	STEL	384 mg/m3
		100 ppm
	TWA	77 mg/m3
		20 ppm
VM & P NAPHTHA (CAS 8032-32-4)	TWA	1390 mg/m3
		300 ppm
Xylene (CAS 1330-20-7)	STEL	442 mg/m3
		100 ppm
	TWA	221 mg/m3
		50 ppm

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3	
		20 ppm	
1,2-Dimethylbenzene (CAS 95-47-6)	STEL	442 mg/m3	
		100 ppm	
	TWA	221 mg/m3	
		50 ppm	
2-Heptanone (CAS 110-43-0)	STEL	475 mg/m3	
		100 ppm	
	TWA	238 mg/m3	
		50 ppm	
2-Pentanone (CAS 107-87-9)	STEL	875 mg/m3	
		700 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	200 mg/m3	
		50 mg/m3	
barium sulfate (CAS 7727-43-7)	TWA	10 mg/m3	
Calcium carbonate (CAS 1317-65-3)	TWA	1 fibers/cm3	Respirable fraction.
		10 mg/m3	Inhalable fraction.
		10 mg/m3	
Ethyl benzene (CAS 100-41-4)	STEL	545 mg/m3	
		435 mg/m3	
n-Butyl acetate (CAS 123-86-4)	STEL	950 mg/m3	
		710 mg/m3	
Talc (CAS 14807-96-6)	TWA	1 fibers/cm3	Respirable fraction.
		6 mg/m3	Inhalable fraction.
		3 mg/m3	Respirable fraction.

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value	Form
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3	Respirable dust.
Toluene (CAS 108-88-3)	STEL	384 mg/m3	
		100 ppm	
	TWA	192 mg/m3	
		50 ppm	
VM & P NAPHTHA (CAS 8032-32-4)	STEL	1800 mg/m3	
	TWA	350 mg/m3	
Xylene (CAS 1330-20-7)	STEL	442 mg/m3	
		100 ppm	
	TWA	221 mg/m3	
		50 ppm	

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	MAC	100 mg/m3	
		20 ppm	
1,2-Dimethylbenzene (CAS 95-47-6)	MAC	221 mg/m3	
		50 ppm	
	STEL	442 mg/m3	
		100 ppm	
2-Heptanone (CAS 110-43-0)	MAC	238 mg/m3	
		50 ppm	
	STEL	475 mg/m3	
		100 ppm	
2-Pentanone (CAS 107-87-9)	MAC	716 mg/m3	
		200 ppm	
	STEL	895 mg/m3	
		250 ppm	
4-Methyl-2-pentanone (CAS 108-10-1)	MAC	83 mg/m3	
		20 ppm	
	STEL	208 mg/m3	
		50 ppm	
barium sulfate (CAS 7727-43-7)	MAC	4 mg/m3	Respirable dust.
		10 mg/m3	
Calcium carbonate (CAS 1317-65-3)	MAC	4 mg/m3	Total dust. Respirable dust.
		10 mg/m3	
Carbon Black (CAS 1333-86-4)	MAC	3,5 mg/m3	Total dust.
		7 mg/m3	
Ethyl benzene (CAS 100-41-4)	MAC	442 mg/m3	
		100 ppm	
	STEL	884 mg/m3	
		200 ppm	
n-Butyl acetate (CAS 123-86-4)	MAC	724 mg/m3	
		150 ppm	
	STEL	966 mg/m3	
		200 ppm	
Talc (CAS 14807-96-6)	MAC	1 mg/m3	Respirable dust.
Titanium dioxide (CAS 13463-67-7)	STEL	4 mg/m3	Respirable dust.
		10 mg/m3	
Toluene (CAS 108-88-3)	MAC	192 mg/m3	Total dust.
		50 ppm	
	STEL	384 mg/m3	

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09 Components

Components	Type	Value	Form
Xylene (CAS 1330-20-7)	MAC	100 ppm	
		221 mg/m3	
	STEL	50 ppm	
		442 mg/m3	
		100 ppm	

Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended. Components

Components	Type	Value	Form
Carbon Black (CAS 1333-86-4)	TWA	3,5 mg/m3	
n-Butyl acetate (CAS 123-86-4)	TWA	710 mg/m3	
Talc (CAS 14807-96-6)	TWA	150 ppm	
Titanium dioxide (CAS 13463-67-7)	TWA	706 part/cm3	
		10 mg/m3	

Czech Republic. OELs. Government Decree 361 Components

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	Ceiling	250 mg/m3	
1,2-Dimethybenzene (CAS 95-47-6)	TWA	100 mg/m3	
	Ceiling	400 mg/m3	
2-Heptanone (CAS 110-43-0)	TWA	200 mg/m3	
	Ceiling	300 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	TWA	150 mg/m3	
	Ceiling	200 mg/m3	
Calcium carbonate (CAS 1317-65-3)	TWA	80 mg/m3	
	TWA	10 mg/m3	Dust.
Carbon Black (CAS 1333-86-4)	TWA	2 mg/m3	Dust.
Ethyl 3-ethoxypropionate (CAS 763-69-9)	Ceiling	500 mg/m3	
Ethyl benzene (CAS 100-41-4)	TWA	150 mg/m3	
	Ceiling	500 mg/m3	
n-Butyl acetate (CAS 123-86-4)	TWA	200 mg/m3	
	Ceiling	1200 mg/m3	
Talc (CAS 14807-96-6)	TWA	950 mg/m3	
	TWA	10 mg/m3	Respirable dust.
Toluene (CAS 108-88-3)	TWA	10 mg/m3	Total dust.
	Ceiling	500 mg/m3	
Xylene (CAS 1330-20-7)	TWA	200 mg/m3	
	Ceiling	400 mg/m3	
	TWA	200 mg/m3	

Denmark. Exposure Limit Values Components

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TLV	100 mg/m3	
1,2-Dimethybenzene (CAS 95-47-6)	TLV	20 ppm	
		109 mg/m3	
2-Heptanone (CAS 110-43-0)	TLV	25 ppm	
		238 mg/m3	
2-Pentanone (CAS 107-87-9)	TLV	50 ppm	
		700 mg/m3	
		200 ppm	

Denmark. Exposure Limit Values

Components	Type	Value	Form
4-Methyl-2-pentanone (CAS 108-10-1)	TLV	83 mg/m3	
Calcium silicate, mineral form (CAS 13983-17-0)	TLV	20 ppm 1 fibers/cm3	Fiber.
Carbon Black (CAS 1333-86-4)	TLV	3,5 mg/m3	
Ethyl benzene (CAS 100-41-4)	TLV	217 mg/m3	
n-Butyl acetate (CAS 123-86-4)	TLV	50 ppm 710 mg/m3	
Titanium dioxide (CAS 13463-67-7)	TLV	150 ppm 6 mg/m3	
Toluene (CAS 108-88-3)	TLV	94 mg/m3	
Xylene (CAS 1330-20-7)	TLV	25 ppm 109 mg/m3 25 ppm	

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3	
1,2-Dimethylbenzene (CAS 95-47-6)	STEL	20 ppm 450 mg/m3	
	TWA	100 ppm 200 mg/m3	
2-Heptanone (CAS 110-43-0)	STEL	50 ppm 475 mg/m3	
	TWA	100 ppm 238 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	50 ppm 208 mg/m3	
	TWA	50 ppm 83 mg/m3	
Calcium carbonate (CAS 1317-65-3)	TWA	20 ppm 5 mg/m3	Respirable dust.
Ethyl benzene (CAS 100-41-4)	STEL	10 mg/m3 884 mg/m3	
	TWA	200 ppm 442 mg/m3	
n-Butyl acetate (CAS 123-86-4)	STEL	100 ppm 700 mg/m3	
	TWA	150 ppm 500 mg/m3	
Titanium dioxide (CAS 13463-67-7)	TWA	100 ppm 5 mg/m3	
Toluene (CAS 108-88-3)	STEL	384 mg/m3	
	TWA	100 ppm 192 mg/m3	
Xylene (CAS 1330-20-7)	STEL	50 ppm 450 mg/m3	
	TWA	100 ppm 200 mg/m3 50 ppm	

Finland. Workplace Exposure Limits

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3	
		20 ppm	
1,2-Dimethybenzene (CAS 95-47-6)	STEL	440 mg/m3	
		110 ppm	
	TWA	220 mg/m3	
		50 ppm	
2-Heptanone (CAS 110-43-0)	STEL	360 mg/m3	
		75 ppm	
	TWA	240 mg/m3	
		50 ppm	
2-Pentanone (CAS 107-87-9)	STEL	890 mg/m3	
		250 ppm	
	TWA	710 mg/m3	
		200 ppm	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	210 mg/m3	
		50 ppm	
	TWA	80 mg/m3	
		20 ppm	
barium sulfate (CAS 7727-43-7)	TWA	10 mg/m3	Dust.
Calcium carbonate (CAS 1317-65-3)	TWA	10 mg/m3	Dust.
Carbon Black (CAS 1333-86-4)	STEL	7 mg/m3	
	TWA	3,5 mg/m3	
diboron calcium tetraoxide (CAS 13701-64-9)	TWA	0,5 mg/m3	
Ethyl benzene (CAS 100-41-4)	STEL	880 mg/m3	
		200 ppm	
	TWA	220 mg/m3	
		50 ppm	
n-Butyl acetate (CAS 123-86-4)	STEL	960 mg/m3	
		200 ppm	
	TWA	720 mg/m3	
		150 ppm	
Talc (CAS 14807-96-6)	STEL	2 ppm	Inhalable dust.
		1 ppm	Respirable.
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3	Dust.
Toluene (CAS 108-88-3)	STEL	380 mg/m3	
		100 ppm	
	TWA	81 mg/m3	
		25 ppm	
Xylene (CAS 1330-20-7)	STEL	440 mg/m3	
		100 ppm	
	TWA	220 mg/m3	
		50 ppm	

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Components	Type	Value
1,2,4-Trimethyl benzene (CAS 95-63-6)	VLE	250 mg/m3
		50 ppm
	VME	100 mg/m3
		20 ppm
1,2-Dimethybenzene (CAS 95-47-6)	VLE	442 mg/m3
		100 ppm

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Components	Type	Value
	VME	221 mg/m3 50 ppm
2-Heptanone (CAS 110-43-0)	VLE	475 mg/m3
	VME	100 ppm 238 mg/m3
2-Pentanone (CAS 107-87-9)	VME	50 ppm 705 mg/m3
4-Methyl-2-pentanone (CAS 108-10-1)	VLE	200 ppm 208 mg/m3
	VME	50 ppm 83 mg/m3
Calcium carbonate (CAS 1317-65-3)	VME	20 ppm 10 mg/m3
Carbon Black (CAS 1333-86-4)	VME	3,5 mg/m3
Ethyl benzene (CAS 100-41-4)	VLE	442 mg/m3
	VME	100 ppm 88,4 mg/m3
n-Butyl acetate (CAS 123-86-4)	VLE	20 ppm 940 mg/m3
	VME	200 ppm 710 mg/m3
Titanium dioxide (CAS 13463-67-7)	VME	150 ppm 10 mg/m3
Toluene (CAS 108-88-3)	VLE	384 mg/m3
	VME	100 ppm 76,8 mg/m3
Xylene (CAS 1330-20-7)	VLE	20 ppm 442 mg/m3
	VME	100 ppm 221 mg/m3 50 ppm

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3	
1,2-Dimethylbenzene (CAS 95-47-6)	TWA	20 ppm 440 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	TWA	100 ppm 83 mg/m3	
barium sulfate (CAS 7727-43-7)	TWA	20 ppm 4 mg/m3	Inhalable fraction.
Ethyl 3-ethoxypropionate (CAS 763-69-9)	TWA	1,5 mg/m3 610 mg/m3	Respirable fraction.
Ethyl benzene (CAS 100-41-4)	TWA	100 ppm 88 mg/m3	
n-Butyl acetate (CAS 123-86-4)	TWA	20 ppm 480 mg/m3	
Toluene (CAS 108-88-3)	TWA	100 ppm 190 mg/m3	

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Components	Type	Value	Form
Xylene (CAS 1330-20-7)	TWA	50 ppm 440 mg/m3 100 ppm	

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	AGW	100 mg/m3	
1,2-Dimethylbenzene (CAS 95-47-6)	AGW	20 ppm 440 mg/m3	
2-Heptanone (CAS 110-43-0)	AGW	100 ppm 238 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	AGW	83 mg/m3	
barium sulfate (CAS 7727-43-7)	AGW	20 ppm 10 mg/m3	Inhalable fraction.
Ethyl 3-ethoxypropionate (CAS 763-69-9)	AGW	1,25 mg/m3 610 mg/m3	Respirable fraction.
Ethyl benzene (CAS 100-41-4)	AGW	100 ppm 88 mg/m3	
n-Butyl acetate (CAS 123-86-4)	AGW	20 ppm 300 mg/m3	
Talc (CAS 14807-96-6)	AGW	62 ppm 10 mg/m3	Inhalable fraction.
Titanium dioxide (CAS 13463-67-7)	AGW	1,25 mg/m3 10 mg/m3	Respirable fraction. Inhalable fraction.
Toluene (CAS 108-88-3)	AGW	1,25 mg/m3 190 mg/m3	Respirable fraction.
Xylene (CAS 1330-20-7)	AGW	50 ppm 440 mg/m3 100 ppm	

Greece. OELs (Decree No. 90/1999, as amended)

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	125 mg/m3	
1,2-Dimethylbenzene (CAS 95-47-6)	STEL	25 ppm 650 mg/m3	
	TWA	150 ppm 435 mg/m3 100 ppm	
2-Heptanone (CAS 110-43-0)	STEL	465 mg/m3	
	TWA	100 ppm 465 mg/m3	
2-Pentanone (CAS 107-87-9)	STEL	100 ppm 875 mg/m3	
	TWA	250 ppm 700 mg/m3 200 ppm	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	410 mg/m3	
	TWA	100 ppm 410 mg/m3 100 ppm	

Greece. OELs (Decree No. 90/1999, as amended)

Components	Type	Value	Form
Calcium carbonate (CAS 1317-65-3)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Inhalable
Carbon Black (CAS 1333-86-4)	STEL	7 mg/m3	
	TWA	3,5 mg/m3	
Ethyl benzene (CAS 100-41-4)	STEL	545 mg/m3	
		125 ppm	
	TWA	435 mg/m3	
		100 ppm	
n-Butyl acetate (CAS 123-86-4)	STEL	950 mg/m3	
		200 ppm	
	TWA	710 mg/m3	
		150 ppm	
Talc (CAS 14807-96-6)	TWA	2 mg/m3	Respirable.
		10 mg/m3	Inhalable
Titanium dioxide (CAS 13463-67-7)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Inhalable
Toluene (CAS 108-88-3)	STEL	384 mg/m3	
		100 ppm	
	TWA	192 mg/m3	
		50 ppm	
Xylene (CAS 1330-20-7)	STEL	650 mg/m3	
		150 ppm	
	TWA	435 mg/m3	
		100 ppm	

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3	
1,2-Dimethylbenzene (CAS 95-47-6)	STEL	442 mg/m3	
	TWA	221 mg/m3	
2-Heptanone (CAS 110-43-0)	STEL	476 mg/m3	
	TWA	238 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	208 mg/m3	
	TWA	83 mg/m3	
Calcium carbonate (CAS 1317-65-3)	TWA	10 mg/m3	
Ethyl benzene (CAS 100-41-4)	STEL	884 mg/m3	
	TWA	442 mg/m3	
n-Butyl acetate (CAS 123-86-4)	STEL	950 mg/m3	
	TWA	950 mg/m3	
Talc (CAS 14807-96-6)	TWA	2 mg/m3	Respirable.
Toluene (CAS 108-88-3)	STEL	380 mg/m3	
	TWA	190 mg/m3	
Xylene (CAS 1330-20-7)	STEL	442 mg/m3	
	TWA	221 mg/m3	

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3	
		20 ppm	
1,2-Dimethylbenzene (CAS 95-47-6)	STEL	442 mg/m3	
		100 ppm	

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Components	Type	Value	Form
2-Heptanone (CAS 110-43-0)	TWA	109 mg/m3 25 ppm	Particulate.
	STEL	475 mg/m3	
	TWA	100 ppm 238 mg/m3 50 ppm	
2-Pentanone (CAS 107-87-9)	TWA	700 mg/m3	
	STEL	200 ppm 208 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	TWA	50 ppm 83 mg/m3 20 ppm	
	STEL	884 mg/m3	
Calcium silicate, mineral form (CAS 13983-17-0)	TWA	1 fibers/cm3	
Carbon Black (CAS 1333-86-4)	TWA	3,5 mg/m3	
Ethyl benzene (CAS 100-41-4)	STEL	884 mg/m3	
	TWA	200 ppm 200 mg/m3 50 ppm	
	TWA	700 mg/m3	
n-Butyl acetate (CAS 123-86-4)	TWA	150 ppm 6 mg/m3	
Titanium dioxide (CAS 13463-67-7)	TWA	188 mg/m3 50 ppm	
Toluene (CAS 108-88-3)	STEL	94 mg/m3 25 ppm	
	TWA	442 mg/m3 100 ppm	
	TWA	109 mg/m3 25 ppm	

Ireland. Occupational Exposure Limits

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3	Respirable dust.
	STEL	20 ppm 442 mg/m3	
1,2-Dimethylbenzene (CAS 95-47-6)	TWA	100 ppm 221 mg/m3 50 ppm	
	STEL	475 mg/m3	
	TWA	100 ppm 238 mg/m3 50 ppm	
2-Heptanone (CAS 110-43-0)	STEL	875 mg/m3	
	TWA	250 ppm 700 mg/m3 200 ppm	
2-Pentanone (CAS 107-87-9)	STEL	208 mg/m3	
	TWA	50 ppm 83 mg/m3 20 ppm	
4-Methyl-2-pentanone (CAS 108-10-1)	TWA	2 mg/m3	
	STEL	2 mg/m3	
barium sulfate (CAS 7727-43-7)	TWA	2 mg/m3	
	STEL	2 mg/m3	

**Ireland. Occupational Exposure Limits
Components**

Type	Value	Form
Calcium carbonate (CAS 1317-65-3)	4 mg/m3	Respirable dust.
	10 mg/m3	Total inhalable dust.
Carbon Black (CAS 1333-86-4)	7 mg/m3	
Ethyl benzene (CAS 100-41-4)	3,5 mg/m3	
	884 mg/m3	
	200 ppm	
	442 mg/m3	
	100 ppm	
n-Butyl acetate (CAS 123-86-4)	950 mg/m3	
	200 ppm	
	710 mg/m3	
	150 ppm	
Talc (CAS 14807-96-6)	10 mg/m3	Total inhalable dust.
	0,8 mg/m3	Respirable dust.
Titanium dioxide (CAS 13463-67-7)	4 mg/m3	Respirable dust.
	10 mg/m3	Total inhalable dust.
Toluene (CAS 108-88-3)	384 mg/m3	
	100 ppm	
	192 mg/m3	
	50 ppm	
Xylene (CAS 1330-20-7)	442 mg/m3	
	100 ppm	
	221 mg/m3	
	50 ppm	

**Italy. Occupational Exposure Limits
Components**

Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	100 mg/m3	
	20 ppm	
1,2-Dimethylbenzene (CAS 95-47-6)	442 mg/m3	
	100 ppm	
	221 mg/m3	
	50 ppm	
2-Heptanone (CAS 110-43-0)	475 mg/m3	
	100 ppm	
	238 mg/m3	
	50 ppm	
2-Pentanone (CAS 107-87-9)	150 ppm	
4-Methyl-2-pentanone (CAS 108-10-1)	208 mg/m3	
	50 ppm	
	83 mg/m3	
	20 ppm	
barium sulfate (CAS 7727-43-7)	5 mg/m3	Inhalable fraction.
Carbon Black (CAS 1333-86-4)	3 mg/m3	Inhalable fraction.
Ethyl benzene (CAS 100-41-4)	884 mg/m3	
	200 ppm	
	442 mg/m3	
	100 ppm	
n-Butyl acetate (CAS 123-86-4)	200 ppm	
	150 ppm	
Talc (CAS 14807-96-6)	2 mg/m3	Respirable fraction.

Italy. Occupational Exposure Limits

Components	Type	Value	Form
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3	
Toluene (CAS 108-88-3)	TWA	192 mg/m3 50 ppm	
Xylene (CAS 1330-20-7)	STEL	442 mg/m3 100 ppm	
	TWA	221 mg/m3 50 ppm	

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3	
		20 ppm	
1,2-Dimethylbenzene (CAS 95-47-6)	STEL	442 mg/m3	
		100 ppm	
	TWA	221 mg/m3 50 ppm	
2-Heptanone (CAS 110-43-0)	STEL	475 mg/m3	
		100 ppm	
	TWA	238 mg/m3 50 ppm	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	208 mg/m3	
		50 ppm	
	TWA	83 mg/m3 20 ppm	
Ethyl benzene (CAS 100-41-4)	STEL	884 mg/m3	
		200 ppm	
	TWA	442 mg/m3 100 ppm	
n-Butyl acetate (CAS 123-86-4)	TWA	200 mg/m3	
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3	
Toluene (CAS 108-88-3)	STEL	150 mg/m3 40 ppm	
	TWA	50 mg/m3 14 ppm	
VM & P NAPHTHA (CAS 8032-32-4)	TWA	300 mg/m3	
Xylene (CAS 1330-20-7)	STEL	442 mg/m3 100 ppm	
	TWA	221 mg/m3 50 ppm	

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3	
		20 ppm	
1,2-Dimethylbenzene (CAS 95-47-6)	STEL	450 mg/m3	
		100 ppm	
	TWA	200 mg/m3 50 ppm	
2-Heptanone (CAS 110-43-0)	STEL	250 mg/m3	
		50 ppm	
	TWA	120 mg/m3 25 ppm	

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Components	Type	Value	Form
4-Chlorobenzotrifluoride (CAS 98-56-6)	TWA	20 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	208 mg/m3	
	TWA	50 ppm 83 mg/m3 20 ppm	
Ethyl benzene (CAS 100-41-4)	STEL	884 mg/m3	
	TWA	200 ppm 442 mg/m3 100 ppm	
n-Butyl acetate (CAS 123-86-4)	STEL	700 mg/m3	
	TWA	150 ppm 500 mg/m3 100 ppm	
Talc (CAS 14807-96-6)	TWA	2 mg/m3 1 mg/m3 5 mg/m3	Inhalable fraction. Respirable fraction.
Titanium dioxide (CAS 13463-67-7)	TWA	5 mg/m3	
Toluene (CAS 108-88-3)	STEL	384 mg/m3 100 ppm	
	TWA	192 mg/m3 50 ppm	
Xylene (CAS 1330-20-7)	STEL	450 mg/m3 100 ppm	
	TWA	200 mg/m3 50 ppm	

Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A

Components	Type	Value	
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3	
		20 ppm	
1,2-Dimethylbenzene (CAS 95-47-6)	STEL	442 mg/m3	
	TWA	100 ppm 221 mg/m3 50 ppm	
2-Heptanone (CAS 110-43-0)	STEL	475 mg/m3	
	TWA	100 ppm 238 mg/m3 50 ppm	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	208 mg/m3	
	TWA	50 ppm 83 mg/m3 20 ppm	
Ethyl benzene (CAS 100-41-4)	STEL	884 mg/m3	
	TWA	200 ppm 442 mg/m3 100 ppm	
Toluene (CAS 108-88-3)	STEL	384 mg/m3 100 ppm	
	TWA	192 mg/m3 50 ppm	
Xylene (CAS 1330-20-7)	STEL	442 mg/m3 100 ppm	
	TWA	221 mg/m3 50 ppm	

Malta. OELs. Occupational Exposure Limit Values (L.N. 227. of Occupational Health and Safety Authority Act (CAP. 424), Schedules I and V)

Components	Type	Value
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3
		20 ppm
1,2-Dimethybenzene (CAS 95-47-6)	STEL	442 mg/m3
		100 ppm
	TWA	221 mg/m3
		50 ppm
2-Heptanone (CAS 110-43-0)	STEL	475 mg/m3
		100 ppm
	TWA	238 mg/m3
		50 ppm
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	208 mg/m3
		50 ppm
	TWA	83 mg/m3
		20 ppm
Ethyl benzene (CAS 100-41-4)	STEL	884 mg/m3
		200 ppm
	TWA	442 mg/m3
		100 ppm
Toluene (CAS 108-88-3)	STEL	384 mg/m3
		100 ppm
	TWA	192 mg/m3
		50 ppm
Xylene (CAS 1330-20-7)	STEL	442 mg/m3
		100 ppm
	TWA	221 mg/m3
		50 ppm

Netherlands. OELs (binding)

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	STEL	200 mg/m3	
	TWA	100 mg/m3	
1,2-Dimethybenzene (CAS 95-47-6)	STEL	442 mg/m3	
	TWA	210 mg/m3	
2-Heptanone (CAS 110-43-0)	TWA	233 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	208 mg/m3	
	TWA	104 mg/m3	
Ethyl benzene (CAS 100-41-4)	STEL	430 mg/m3	
	TWA	215 mg/m3	
Talc (CAS 14807-96-6)	TWA	0,25 mg/m3	Respirable dust.
Toluene (CAS 108-88-3)	STEL	384 mg/m3	
	TWA	150 mg/m3	
Xylene (CAS 1330-20-7)	STEL	442 mg/m3	
	TWA	210 mg/m3	

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TLV	100 mg/m3	
		20 ppm	
1,2-Dimethybenzene (CAS 95-47-6)	TLV	108 mg/m3	
		25 ppm	
2-Heptanone (CAS 110-43-0)	TLV	115 mg/m3	

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value	Form
2-Pentanone (CAS 107-87-9)	TLV	25 ppm 260 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	75 ppm 208 mg/m3	
	TLV	50 ppm 83 mg/m3	
Carbon Black (CAS 1333-86-4)	TLV	20 ppm 3,5 mg/m3	
Ethyl benzene (CAS 100-41-4)	TLV	20 mg/m3	
n-Butyl acetate (CAS 123-86-4)	TLV	5 ppm 355 mg/m3	
Talc (CAS 14807-96-6)	TLV	75 ppm 6 mg/m3	Total dust. Respirable dust.
		2 mg/m3	
		5 mg/m3	
Titanium dioxide (CAS 13463-67-7)	TLV	5 mg/m3	
Toluene (CAS 108-88-3)	TLV	94 mg/m3	
		25 ppm	
Xylene (CAS 1330-20-7)	TLV	108 mg/m3 25 ppm	

Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	STEL	170 mg/m3	
	TWA	100 mg/m3	
1,2-Dimethylbenzene (CAS 95-47-6)	TWA	100 mg/m3	
2-Heptanone (CAS 110-43-0)	STEL	475 mg/m3	
	TWA	238 mg/m3	
2-Pentanone (CAS 107-87-9)	STEL	800 mg/m3	
	TWA	100 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	200 mg/m3	
	TWA	83 mg/m3	
Carbon Black (CAS 1333-86-4)	TWA	4 mg/m3	Total dust.
Ethyl benzene (CAS 100-41-4)	STEL	400 mg/m3	
	TWA	200 mg/m3	
n-Butyl acetate (CAS 123-86-4)	STEL	950 mg/m3	
	TWA	200 mg/m3	
Talc (CAS 14807-96-6)	TWA	4 mg/m3	Total dust. Respirable dust.
		1 mg/m3	
Titanium dioxide (CAS 13463-67-7)	STEL	30 mg/m3	
	TWA	10 mg/m3	Total dust.
Toluene (CAS 108-88-3)	STEL	200 mg/m3	
	TWA	100 mg/m3	
Xylene (CAS 1330-20-7)	TWA	100 mg/m3	

Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)

Components	Type	Value
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3 20 ppm

Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)

Components	Type	Value
1,2-Dimethybenzene (CAS 95-47-6)	STEL	442 mg/m3
		100 ppm
	TWA	221 mg/m3
		50 ppm
2-Heptanone (CAS 110-43-0)	STEL	475 mg/m3
		100 ppm
	TWA	238 mg/m3
		50 ppm
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	208 mg/m3
		50 ppm
	TWA	83 mg/m3
		20 ppm
Ethyl benzene (CAS 100-41-4)	STEL	884 mg/m3
		200 ppm
	TWA	442 mg/m3
		100 ppm
Toluene (CAS 108-88-3)	STEL	384 mg/m3
		100 ppm
	TWA	192 mg/m3
		50 ppm
Xylene (CAS 1330-20-7)	STEL	442 mg/m3
		100 ppm
	TWA	221 mg/m3
		50 ppm

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Components	Type	Value	Form
1,2-Dimethybenzene (CAS 95-47-6)	STEL	150 ppm	
	TWA	100 ppm	
2-Heptanone (CAS 110-43-0)	TWA	50 ppm	
2-Pentanone (CAS 107-87-9)	STEL	250 ppm	
	TWA	200 ppm	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	75 ppm	
	TWA	50 ppm	
barium sulfate (CAS 7727-43-7)	TWA	10 mg/m3	
Carbon Black (CAS 1333-86-4)	TWA	3,5 mg/m3	Fume.
Ethyl benzene (CAS 100-41-4)	STEL	125 ppm	
	TWA	100 ppm	
n-Butyl acetate (CAS 123-86-4)	STEL	200 ppm	
	TWA	150 ppm	
Talc (CAS 14807-96-6)	TWA	2 mg/m3	Respirable fraction.
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3	
Toluene (CAS 108-88-3)	TWA	50 ppm	
VM & P NAPHTHA (CAS 8032-32-4)	TWA	300 ppm	
Xylene (CAS 1330-20-7)	STEL	150 ppm	
	TWA	100 ppm	

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3	
		20 ppm	

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Components	Type	Value	Form
1,2-Dimethybenzene (CAS 95-47-6)	STEL	442 mg/m3	
		100 ppm	
	TWA	221 mg/m3	
		50 ppm	
2-Heptanone (CAS 110-43-0)	STEL	475 mg/m3	
		100 ppm	
	TWA	238 mg/m3	
		50 ppm	
2-Pentanone (CAS 107-87-9)	STEL	300 mg/m3	
		85 ppm	
	TWA	250 mg/m3	
		71 ppm	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	208 mg/m3	
		50 ppm	
	TWA	200 mg/m3	
		20 ppm	
Calcium carbonate (CAS 1317-65-3)	TWA	10 mg/m3	Inhalable fraction.
Ethyl benzene (CAS 100-41-4)	STEL	884 mg/m3	
		200 ppm	
	TWA	442 mg/m3	
		100 ppm	
n-Butyl acetate (CAS 123-86-4)	STEL	950 mg/m3	
		200 ppm	
	TWA	715 mg/m3	
		150 ppm	
Talc (CAS 14807-96-6)	TWA	2 mg/m3	Inhalable fraction.
Titanium dioxide (CAS 13463-67-7)	STEL	15 mg/m3	
		10 mg/m3	
Toluene (CAS 108-88-3)	STEL	384 mg/m3	
		100 ppm	
	TWA	192 mg/m3	
		50 ppm	
VM & P NAPHTHA (CAS 8032-32-4)	STEL	1000 mg/m3	
		700 mg/m3	
Xylene (CAS 1330-20-7)	STEL	442 mg/m3	
		100 ppm	
	TWA	221 mg/m3	
		50 ppm	

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3	
1,2-Dimethybenzene (CAS 95-47-6)	STEL	20 ppm	
		442 mg/m3	
	TWA	100 ppm	
		221 mg/m3	
2-Heptanone (CAS 110-43-0)	STEL	50 ppm	
		475 mg/m3	
	TWA	100 ppm	
		238 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	50 ppm	
		166 mg/m3	

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Components	Type	Value	Form
	TWA	40 ppm 83 mg/m3	
barium sulfate (CAS 7727-43-7)	TWA	20 ppm 4 mg/m3	Inhalable fraction.
Calcium carbonate (CAS 1317-65-3)	TWA	1,5 mg/m3 10 mg/m3	Respirable fraction.
Carbon Black (CAS 1333-86-4)	TWA	2 mg/m3	
Ethyl benzene (CAS 100-41-4)	STEL	884 mg/m3	
	TWA	200 ppm 442 mg/m3	
n-Butyl acetate (CAS 123-86-4)	STEL	100 ppm 700 mg/m3	
	TWA	150 ppm 500 mg/m3	
Talc (CAS 14807-96-6)	TWA	100 ppm 2 mg/m3 2 mg/m3 10 mg/m3	Respirable fraction. Respirable fraction. Total
Titanium dioxide (CAS 13463-67-7)	TWA	5 mg/m3	
Toluene (CAS 108-88-3)	STEL	384 mg/m3 100 ppm	
	TWA	192 mg/m3 50 ppm	
Xylene (CAS 1330-20-7)	STEL	442 mg/m3 100 ppm	
	TWA	221 mg/m3 50 ppm	

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3	
1,2-Dimethylbenzene (CAS 95-47-6)	TWA	20 ppm 221 mg/m3	
2-Heptanone (CAS 110-43-0)	TWA	50 ppm 238 mg/m3	
2-Pentanone (CAS 107-87-9)	TWA	50 ppm 710 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	TWA	200 ppm 83 mg/m3	
Ethyl benzene (CAS 100-41-4)	TWA	20 ppm 442 mg/m3	
n-Butyl acetate (CAS 123-86-4)	TWA	100 ppm 480 mg/m3	
Talc (CAS 14807-96-6)	TWA	100 ppm 2 mg/m3	Respirable fraction.
Toluene (CAS 108-88-3)	TWA	192 mg/m3 50 ppm	
Xylene (CAS 1330-20-7)	TWA	221 mg/m3 50 ppm	

**Spain. Occupational Exposure Limits
Components**

Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA 100 mg/m3	
1,2-Dimethybenzene (CAS 95-47-6)	STEL 20 ppm 442 mg/m3	
2-Heptanone (CAS 110-43-0)	TWA 100 ppm 221 mg/m3 50 ppm 474 mg/m3	
2-Pentanone (CAS 107-87-9)	STEL 100 ppm 237 mg/m3 50 ppm 894 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	TWA 250 ppm 715 mg/m3 200 ppm 208 mg/m3	
barium sulfate (CAS 7727-43-7)	STEL 50 ppm 83 mg/m3 20 ppm 10 mg/m3	
Carbon Black (CAS 1333-86-4)	TWA 3,5 mg/m3	
Ethyl benzene (CAS 100-41-4)	TWA 884 mg/m3	
n-Butyl acetate (CAS 123-86-4)	STEL 200 ppm 441 mg/m3 100 ppm 965 mg/m3	
Talc (CAS 14807-96-6)	TWA 200 ppm 724 mg/m3 150 ppm	Respirable fraction.
Titanium dioxide (CAS 13463-67-7)	TWA 2 mg/m3 10 mg/m3	
Toluene (CAS 108-88-3)	STEL 384 mg/m3 100 ppm	
Xylene (CAS 1330-20-7)	TWA 192 mg/m3 50 ppm 442 mg/m3 100 ppm 221 mg/m3 50 ppm	

**Sweden. Occupational Exposure Limit Values
Components**

Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	STEL 170 mg/m3	
1,2-Dimethybenzene (CAS 95-47-6)	TWA 35 ppm 120 mg/m3 25 ppm 442 mg/m3	
2-Heptanone (CAS 110-43-0)	STEL 100 ppm 221 mg/m3 50 ppm 250 mg/m3	
	TWA 50 ppm 120 mg/m3	

Sweden. Occupational Exposure Limit Values

Components	Type	Value	Form
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	25 ppm 200 mg/m3	
	TWA	50 ppm 100 mg/m3	
Ethyl benzene (CAS 100-41-4)	STEL	25 ppm 450 mg/m3	
	TWA	100 ppm 200 mg/m3	
n-Butyl acetate (CAS 123-86-4)	STEL	50 ppm 700 mg/m3	
	TWA	150 ppm 500 mg/m3	
Talc (CAS 14807-96-6)	TWA	100 ppm 2 mg/m3	Total dust. Respirable dust.
	TWA	1 mg/m3	
Titanium dioxide (CAS 13463-67-7)	TWA	5 mg/m3	Total dust.
Toluene (CAS 108-88-3)	STEL	384 mg/m3	
	TWA	100 ppm 192 mg/m3	
Xylene (CAS 1330-20-7)	STEL	50 ppm 442 mg/m3	
	TWA	100 ppm 221 mg/m3	
	TWA	50 ppm	

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	STEL	200 mg/m3	
	TWA	40 ppm 100 mg/m3	
1,2-Dimethylbenzene (CAS 95-47-6)	STEL	20 ppm 870 mg/m3	
	TWA	200 ppm 435 mg/m3	
2-Heptanone (CAS 110-43-0)	TWA	100 ppm 235 mg/m3	
	STEL	50 ppm 1400 mg/m3	
2-Pentanone (CAS 107-87-9)	TWA	400 ppm 700 mg/m3	
	STEL	200 ppm 164 mg/m3	
4-Methyl-2-pentanone (CAS 108-10-1)	TWA	40 ppm 82 mg/m3	
	STEL	20 ppm 610 mg/m3	
Ethyl 3-ethoxypropionate (CAS 763-69-9)	TWA	100 ppm 610 mg/m3	
	STEL	100 ppm 220 mg/m3	
Ethyl benzene (CAS 100-41-4)	TWA	50 ppm 220 mg/m3	
	TWA	50 ppm	

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
n-Butyl acetate (CAS 123-86-4)	STEL	960 mg/m3	
	TWA	200 ppm 480 mg/m3 100 ppm	
Talc (CAS 14807-96-6)	TWA	2 mg/m3	Respirable dust.
Titanium dioxide (CAS 13463-67-7)	TWA	3 mg/m3	Respirable dust.
Toluene (CAS 108-88-3)	STEL	760 mg/m3 200 ppm	
	TWA	190 mg/m3 50 ppm	
Xylene (CAS 1330-20-7)	STEL	870 mg/m3 200 ppm	
	TWA	435 mg/m3 100 ppm	

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	125 mg/m3	
1,2-Dimethylbenzene (CAS 95-47-6)	STEL	25 ppm 441 mg/m3	
	TWA	100 ppm 220 mg/m3 50 ppm	
2-Heptanone (CAS 110-43-0)	STEL	475 mg/m3	
	TWA	100 ppm 237 mg/m3 50 ppm	
2-Pentanone (CAS 107-87-9)	STEL	895 mg/m3	
	TWA	250 ppm 716 mg/m3 200 ppm	
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	416 mg/m3	
	TWA	100 ppm 208 mg/m3 50 ppm	
barium sulfate (CAS 7727-43-7)	TWA	4 mg/m3	Respirable dust.
Calcium carbonate (CAS 1317-65-3)	TWA	10 mg/m3 4 mg/m3	Inhalable dust. Respirable.
		4 mg/m3 10 mg/m3 10 mg/m3	Respirable dust. Inhalable dust. Inhalable
Carbon Black (CAS 1333-86-4)	STEL	7 mg/m3	
	TWA	3,5 mg/m3	
Ethyl benzene (CAS 100-41-4)	STEL	552 mg/m3	
	TWA	125 ppm 441 mg/m3 100 ppm	
n-Butyl acetate (CAS 123-86-4)	STEL	966 mg/m3	
	TWA	200 ppm 724 mg/m3 150 ppm	
Talc (CAS 14807-96-6)	TWA	1 mg/m3	Respirable dust.

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
Titanium dioxide (CAS 13463-67-7)	TWA	4 mg/m3	Respirable.
Toluene (CAS 108-88-3)	STEL	10 mg/m3	Inhalable
		384 mg/m3	
		100 ppm	
Xylene (CAS 1330-20-7)	TWA	191 mg/m3	
		50 ppm	
		441 mg/m3	
	STEL	100 ppm	
		220 mg/m3	
		50 ppm	

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU

Components	Type	Value
1,2,4-Trimethyl benzene (CAS 95-63-6)	TWA	100 mg/m3
1,2-Dimethylbenzene (CAS 95-47-6)	STEL	20 ppm
		442 mg/m3
		100 ppm
2-Heptanone (CAS 110-43-0)	TWA	221 mg/m3
		50 ppm
		475 mg/m3
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	100 ppm
		238 mg/m3
		50 ppm
Ethyl benzene (CAS 100-41-4)	TWA	208 mg/m3
		50 ppm
		83 mg/m3
Toluene (CAS 108-88-3)	STEL	20 ppm
		884 mg/m3
		100 ppm
Xylene (CAS 1330-20-7)	TWA	442 mg/m3
		100 ppm
		221 mg/m3
		50 ppm

Biological limit values
Czech Republic. Limit Values for Indicators of Biological Exposure Tests in Urine and Blood, Annex 2, Tables 1 and 2, Government Decree 432/2003 Sb.

Components	Value	Determinant	Specimen	Sampling time
1,2-Dimethylbenzene (CAS 95-47-6)	820 µmol/mmol	Methylhippuric acids	Creatinine in urine	*
	1400 mg/g	Methylhippuric acids	Creatinine in urine	*
Ethyl benzene (CAS 100-41-4)	1100 µmol/mmol	Mandelic acid	Creatinine in urine	*
	1500 mg/g	Mandelic acid	Creatinine in urine	*
Toluene (CAS 108-88-3)	1000 µmol/mmol	Hippuric acid	Creatinine in urine	*
	1600 mg/g	Hippuric acid	Creatinine in urine	*
Xylene (CAS 1330-20-7)	820 µmol/mmol	Methylhippuric acids	Creatinine in urine	*

Czech Republic. Limit Values for Indicators of Biological Exposure Tests in Urine and Blood, Annex 2, Tables 1 and 2, Government Decree 432/2003 Sb.

Components	Value	Determinant	Specimen	Sampling time
	1400 mg/g	Methylhippuric acids	Creatinine in urine	*

* - For sampling details, please see the source document.

Finland. HTP-arvot, App 2., Biological Limit Values, (BRA/BGV) , Social Affairs and Ministry of Health

Components	Value	Determinant	Specimen	Sampling time
1,2-Dimethylbenzene (CAS 95-47-6)	5 mmol/l	Methylhippuric acids	Urine	*
Ethyl benzene (CAS 100-41-4)	5,2 mmol/l	Mandelic acid	Urine	*
Toluene (CAS 108-88-3)	500 nmol/l	Toluene concentration	Blood	*
Xylene (CAS 1330-20-7)	5 mmol/l	Methylhippuric acids	Urine	*

* - For sampling details, please see the source document.

France. Biological indicators of exposure (IBE) (National Institute for Research and Security (INRS, ND 2065)

Components	Value	Determinant	Specimen	Sampling time
1,2-Dimethylbenzene (CAS 95-47-6)	1500 mg/g	Acides méthylhippuriques	Creatinine in urine	*
4-Methyl-2-pentanone (CAS 108-10-1)	2 mg/l	Méthylisobutylcétone	Urine	*
Ethyl benzene (CAS 100-41-4)	1500 mg/g	Acide mandélique	Creatinine in urine	*
Toluene (CAS 108-88-3)	2500 mg/g	Acide hippurique	Creatinine in urine	*
	2500 mg/g	Acide hippurique	Creatinine in urine	*
	1 mg/l	Toluène	Venous blood	*
Xylene (CAS 1330-20-7)	1500 mg/g	Acides méthylhippuriques	Creatinine in urine	*

* - For sampling details, please see the source document.

Germany. TRGS 903, BAT List (Biological Limit Values)

Components	Value	Determinant	Specimen	Sampling time
1,2,4-Trimethyl benzene (CAS 95-63-6)	400 mg/g	Dimethylbenzoesäuren (Summe aller Isomeren nach Hydrolyse)	Creatinine in urine	*
1,2-Dimethylbenzene (CAS 95-47-6)	2000 mg/l	Methylhippur-(Tolur-) säure (alle Isomere)	Urine	*
	1,5 mg/l	Xylol	Blood	*
4-Methyl-2-pentanone (CAS 108-10-1)	3,5 mg/l	4-Methylpentan-2-on	Urine	*
Ethyl benzene (CAS 100-41-4)	300 mg/l	Mandelsäure plus Phenylglyoxylsäure	Urine	*
Toluene (CAS 108-88-3)	600 µg/l	Toluol	Blood	*
	1,5 mg/l	o-Kresol (nach Hydrolyse)	Urine	*
Xylene (CAS 1330-20-7)	2000 mg/l	Methylhippur-(Tolur-) säure (alle Isomere)	Urine	*
	1,5 mg/l	Xylol	Blood	*

* - For sampling details, please see the source document.

Hungary. Chemical Safety at Workplace Ordinance Joint Decree No. 25/2000 (Annex 2): Permissible limit values of biological exposure (effect) indices

Components	Value	Determinant	Specimen	Sampling time
1,2-Dimethybenzene (CAS 95-47-6)	1500 mg/g	methyl hippuric acids	Creatinine in urine	*
	860 µmol/mmol	methyl hippuric acids	Creatinine in urine	*
Ethyl benzene (CAS 100-41-4)	1500 mg/g	mandelic acid	Creatinine in urine	*
	1110 µmol/mmol	mandelic acid	Creatinine in urine	*
Toluene (CAS 108-88-3)	1 mg/g	o-crezol	Creatinine in urine	*
	1,05 µmol/mmol	o-crezol	Creatinine in urine	*
Xylene (CAS 1330-20-7)	1500 mg/g	methyl hippuric acids	Creatinine in urine	*
	860 µmol/mmol	methyl hippuric acids	Creatinine in urine	*

* - For sampling details, please see the source document.

Slovakia. BLVs (Biological Limit Value). Regulation no. 355/2006 concerning protection of workers exposed to chemical agents, Annex 2

Components	Value	Determinant	Specimen	Sampling time
1,2-Dimethybenzene (CAS 95-47-6)	1334 mg/g	Methylhippuric acids	Creatinine in urine	*
	2000 mg/l	Methylhippuric acids	Urine	*
	1,5 mg/l	Xylene	Blood	*
4-Methyl-2-pentanone (CAS 108-10-1)	2,36 mg/g	Methyl isobutyl ketone	Creatinine in urine	*
	3,5 mg/l	Methyl isobutyl ketone	Urine	*
Ethyl benzene (CAS 100-41-4)	8,03 mg/g	2-ethylphenol	Creatinine in urine	*
	12 mg/l	2-ethylphenol	Urine	*
Toluene (CAS 108-88-3)	600 µg/l	Toluene	Blood	*
	1600 mg/g	Hippuric acid	Creatinine in urine	*
	1,03 mg/g	o-cresol (Phenol, 2-methyl-)	Creatinine in urine	*
	2401 mg/l	Hippuric acid	Urine	*
	1,5 mg/l	o-cresol (Phenol, 2-methyl-)	Urine	*
Xylene (CAS 1330-20-7)	1334 mg/g	Methylhippuric acids	Creatinine in urine	*
	2000 mg/l	Methylhippuric acids	Urine	*
	1,5 mg/l	Xylene	Blood	*

* - For sampling details, please see the source document.

Spain. Biological Limit Values (VLBs), Occupational Exposure Limits for Chemical Agents, Table 4

Components	Value	Determinant	Specimen	Sampling time
1,2-Dimethybenzene (CAS 95-47-6)	1 g/g	Ácidos metilhipúricos	Creatinine in urine	*
4-Methyl-2-pentanone (CAS 108-10-1)	1 mg/l	Metilisobutilcetona	Urine	*
Ethyl benzene (CAS 100-41-4)	700 mg/g	Suma del ácido mandélico y el ácido fenilgloxílico	Creatinine in urine	*
Toluene (CAS 108-88-3)	1,6 g/g	Ácido hipúrico	Creatinine in urine	*
	0,5 mg/l	o-cresol (Phenol, 2-methyl-)	Urine	*
	0,05 mg/l	Tolueno	Blood	*

Spain. Biological Limit Values (VLBs), Occupational Exposure Limits for Chemical Agents, Table 4

Components	Value	Determinant	Specimen	Sampling time
Xylene (CAS 1330-20-7)	1 g/g	Ácidos metilhipúricos	Creatinine in urine	*

* - For sampling details, please see the source document.

Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)

Components	Value	Determinant	Specimen	Sampling time
1,2-Dimethybenzene (CAS 95-47-6)	1,5 g/g	Methyl-Hippursäure	Creatinine in urine	*
	1,5 mg/l	Xylol	Blood	*
4-Methyl-2-pentanone (CAS 108-10-1)	2 mg/l	4-Methylpentan-2-on	Urine	*
Ethyl benzene (CAS 100-41-4)	800 mg/l	Mandelsäure plus Phenylglyoxylsäure	Urine	*
Toluene (CAS 108-88-3)	600 µg/l	Toluol	Blood	*
	2 g/g	Hippursäure	Creatinine in urine	*
	0,5 mg/l	o-Kresol	Urine	*
Xylene (CAS 1330-20-7)	1,5 g/g	Methyl-Hippursäure	Creatinine in urine	*
	1,5 mg/l	Xylol	Blood	*

* - For sampling details, please see the source document.

UK. EH40 Biological Monitoring Guidance Values (BMGVs)

Components	Value	Determinant	Specimen	Sampling time
1,2-Dimethybenzene (CAS 95-47-6)	650 mmol/mol	Methyl hippuric acid	Creatinine in urine	*
4-Methyl-2-pentanone (CAS 108-10-1)	20 µmol/l	4-Methylpentan-2-one	Urine	*
Xylene (CAS 1330-20-7)	650 mmol/mol	Methyl hippuric acid	Creatinine in urine	*

* - For sampling details, please see the source document.

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no-effect level (DNEL) Not available.

Predicted no effect concentrations (PNECs) Not available.

Exposure guidelines
EU Exposure Limit Values: Skin designation

1,2-Dimethybenzene (CAS 95-47-6)	Can be absorbed through the skin.
2-Heptanone (CAS 110-43-0)	Can be absorbed through the skin.
Ethyl benzene (CAS 100-41-4)	Can be absorbed through the skin.
Toluene (CAS 108-88-3)	Can be absorbed through the skin.
Xylene (CAS 1330-20-7)	Can be absorbed through the skin.

8.2. Exposure controls

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash fountain and emergency showers are recommended.

Individual protection measures, such as personal protective equipment

General information Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

- Hand protection Wear protective gloves.

- Other Wear suitable protective clothing.

Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	When using do not smoke. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
Environmental exposure controls	Inform appropriate managerial or supervisory personnel of all environmental releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state	Liquid.
Form	Liquid.
Colour	Black Opaque.
Odour	Solvent.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	-78 °C (-108,4 °F) estimated
Initial boiling point and boiling range	126,1 °C (258,98 °F) estimated
Flash point	22,0 °C (71,6 °F) estimated
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	1,1 % estimated
Flammability limit - upper (%)	7,9 % estimated
Vapour pressure	688,17 hPa estimated
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Solubility (other)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	393,33 °C (740 °F) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidizing properties	Not available.

9.2. Other information

Density	10,64 lbs/gal
Percent volatile	55,37 %
Specific gravity	1,28
VOC	3,6 lbs/gal Material 4,5 lbs/gal Regulatory 429 g/l Material 545 g/l Regulatory

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
10.5. Incompatible materials	Strong acids. Strong oxidising agents. Nitrates. Halogens.
10.6. Hazardous decomposition products	No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation	Harmful if inhaled.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Harmful if swallowed.

Symptoms Exposure may cause temporary irritation, redness, or discomfort.

11.1. Information on toxicological effects

Acute toxicity Harmful if inhaled. Harmful if swallowed.

Components	Species	Test results
1,2,4-Trimethyl benzene (CAS 95-63-6)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	> 3160 mg/kg
Inhalation		
LC50	Rat	> 2000 ppm, 48 Hours
Oral		
LD50	Rat	6 g/kg
1,2-Dimethylbenzene (CAS 95-47-6)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	> 43 g/kg
Inhalation		
LC50	Mouse	4600 ppm, 6 Hours
	Rat	6350 ppm, 4 Hours
Oral		
LD50	Mouse	1590 mg/kg
	Rat	4300 mg/kg
2-Heptanone (CAS 110-43-0)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	12600 mg/kg
Oral		
LD50	Mouse	730 mg/kg
	Rat	1,67 g/kg
4-Methyl-2-pentanone (CAS 108-10-1)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	> 16000 mg/kg
Inhalation		
LC50	Rat	8,2 mg/l, 4 Hours
Oral		
LD50	Rat	2080 mg/kg
Carbon Black (CAS 1333-86-4)		
<u>Acute</u>		
Oral		
LD50	Rat	> 8000 mg/kg

Components	Species	Test results
Ethyl benzene (CAS 100-41-4)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	17800 mg/kg
Oral		
LD50	Rat	3500 mg/kg
n-Butyl acetate (CAS 123-86-4)		
<u>Acute</u>		
Inhalation		
LC50	Wistar rat	160 mg/l, 4 Hours
Oral		
LD50	Rat	14000 mg/kg
Toluene (CAS 108-88-3)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	12124 mg/kg 14,1 ml/kg
Inhalation		
LC50	Mouse	5320 ppm, 8 Hours 400 ppm, 24 Hours
	Rat	26700 ppm, 1 Hours 12200 ppm, 2 Hours 8000 ppm, 4 Hours
Oral		
LD50	Rat	2,6 g/kg
VM & P NAPHTHA (CAS 8032-32-4)		
<u>Acute</u>		
Inhalation		
LC50	Rat	3400 mg/l, 4 Hours
Xylene (CAS 1330-20-7)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	> 43 g/kg
Inhalation		
LC50	Mouse	3907 mg/l, 6 Hours
	Rat	6350 mg/l, 4 Hours
Oral		
LD50	Mouse	1590 mg/kg
	Rat	3523 - 8600 mg/kg
* Estimates for product may be based on additional component data not shown.		
Skin corrosion/irritation	Due to partial or complete lack of data the classification is not possible.	
Serious eye damage/eye irritation	Due to partial or complete lack of data the classification is not possible.	
Respiratory sensitisation	Due to partial or complete lack of data the classification is not possible.	
Skin sensitisation	Due to partial or complete lack of data the classification is not possible.	
Germ cell mutagenicity	May cause genetic defects.	
Carcinogenicity	May cause cancer.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
1,2-Dimethylbenzene (CAS 95-47-6)	3 Not classifiable as to carcinogenicity to humans.	
4-Methyl-2-pentanone (CAS 108-10-1)	2B Possibly carcinogenic to humans.	
Carbon Black (CAS 1333-86-4)	2B Possibly carcinogenic to humans.	
Ethyl benzene (CAS 100-41-4)	2B Possibly carcinogenic to humans.	
Titanium dioxide (CAS 13463-67-7)	2B Possibly carcinogenic to humans.	
Toluene (CAS 108-88-3)	3 Not classifiable as to carcinogenicity to humans.	

Xylene (CAS 1330-20-7)

3 Not classifiable as to carcinogenicity to humans.

Reproductive toxicity

Components in this product have been shown to cause birth defects and reproductive disorders in laboratory animals.

Specific target organ toxicity - single exposure

Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - repeated exposure

Due to partial or complete lack of data the classification is not possible.

Aspiration hazard

Due to partial or complete lack of data the classification is not possible.

Mixture versus substance information

No information available.

Other information

Not available.

SECTION 12: Ecological information**12.1. Toxicity**

Harmful to aquatic life with long lasting effects.

Components**Species****Test results**

1,2,4-Trimethyl benzene (CAS 95-63-6)

Aquatic

Fish

LC50

Fathead minnow (Pimephales promelas)

7,19 - 8,28 mg/l, 96 hours

1,2-Dimethylbenzene (CAS 95-47-6)

Aquatic

Crustacea

EC50

Water flea (Daphnia magna)

0,78 - 2,51 mg/l, 48 hours

Fish

LC50

Rainbow trout,donaldson trout
(Oncorhynchus mykiss)

5,59 - 11,6 mg/l, 96 hours

2-Heptanone (CAS 110-43-0)

Aquatic

Fish

LC50

Fathead minnow (Pimephales promelas)

126 - 137 mg/l, 96 hours

4-Methyl-2-pentanone (CAS 108-10-1)

Aquatic

Fish

LC50

Fathead minnow (Pimephales promelas)

492 - 593 mg/l, 96 hours

barium sulfate (CAS 7727-43-7)

Aquatic

Crustacea

EC50

Tubificid worm (Tubifex tubifex)

28,61 - 38,03 mg/l, 48 hours

Ethyl benzene (CAS 100-41-4)

Aquatic

Crustacea

EC50

Water flea (Daphnia magna)

1,37 - 4,4 mg/l, 48 hours

Fish

LC50

Fathead minnow (Pimephales promelas)

7,5 - 11 mg/l, 96 hours

n-Butyl acetate (CAS 123-86-4)

Aquatic

Fish

LC50

Fathead minnow (Pimephales promelas)

17 - 19 mg/l, 96 hours

Titanium dioxide (CAS 13463-67-7)

Aquatic

Crustacea

EC50

Water flea (Daphnia magna)

> 1000 mg/l, 48 hours

Fish

LC50

Mummichog (Fundulus heteroclitus)

> 1000 mg/l, 96 hours

Toluene (CAS 108-88-3)

Aquatic

Crustacea

EC50

Water flea (Daphnia magna)

5,46 - 9,83 mg/l, 48 hours

Fish

LC50

Coho salmon,silver salmon
(Oncorhynchus kisutch)

8,11 mg/l, 96 hours

Xylene (CAS 1330-20-7)

Aquatic

Fish

LC50

Bluegill (Lepomis macrochirus)

7,711 - 9,591 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

12.2. Persistence and degradability

No data is available on the degradability of this product.

12.3. Bioaccumulative potential

**Partition coefficient
n-octanol/water (log Kow)**

1,2-Dimethylbenzene	3,12
2-Heptanone	1,98
4-Methyl-2-pentanone	1,31
Ethyl benzene	3,15
n-Butyl acetate	1,78
Toluene	2,73
Xylene	3,12 - 3,2

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No data available.

12.5. Results of PBT and vPvB assessment Not available.

12.6. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN1263
14.2. UN proper shipping name	Paint, Paint Related Material
14.3. Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Hazard No. (ADR)	33
Tunnel restriction code	D/E
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN1263
14.2. UN proper shipping name	Paint, Paint Related Material
14.3. Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number	UN1263
14.2. UN proper shipping name	Paint, Paint Related Material

14.3. Transport hazard class(es)

Class 3
Subsidiary risk -
Label(s) 3

14.4. Packing group II

14.5. Environmental hazards No.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number UN1263

14.2. UN proper shipping name Paint, Paint Related Material

14.3. Transport hazard class(es)

Class 3
Subsidiary risk -

14.4. Packing group II

14.5. Environmental hazards No.

ERG Code 3H

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo aircraft Allowed.

Cargo aircraft only Allowed.

IMDG

14.1. UN number UN1263

14.2. UN proper shipping name Paint, Paint Related Material

14.3. Transport hazard class(es)

Class 3
Subsidiary risk -

14.4. Packing group II

14.5. Environmental hazards

Marine pollutant No.

EmS F-E, S-E

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

ADN; ADR; IATA; IMDG; RID

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulations**

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I, as amended

Not listed.

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1 as amended
Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2 as amended
Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3 as amended
Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V as amended
Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended
Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA
Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended
VM & P NAPHTHA (CAS 8032-32-4)

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended
4-Methyl-2-pentanone (CAS 108-10-1)
Ethyl benzene (CAS 100-41-4)
Toluene (CAS 108-88-3)

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended
VM & P NAPHTHA (CAS 8032-32-4)

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding, as amended
Toluene (CAS 108-88-3)
VM & P NAPHTHA (CAS 8032-32-4)

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances
1,2,4-Trimethyl benzene (CAS 95-63-6)
1,2-Dimethylbenzene (CAS 95-47-6)
2-Heptanone (CAS 110-43-0)
4-Methyl-2-pentanone (CAS 108-10-1)
Ethyl benzene (CAS 100-41-4)
n-Butyl acetate (CAS 123-86-4)
Toluene (CAS 108-88-3)
Xylene (CAS 1330-20-7)

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended
1,2,4-Trimethyl benzene (CAS 95-63-6)
1,2-Dimethylbenzene (CAS 95-47-6)
2-Heptanone (CAS 110-43-0)
4-Methyl-2-pentanone (CAS 108-10-1)
Ethyl benzene (CAS 100-41-4)
n-Butyl acetate (CAS 123-86-4)
Toluene (CAS 108-88-3)
VM & P NAPHTHA (CAS 8032-32-4)
Xylene (CAS 1330-20-7)

Directive 94/33/EC on the protection of young people at work, as amended
Ethyl benzene (CAS 100-41-4)
Toluene (CAS 108-88-3)
VM & P NAPHTHA (CAS 8032-32-4)

Other regulations The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006. Pregnant women should not work with the product, if there is the least risk of exposure.

National regulations Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work. Follow national regulation for work with chemical agents.

15.2. Chemical safety assessment No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations Not available.

References

Not available.

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Full text of any statements or R-phrases and H-statements under Sections 2 to 15

R10 Flammable.
R11 Highly flammable.
R20 Harmful by inhalation.
R20/21 Harmful by inhalation and in contact with skin.
R20/22 Harmful by inhalation and if swallowed.
R36/37 Irritating to eyes and respiratory system.
R36/37/38 Irritating to eyes, respiratory system and skin.
R38 Irritating to skin.
R45 May cause cancer.
R46 May cause heritable genetic damage.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R63 Possible risk of harm to the unborn child.
R65 Harmful: may cause lung damage if swallowed.
R66 Repeated exposure may cause skin dryness or cracking.
R67 Vapours may cause drowsiness and dizziness.
H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.
H361d Suspected of damaging the unborn child.
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.
H412 Harmful to aquatic life with long lasting effects.

Revision information

None.

Training information

Follow training instructions when handling this material.

Disclaimer

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