



SAFETY DATA SHEET

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

Version #: 04
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture INK EFI PROGRAPHICS UV POP YELLOW

Registration number -

UFI: EU: 3J22-S2J7-U643-U8QF

Synonyms None.

Product code 45132385

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

Identified uses Printing ink

Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

Manufacturer EFI UK Ltd
Address Bowling Old Lane
Bradford
West Yorkshire
BD5 7JL
United Kingdom
Phone Number - General +44 1274 307704

Supplier Electronics for Imaging B.V.
Address VIA DEL LAVORO 130
24040 COMUN NUOVO (BG)
Italy
Phone Number - General +39 035 3844511

Email ehs@efi.com
Website efi.com

Phone Number - Emergency

1.4. Emergency telephone number

3E Global Incident Response +1 760 476 3962 Access Code: 57138. Available 24/7/365

General in EU 112 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)

Austria National Poisons Information Centre +431 406 4343 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)

Great Britain General emergency 112 or 999 SDS/Product information may not be available for the Emergency Service.

Italy CAV Policlinico "A. Gemelli" 06-3054343 <https://preparatipericolosi.iss.it/cav.aspx>: (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)

Belgium National Poisons Control Centre 070 245 245 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)

1.4. Emergency telephone number

Bulgaria National Toxicological Information Centre	+359 2 9154 233 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Croatia Poisons Information Centre	+385 1 2348 342 (Hours of operation not provided. SDS/Product information may not be available for the Emergency Service.)
Cyprus Poison Centre	1401 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Czech Republic National Poisons Information Centre	+420 224 919 293, or +420 224 915 402 (Hours of operation not provided. SDS/Product information may not be available for the Emergency Service.)
Denmark National Poisons Control Centre	+45 82 12 12 12 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Estonia National Poisons Information Centre	16662 or abroad: (+372) 626 9390 (Monday 9:00AM to Saturday 9:00AM (closed on Sundays and on national holidays). SDS/Product information may not be available for the Emergency Service.)
Finland National Poison Information Centre	(09) 471 977 (direct) or (09) 4711 (exchange) (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
France National Poisons Control Centre	ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Greece Poison Information Centre telephone number	(0030) 2107793777 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Hungary National Emergency Phone Number	+36-80-201-199 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Iceland Poison Centre	(+354) 543 2222 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Latvia Emergency medical aid	113
Latvia Poison and Drug Information Centre	+371 67042473 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Lithuania Neatidėliotina informacija apsinuodijus	+370 5 236 20 52 or +37068753378 (Hours of operation not provided. SDS/Product information may not be available for the Emergency Service.)
Malta Accident and Emergency Department	2545 4030 (Hours of operation not provided. SDS/Product information may not be available for the Emergency Service.)
Netherlands National Poisons Information Centre (NVIC)	NVIC: +31 (0)88 755 8000 (Only for the purpose of informing medical personnel in cases of acute intoxications)
Norway Norwegian Poison Information Centre	22 59 13 00 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Portugal Poison Centre	800 250 250 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Romania Biroul RSI si Informare Toxicologica	021.318.36.06 (Available 8:00AM-3:00PM. SDS/Product information may not be available for the Emergency Service.)
Slovakia National Toxicological Information Centre	+421 2 5477 4166 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Spain Toxicology Information Service	+ 34 91 562 04 20 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Sweden National Poison Information Centre	112 - and ask for Poison Information (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Switzerland Tox Info Suisse	145 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)

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. The classification of the substance or mixture has been performed in accordance with ABNT NBR 14725.

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

Health hazards

Acute toxicity, oral

Category 4

H302 - Harmful if swallowed.

Skin corrosion/irritation	Category 2	H315 - Causes skin irritation.
Serious eye damage/eye irritation	Category 1	H318 - Causes serious eye damage.
Skin sensitisation	Category 1	H317 - May cause an allergic skin reaction.
Reproductive toxicity (fertility, the unborn child)	Category 1B	H360FD - May damage fertility. May damage the unborn child.
Specific target organ toxicity - repeated exposure	Category 2	H373 - May cause damage to organs through prolonged or repeated exposure.
Environmental hazards		
Hazardous to the aquatic environment, long-term aquatic hazard	Category 2	H411 - Toxic to aquatic life with long lasting effects.

2.2. Label elements

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

UFI:

EU: 3J22-S2J7-U643-U8QF

Contains:

2-propenoic Acid, (tetrahydro-2-furanyl)methyl Ester, Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide, (5-Ethyl-1,3-dioxan-5-yl)methyl acrylate, hexamethylene diacrylate; hexane-1,6-diol diacrylate, Neopentylglycol Propoxylated Diacrylate, N-vinyl Caprolactam, 1-Propanone, 2-hydroxy-2-methyl-1-[4-(1-methylethenyl)phenyl]-, homopolymer, 2-ethyl-2-[[[(1-oxoallyl)oxy]methyl]-1,3-propanediyl diacrylate; 2,2-bis(acryloyloxymethyl)butyl acrylate; trimethylolpropane triacrylate, Caprolactone acrylate, tetrahydro-2-furyl-methanol; tetrahydrofurfuryl alcohol, Ester Of Acrylic Acid And [polymer Of 2-(chloromethyl)oxirane / 4,4'-isopropylidenediphenol], Glycerol, Propoxylated, Esters With Acrylic Acid

Hazard pictograms



Signal word

Danger

Hazard statements

H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H360FD	May damage fertility. May damage the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic 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.
P260	Do not breathe mist/vapours.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Response

P301 + P312	IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell.
P330	Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTRE/doctor.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.

Storage

P405	Store locked up.
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Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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Supplemental label information Restricted to professional users. 15,36 % of the mixture consists of component(s) of unknown acute oral toxicity. 17,49 % of the mixture consists of component(s) of unknown acute dermal toxicity. 7,97 % of the mixture consists of component(s) of unknown acute inhalation toxicity. 89,3 % of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 24,63 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

2.3. Other hazards The mixture does not contain any substances included in the list established in accordance with REACH Article 59(1) for having endocrine disrupting properties at a concentration equal to or greater than 0.1% by weight.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
2-propenoic Acid, (tetrahydro-2-furanyl)methyl Ester	30 - < 40	2399-48-6 219-268-7	01-2120738396-46-XXXX	-	
Classification: Acute Tox. 4;H302;(ATE: 882 mg/kg bw), Skin Corr. 1;H314, Eye Dam. 1;H318, Skin Sens. 1;H317, Repr. 1B;H360, Aquatic Chronic 2;H411					
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	10 - < 20	75980-60-8 278-355-8	01-2119972295-29-XXXX	015-203-00-X	SVHC
Classification: Skin Sens. 1B;H317, Repr. 1B;H360Fd, Aquatic Chronic 2;H411					
(5-Ethyl-1,3-dioxan-5-yl)methyl acrylate	5 - < 10	66492-51-1 266-380-7	01-2119976303-36-XXXX	-	
Classification: Skin Irrit. 2;H315, Skin Sens. 1;H317, Aquatic Chronic 2;H411					
hexamethylene diacrylate; hexane-1,6-diol diacrylate	5 - < 10	13048-33-4 235-921-9	01-2119484737-22-XXXX	607-109-00-8	
Classification: Skin Irrit. 2;H315, Eye Irrit. 2;H319, Skin Sens. 1;H317, Aquatic Acute 1;H400, Aquatic Chronic 2;H411					
Neopentylglycol Propoxylated Diacrylate	5 - < 10	84170-74-1 -	01-2119970213-43-XXXX	607-133-00-9	
Classification: Skin Sens. 1;H317, Aquatic Chronic 2;H411					
N-vinyl Caprolactam	5 - < 10	2235-00-9 218-787-6	01-2119977109-27-XXXX	-	
Classification: Acute Tox. 4;H302;(ATE: 1114 mg/kg bw), Acute Tox. 4;H312;(ATE: 1700 mg/kg bw), Eye Irrit. 2;H319, Skin Sens. 1B;H317, STOT RE 1;H372					
1-Propanone, 2-hydroxy-2-methyl-1-[4-(1-methylethenyl)phenyl]-, homopolymer	1 - < 3	163702-01-0 -	01-2120016508-60-XXXX	-	
Classification: Repr. 2;H361f, Aquatic Chronic 2;H411					
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-pyrimidinetrione Complexes	1 - < 3	68511-62-6 270-944-8	01-2119970317-33-XXXX	-	#
Classification: -					
2-ethyl-2-[[[(1-oxoallyl)oxy]methyl]-1,3-propanediyl diacrylate; 2,2-bis(acryloyloxymethyl)butyl acrylate; trimethylolpropane triacrylate	< 1	15625-89-5 239-701-3	01-2119489896-11-XXXX	607-111-00-9	
Classification: Skin Irrit. 2;H315, Eye Irrit. 2;H319, Skin Sens. 1;H317, Carc. 2;H351, STOT SE 3;H335, Aquatic Acute 1;H400(M=1), Aquatic Chronic 1;H410(M=1)					
Specific Concentration Limits: STOT SE 3;H335: C ≥ 10 %					
Caprolactone acrylate	< 1	110489-05-9 -	-	-	
Classification: Skin Irrit. 2;H315, Eye Irrit. 2;H319, Skin Sens. 1;H317					
tetrahydro-2-furyl-methanol; tetrahydrofurfuryl alcohol	< 1	97-99-4 202-625-6	01-2119968921-26-XXXX	603-061-00-7	
Classification: Eye Irrit. 2;H319, Repr. 1B;H360Df					
Ester Of Acrylic Acid And [polymer Of 2-(chloromethyl)oxirane / 4,4'-isopropylidenediphenol]	< 0,3	55818-57-0 500-130-2	01-21194900020-53-XXXX	-	
Classification: Skin Sens. 1;H317, Aquatic Chronic 2;H411					

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Glycerol, Propoxylated, Esters With Acrylic Acid	< 0,3	52408-84-1 500-114-5	01-2119487948-12-XXXX	-	
Classification: Eye Irrit. 2;H319, Skin Sens. 1;H317					
2,6-di-tert-butyl-p-cresol	< 0,2	128-37-0 204-881-4	01-2119565113-46-XXXX	-	
Classification: Aquatic Acute 1;H400, Aquatic Chronic 1;H410					
1,4-dihydroxybenzene; hydroquinone; quinol	< 0,1	123-31-9 204-617-8	01-2119524016-51-XXXX	604-005-00-4	
Classification: Acute Tox. 4;H302;(ATE: 500 mg/kg bw), Eye Dam. 1;H318, Skin Sens. 1;H317, Muta. 2;H341, Carc. 2;H351, Aquatic Acute 1;H400(M=10)					
The remaining ingredients are either non-hazardous or below reportable limits	10 - < 20				

List of abbreviations and symbols that may be used above

ATE: Acute toxicity estimate.

M: M-factor

vPvB: very persistent and very bioaccumulative substance.

PBT: persistent, bioaccumulative and toxic substance.

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

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information 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 Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

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

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 Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.

4.3. Indication of any immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media Use extinguishing agent suitable for type of surrounding fire.

Unsuitable extinguishing media None known.

5.2. Special hazards arising from the substance or mixture Not available.

5.3. Advice for firefighters

Special protective equipment for firefighters Wear suitable protective equipment.

Special fire fighting procedures 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	Do not breathe mist/vapours. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not touch or walk through spilled material.
For emergency responders	Keep unnecessary personnel away. Ensure adequate ventilation. Avoid breathing mist/vapours. Local authorities should be advised if significant spillages cannot be contained. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: 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 of the SDS. 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 breathe mist/vapours. Do not get this material in contact with eyes. Do not taste or swallow. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Provide adequate ventilation. 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. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

ANNEX 1, PART 1 Categories of dangerous substances

Hazard categories in accordance with Regulation (EC) No 1272/2008

- E2 Hazardous to the Aquatic Environment Chronic (Lower-tier requirements = 200 tonnes; Upper-tier requirements = 500 tonnes)

7.3. Specific end use(s)

Observe industrial sector guidance on best practices.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

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

Components	Type	Value	Form
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	Ceiling	4 mg/m3	Inhalable fraction.
	MAK	2 mg/m3	Inhalable fraction.
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	MAK	10 mg/m3	

Belgium. OEL. Exposure Limit Values to Chemical Substances at Work, Code of Well-being at work, Book VI, Title 1 - Chemical agents, as amended

Components	Type	Value	Form
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	TWA	1 mg/m3	
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	TWA	2 mg/m3	Vapour and aerosol.

Bulgaria. OELs. Ordinance No 13 on protection of workers against risks of exposure to chemical agents at work, as amended

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	TWA	2 mg/m3
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	STEL	50 mg/m3
	TWA	10 mg/m3
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	TWA	0,05 mg/m3

Croatia. OELs (GVI). Regulation on Protection of Workers against Exposure to Dangerous Chemicals at Work, OELs and Biological Limit Values, Annex I (NN 91/2018), as amended

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	MAC	0,5 mg/m3
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	MAC	10 mg/m3
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	MAC	0,01 mg/m3

Czech Republic. Occupational exposure limit values of chemicals at work (Decree on protection of health at work, 361/2007, Annex 2, Part A & Annex 3, Part A, as amended)

Components	Type	Value	Form
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	Ceiling	4 mg/m3	
		0,88 ppm	
	TWA	2 mg/m3	
		0,44 ppm	
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	TWA	0,05 mg/m3	Inhalable aerosol fraction

Denmark. Work Environment Authority. Exposure Limits for Substances & Materials, Annex 2

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	Ceiling	2 mg/m3
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	STEL	20 mg/m3
	TLV	10 mg/m3
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	STEL	0,1 mg/m3
	TLV	0,05 mg/m3

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances (Regulation No. 105/2001, Annex), as amended

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	STEL	1,5 mg/m3
	TWA	0,5 mg/m3

Finland. HTP-arvot, App 3., Binding Limit Values, Social Affairs and Ministry of Health

Components	Type	Value	Form
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	STEL	2 mg/m3	

Finland. HTP-arvot, App 3., Binding Limit Values, Social Affairs and Ministry of Health

Components	Type	Value	Form
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	TWA	0,5 mg/m3	Inhalable dust.
	STEL	20 mg/m3	
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	TWA	10 mg/m3	
	TWA	0,05 mg/m3	
		0,01 mg/m3	Respirable.

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

Components	Type	Value	Form
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	TWA	10 mg/m3	Vapor and aerosol, inhalable fraction.

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

Components	Type	Value	Form
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	AGW	10 mg/m3	Vapor and aerosol, inhalable fraction.
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	AGW	0,03 mg/m3	Inhalable fraction.

Greece. OELs, Presidential Decree No. 307/1986, as amended

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	STEL	4 mg/m3
	TWA	2 mg/m3
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	TWA	10 mg/m3
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	TWA	1 mg/m3

Hungary. OELs. Decree on protection of workers exposed to chemical agents (5/2020. (II.6)), Annex 1&2, as amended

Components	Type	Value
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	TWA	0,01 mg/m3

Iceland. OELs. Regulation 390/2009 on Pollution Limits and Measures to Reduce Pollution at the Workplace, as amended

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	STEL	2 mg/m3
	TWA	0,5 mg/m3
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	TWA	10 mg/m3
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	TWA	1 mg/m3

Ireland. OELVs, Schedules 1 & 2, Code of Practice for Chemical Agents and Carcinogens Regulations

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	TWA	0,5 mg/m3
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	TWA	2 mg/m3

Ireland. OELVs, Schedules 1 & 2, Code of Practice for Chemical Agents and Carcinogens Regulations

Components	Type	Value
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	STEL	3 mg/m3
	TWA	1 mg/m3

Italy. OELs (Legislative Decree n.81, 9 April 2008), as amended

Components	Type	Value	Form
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	TWA	1 mg/m3	
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	TWA	2 mg/m3	Inhalable fraction and vapour.

Lithuania. OELs. Occupational Exposure Limit Values for Chemical Substances (Hygiene Norm HN 23:2011; Order No. V-824/A1-389), as amended

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	STEL	1,5 mg/m3
	TWA	0,5 mg/m3

Norway. Regulation No. 1358 on Measures and Limit Values for Physical and Chemical Factors in Work Environment and Infection Groups for Biological Factors, as amended

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	TLV	0,5 mg/m3

Poland. Maximum permissible concentrations and intensities of harmful factors in the work environment (Dz.U.Poz. 1286/2018, Annex 1)

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	STEL	2 mg/m3
	TWA	1 mg/m3
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	TWA	0,25 mg/m3

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796-2014)

Components	Type	Value	Form
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	TWA	1 mg/m3	
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	TWA	2 mg/m3	Inhalable fraction and vapour.
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	TWA	0,2 mg/m3	Inhalable fraction.

Romania. OELs. Limit Values of Chemical Agents at Workplace (Regulation 1.218/2006, M.O 845, Annex 1, 3&4, as amended)

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	STEL	2 mg/m3
	TWA	1 mg/m3
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	STEL	0,5 mg/m3
	TWA	0,1 mg/m3

Slovakia. OELs for carcinogens and mutagens. Regulation No. 356/2006 on carcinogenic and mutagenic substances, as amended

Components	Type	Value	Form
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	TWA	0,05 mg/m3	Inhalable fraction.

Slovakia. OELs. Maximum permissible exposure limits for chemical factors in workplace air (Regulation No 355/2006, Annex 1, Table 1, as amended)

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	TWA	2 mg/m3

Slovenia. OELs. Occupational Exposure Limits of Chemicals at Workplace (Reg. on Protection of Workers from Risks due to Exp. to Chemicals at Work, Ann. I 100/2001), as amended

Components	Type	Value	Form
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	KTV	40 mg/m3	Inhalable fraction.

Slovenia. OELs. Occupational Exposure Limits of Chemicals at Workplace (Reg. on Protection of Workers from Risks due to Exp. to Chemicals at Work, Annex I), as amended

Components	Type	Value	Form
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	TWA	10 mg/m3	Inhalable fraction.

Spain. OELs. INSST, Límites de Exposición Profesional Para Agentes Químicos, Table 1-Valores Límites Ambientales (VLAs)

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	TWA	2 mg/m3
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	TWA	10 mg/m3

Sweden. OELs (Annex 1). Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2018:1), as amended

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	STEL	1,5 mg/m3
	TWA	0,5 mg/m3

Switzerland. SUVA Grenzwerte am Arbeitsplatz: Aktuelle MAK-Werte

Components	Type	Value	Form
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	STEL	2 mg/m3	Vapor and aerosol, inhalable.
	TWA	2 mg/m3	Vapor and aerosol, inhalable.
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	STEL	40 mg/m3	Vapor and aerosol, inhalable.
	TWA	10 mg/m3	Vapor and aerosol, inhalable.
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	TWA	0,05 mg/m3	Inhalable fraction.

UK. OELs. Workplace Exposure Limits (WELs) (EH40/2005 (Fourth Edition 2020)), Table 1

Components	Type	Value
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	TWA	0,5 mg/m3
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)	TWA	10 mg/m3

UK. OELs. Workplace Exposure Limits (WELs) (EH40/2005 (Fourth Edition 2020)), Table 1

Components	Type	Value
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	TWA	0,1 mg/m3

EU. OELs, Directive 2004/37/EC on carcinogen and mutagens from Annex III, Part A

Components	Type	Value	Form
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	TWA	0,05 mg/m3	Inhalable fraction.
		0,01 mg/m3	Respirable fraction.

Biological limit values**Finland. HTP-arvot, App 2., Biological Limit Values, Social Affairs and Ministry of Health**

Components	Value	Determinant	Specimen	Sampling Time
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	0,1 umol/l	Nickel	Urine	*

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

Hungary. BELs. Decree on protection of workers exposed to chemical agents (5/2020. (II.6)), Annex 3&4, as amended

Components	Value	Determinant	Specimen	Sampling Time
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	0,051 µmol/l	Nickel	Urine	*
	0,003 mg/l	Nickel	Urine	*

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

Switzerland. SUVA Grenzwerte am Arbeitsplatz: Aktuelle BAT-Werte

Components	Value	Determinant	Specimen	Sampling Time
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-p yrimidinetrione Complexes (CAS 68511-62-6)	10 µg/l	Nickel	Urine	*

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

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs)**General population**

Components	Value	Assessment factor	Notes
(5-Ethyl-1,3-dioxan-5-yl)methyl acrylate (CAS 66492-51-1)			
Long-term, Systemic, Inhalation	5 mg/m3	50	Repeated dose toxicity
Long-term, Systemic, Oral	1,4 mg/kg bw	200	Repeated dose toxicity
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)			
Long-term, Systemic, Dermal	1,66 mg/kg	90	Carcinogenicity
Long-term, Systemic, Inhalation	1,05 mg/m3	25	Carcinogenicity
Long-term, Systemic, Oral	0,6 mg/kg	25	Carcinogenicity
1-Propanone, 2-hydroxy-2-methyl-1-[4-(1-methylethenyl)phenyl]-, homopolymer (CAS 163702-01-0)			
Long-term, Systemic, Dermal	0,00528 mg/kg	1800	Effect on fertility
Long-term, Systemic, Inhalation	0,29 mg/m3	150	Repeated dose toxicity
Long-term, Systemic, Oral	0,00528 mg/kg	1800	Effect on fertility
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)			
Long-term, Systemic, Dermal	0,25 mg/kg	100	Repeated dose toxicity
Long-term, Systemic, Inhalation	0,435 mg/m3	25	Repeated dose toxicity
Long-term, Systemic, Oral	0,25 mg/kg	100	Repeated dose toxicity
2-propenoic Acid, (tetrahydro-2-furanyl)methyl Ester (CAS 2399-48-6)			
Long-term, Systemic, Dermal	1,75 mg/kg	200	Repeated dose toxicity
Long-term, Systemic, Inhalation	0,3 mg/m3	50	Repeated dose toxicity
Long-term, Systemic, Oral	0,18 mg/kg	200	Repeated dose toxicity

Derived no effect levels (DNELs)

General population

Components	Value	Assessment factor	Notes
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (CAS 75980-60-8)			
Long-term, Systemic, Dermal	0,0833 mg/kg	600	Repeated dose toxicity
Long-term, Systemic, Inhalation	0,145 mg/m3	150	Repeated dose toxicity
Long-term, Systemic, Oral	0,0833 mg/kg	600	Repeated dose toxicity
hexamethylene diacrylate; hexane-1,6-diol diacrylate (CAS 13048-33-4)			
Long-term, Systemic, Dermal	1,66 mg/kg	40	Repeated dose toxicity
Long-term, Systemic, Inhalation	7,2 mg/m3	30	Repeated dose toxicity
Long-term, Systemic, Oral	2,1 mg/kg	120	Repeated dose toxicity
Neopentylglycol Propoxylated Diacrylate (CAS 84170-74-1)			
Long-term, Systemic, Dermal	16,67 mg/kg bw	600	Repeated dose toxicity
Long-term, Systemic, Inhalation	5,8 mg/m3	150	Repeated dose toxicity
Long-term, Systemic, Oral	1,67 mg/kg bw	600	Repeated dose toxicity
N-vinyl Caprolactam (CAS 2235-00-9)			
Long-term, Local, Inhalation	0,04 mg/m3	5	Repeated dose toxicity
Long-term, Systemic, Dermal	0,42 mg/kg	40	Repeated dose toxicity
Long-term, Systemic, Inhalation	1,04 mg/m3	10	Repeated dose toxicity
Long-term, Systemic, Oral	0,4 mg/kg	120	Repeated dose toxicity
tetrahydro-2-furyl-methanol; tetrahydrofurfuryl alcohol (CAS 97-99-4)			
Long-term, Systemic, Dermal	0,5 mg/kg	200	Repeated dose toxicity
Long-term, Systemic, Inhalation	0,25 mg/m3	150	Repeated dose toxicity
Long-term, Systemic, Oral	0,175 mg/kg	200	Repeated dose toxicity

Workers

Components	Value	Assessment factor	Notes
(5-Ethyl-1,3-dioxan-5-yl)methyl acrylate (CAS 66492-51-1)			
Long-term, Systemic, Dermal	673 mg/kg bw		Repeated dose toxicity
Long-term, Systemic, Inhalation	28,5 mg/m3		Repeated dose toxicity
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)			
Long-term, Systemic, Dermal	3,33 mg/kg	45	Carcinogenicity
Long-term, Systemic, Inhalation	2,1 mg/m3	12,5	Carcinogenicity
1-Propanone, 2-hydroxy-2-methyl-1-[4-(1-methylethenyl)phenyl]-, homopolymer (CAS 163702-01-0)			
Long-term, Systemic, Dermal	0,0148 mg/kg	900	Effect on fertility
Long-term, Systemic, Inhalation	1,175 mg/m3	75	Repeated dose toxicity
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)			
Long-term, Systemic, Dermal	0,5 mg/kg	50	Repeated dose toxicity
Long-term, Systemic, Inhalation	1,76 mg/m3	12,5	Repeated dose toxicity
2-ethyl-2-[[[(1-oxoallyl)oxy]methyl]-1,3-propanediyl diacrylate; 2,2-bis(acryloyloxymethyl)butyl acrylate; trimethylolpropane triacrylate (CAS 15625-89-5)			
Long-term, Systemic, Dermal	404 mg/kg	100	Repeated dose toxicity
Long-term, Systemic, Inhalation	17,1 mg/m3	25	Repeated dose toxicity
2-propenoic Acid, (tetrahydro-2-furanyl)methyl Ester (CAS 2399-48-6)			
Long-term, Systemic, Dermal	4,9 mg/kg	100	Repeated dose toxicity
Long-term, Systemic, Inhalation	1,73 mg/m3	25	Repeated dose toxicity
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (CAS 75980-60-8)			
Long-term, Systemic, Dermal	0,233 mg/kg	300	Repeated dose toxicity
Long-term, Systemic, Inhalation	0,822 mg/m3	75	Repeated dose toxicity
Glycerol, Propoxylated, Esters With Acrylic Acid (CAS 52408-84-1)			
Long-term, Systemic, Dermal	2,1 mg/kg	100	Repeated dose toxicity
Long-term, Systemic, Inhalation	7,4 mg/m3	25	Repeated dose toxicity
hexamethylene diacrylate; hexane-1,6-diol diacrylate (CAS 13048-33-4)			
Long-term, Systemic, Dermal	2,77 mg/kg	24	Repeated dose toxicity
Long-term, Systemic, Inhalation	24,5 mg/m3	18	Repeated dose toxicity
Neopentylglycol Propoxylated Diacrylate (CAS 84170-74-1)			
Long-term, Systemic, Dermal	46,7 mg/kg bw	300	Repeated dose toxicity
Long-term, Systemic, Inhalation	32,9 mg/m3	75	Repeated dose toxicity

Derived no effect levels (DNELs)

Workers

Components	Value	Assessment factor	Notes
N-vinyl Caprolactam (CAS 2235-00-9)			
Long-term, Local, Inhalation	0,17 mg/m3	3	Repeated dose toxicity
Long-term, Systemic, Dermal	0,7 mg/kg	24	Repeated dose toxicity
Long-term, Systemic, Inhalation	4,9 mg/m3	6	Repeated dose toxicity
tetrahydro-2-furyl-methanol; tetrahydrofurfuryl alcohol (CAS 97-99-4)			
Long-term, Systemic, Dermal	1 mg/kg	100	Repeated dose toxicity
Long-term, Systemic, Inhalation	1,4 mg/m3	75	Repeated dose toxicity

Predicted no effect concentrations (PNECs)

Components	Value	Assessment factor	Notes
(5-Ethyl-1,3-dioxan-5-yl)methyl acrylate (CAS 66492-51-1)			
Freshwater	0,004 mg/l	1000	
Marine water	0 mg/l	10000	
Sediment (freshwater)	0,019 mg/kg		
Sediment (marine water)	0,002 mg/kg		
Soil	0,001 mg/kg		Soil
STP	30 mg/l	10	
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)			
Freshwater	0,57 µg/l	10	
Marine water	0,057 µg/l	100	
Sediment (freshwater)	0,0049 mg/kg		
Sediment (marine water)	0,00049 mg/kg		
Soil	0,00064 mg/kg		Soil
STP	0,71 mg/l	100	
1-Propanone, 2-hydroxy-2-methyl-1-[4-(1-methylethenyl)phenyl]-, homopolymer (CAS 163702-01-0)			
Freshwater	0,003 mg/l	1000	
Marine water	0 mg/l	10000	
Sediment (freshwater)	0,117 mg/kg		
Sediment (marine water)	0,012 mg/kg		
Soil	0,093 mg/kg		Soil
STP	0,16 mg/l	10	
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)			
Freshwater	0,199 µg/l	1000	
Marine water	0,02 µg/l	10000	
Secondary poisoning	16,67 mg/kg	30	Oral
Sediment (freshwater)	0,458 mg/kg		
Sediment (marine water)	0,046 mg/kg		
Soil	0,054 mg/kg		Soil
STP	0,017 mg/l	100	
2-ethyl-2-[(1-oxoallyl)oxy]methyl]-1,3-propanediyl diacrylate; 2,2-bis(acryloyloxymethyl)butyl acrylate; trimethylolpropane triacrylate (CAS 15625-89-5)			
Freshwater	0,87 µg/l	1000	
Marine water	0,087 µg/l	10000	
Secondary poisoning	10 mg/kg	300	Oral
Sediment (freshwater)	0,017 mg/kg		
Sediment (marine water)	0,002 mg/kg		
Soil	0,003 mg/kg		Soil
STP	6,25 mg/l	100	
2-propenoic Acid, (tetrahydro-2-furanyl)methyl Ester (CAS 2399-48-6)			
Freshwater	3,92 µg/l	1000	
Marine water	0,392 µg/l	10000	
Sediment (freshwater)	0,021 mg/kg		
Sediment (marine water)	0,002 mg/kg		
Soil	0,002 mg/kg		Soil
STP	2,637 mg/l	100	
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (CAS 75980-60-8)			
Freshwater	1,4 µg/l	1000	
Marine water	0,14 µg/l	10000	
Sediment (freshwater)	0,115 mg/kg		
Sediment (marine water)	0,0115 mg/kg		
Soil	0,0222 mg/kg		Soil

Predicted no effect concentrations (PNECs)

Components	Value	Assessment factor	Notes
Glycerol, Propoxylated, Esters With Acrylic Acid (CAS 52408-84-1)			
Freshwater	0,006 mg/l	1000	
Marine water	0,001 mg/l	10000	
Sediment (freshwater)	0,078 mg/kg		
Sediment (marine water)	0,008 mg/kg		
Soil	0,012 mg/kg		Soil
STP	10 mg/l	100	
hexamethylene diacrylate; hexane-1,6-diol diacrylate (CAS 13048-33-4)			
Freshwater	0,007 mg/l	10	
Marine water	0,001 mg/l	100	
Sediment (freshwater)	0,493 mg/kg		
Sediment (marine water)	0,049 mg/kg		
Soil	0,094 mg/kg		Soil
STP	2,7 mg/l	100	
Neopentylglycol Propoxylated Diacrylate (CAS 84170-74-1)			
Freshwater	0,003 mg/l	1000	
Marine water	0 mg/l	10000	
Sediment (freshwater)	0,064 mg/kg		
Sediment (marine water)	0,006 mg/kg		
Soil	0,011 mg/kg		
STP	0,1 mg/l	10	
N-vinyl Caprolactam (CAS 2235-00-9)			
Freshwater	0,575 mg/l	10	
Marine water	0,058 mg/l	100	
Sediment (freshwater)	4,77 mg/kg		
Sediment (marine water)	0,477 mg/kg		
Soil	0,615 mg/kg		
STP	262 mg/l	1	
tetrahydro-2-furyl-methanol; tetrahydrofurfuryl alcohol (CAS 97-99-4)			
Freshwater	1,9 mg/l	50	
Marine water	0,19 mg/l	500	
Sediment (freshwater)	8,6 mg/kg		
Sediment (marine water)	0,86 mg/kg		
Soil	0,6 mg/kg		Soil
STP	10 mg/l	10	

Exposure guidelines

Croatia ELVs: Skin designation

Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-pyrimidinetrione Complexes (CAS 68511-62-6) Can be absorbed through the skin.

Czech Republic PELs: Skin designation

1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9) Can be absorbed through the skin.

Germany DFG MAK (advisory): Skin designation

1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9) Can be absorbed through the skin.

Slovakia OELs for Carcinogens and Mutagens: Skin designation

Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-pyrimidinetrione Complexes (CAS 68511-62-6) Can be absorbed through the skin.

Slovakia OELs: Skin designation

1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9) Can be absorbed through the skin.

Switzerland SUVA Limit Values at the Workplace: Skin designation

1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9) Can be absorbed through the skin.

UK EH40 WEL: Skin designation

Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-pyrimidinetrione Complexes (CAS 68511-62-6) Can be absorbed through the skin.

8.2. Exposure controls

Appropriate engineering controls

Good general ventilation 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. Provide eyewash station and safety shower.

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	Chemical respirator with organic vapour cartridge and full facepiece.
Skin protection	
- Hand protection	Wear appropriate chemical resistant gloves.
- Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	Chemical respirator with organic vapour cartridge and full facepiece.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	Observe any medical surveillance requirements. 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. Contaminated work clothing should not be allowed out of the workplace.
Environmental exposure controls	Inform appropriate managerial or supervisory personnel of all environmental releases. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Form	Liquid.
Colour	Yellow
Odour	Slight.
Melting point/freezing point	Not available.
Boiling point or initial boiling point and boiling range	Not available.
Flammability	Not applicable.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Flash point	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
pH	Not available.
Kinematic viscosity	Not available.
Solubility	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water) (log value)	Not available.
Vapour pressure	0,25 hPa estimated
Density and/or relative density	
Density	1,05 g/cm3 estimated
Vapour density	Not available.
Particle characteristics	Not available.

9.2. Other information

9.2.1. Information with regard to physical hazard classes No relevant additional information available.

9.2.2. Other safety characteristics

Specific gravity	1,05 estimated
VOC	40,04 % Based on EU Definition of VOC estimated

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	Contact with incompatible materials.
10.5. Incompatible materials	None known.
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	Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation. May cause an allergic skin reaction.
Eye contact	Causes serious eye damage.
Ingestion	Harmful if swallowed.

Symptoms Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity Harmful if swallowed.

Components	Species	Test Results
(5-Ethyl-1,3-dioxan-5-yl)methyl acrylate (CAS 66492-51-1)		
<u>Acute</u>		
Oral		
LD50	Rat	> 2000 mg/kg
1-Propanone, 2-hydroxy-2-methyl-1-[4-(1-methylethenyl)phenyl]-, homopolymer (CAS 163702-01-0)		
<u>Acute</u>		
Dermal		
LD50	Rat	> 2000 mg/kg, 24 Hours
Oral		
LD50	Rat	> 2000 mg/kg
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)		
<u>Acute</u>		
Dermal		
LD50	Rat	> 2000 mg/kg, 4 Weeks
Oral		
LD50	Rat	> 2930 mg/kg
2-ethyl-2-[[[(1-oxoallyl)oxy]methyl]-1,3-propanediyl diacrylate; 2,2-bis(acryloyloxymethyl)butyl acrylate; trimethylolpropane triacrylate (CAS 15625-89-5)		
<u>Acute</u>		
Oral		
LD50	Rat	3680 mg/kg
2-propenoic Acid, (tetrahydro-2-furanyl)methyl Ester (CAS 2399-48-6)		
<u>Acute</u>		
Oral		
LD50	Rat	882 mg/kg
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (CAS 75980-60-8)		
<u>Acute</u>		
Dermal		
LD50	Rat	> 2000 mg/kg, 24 Hours
Oral		
LD50	Rat	> 5000 mg/kg
Glycerol, Propoxylated, Esters With Acrylic Acid (CAS 52408-84-1)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	> 2000 mg/kg, 24 Hours

Components	Species	Test Results
hexamethylene diacrylate; hexane-1,6-diol diacrylate (CAS 13048-33-4)		
Acute		
Dermal		
LD50	Rabbit	3600 mg/kg
Oral		
LD50	Rat	5 g/kg
Neopentylglycol Propoxylated Diacrylate (CAS 84170-74-1)		
Acute		
Dermal		
<i>Liquid</i>		
LD50	Rabbit	> 2000 mg/kg
Oral		
<i>Liquid</i>		
LD50	Rat	> 5000 mg/kg
N-vinyl Caprolactam (CAS 2235-00-9)		
Acute		
Dermal		
LD50	Rabbit	1700 mg/kg, 24 Hours
Oral		
LD50	Rat	1114 mg/kg
Skin corrosion/irritation	Causes skin irritation.	
Serious eye damage/eye irritation	Causes serious eye damage.	
Respiratory sensitisation	Not a respiratory sensitiser.	
Skin sensitisation	May cause an allergic skin reaction.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	No data available to indicate product or any components present at greater than 0.1% are carcinogenic. Risk of cancer cannot be excluded with prolonged exposure.	
Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)		
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)		
tetrahydro-2-furyl-methanol; tetrahydrofurfuryl alcohol (CAS 97-99-4)		
IARC Monographs. Overall Evaluation of Carcinogenicity		
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)		3 Not classifiable as to carcinogenicity to humans.
2-ethyl-2-[[[(1-oxoallyl)oxy]methyl]-1,3-propanediyl diacrylate; 2,2-bis(acryloyloxymethyl)butyl acrylate; trimethylolpropane triacrylate (CAS 15625-89-5)		2B Possibly carcinogenic to humans.
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)		3 Not classifiable as to carcinogenicity to humans.
Reproductive toxicity	May damage fertility. May damage the unborn child.	
Specific target organ toxicity - single exposure	Not classified.	
Specific target organ toxicity - repeated exposure	May cause damage to organs through prolonged or repeated exposure.	
Aspiration hazard	Not an aspiration hazard.	
Mixture versus substance information	No information available.	
11.2. Information on other hazards		
Endocrine disrupting properties	This mixture does not contain any substances having endocrine disrupting properties with respect to human health as assessed in accordance with the criteria set out in Regulations (EC) No 1907/2006 (EU) No 2017/2100 and (EU) 2018/605, at a concentration equal to or greater than 0.1% by weight.	
Other information	Not available.	

SECTION 12: Ecological information

12.1. Toxicity Toxic to aquatic life with long lasting effects.

Components	Species		Test Results
(5-Ethyl-1,3-dioxan-5-yl)methyl acrylate (CAS 66492-51-1)			
Aquatic			
Acute			
Crustacea	EC50	Daphnids (no species mentioned)	11,577 mg/l, 48 hours
Fish	LC50	Fish	3,909 mg/l, 96 hours
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)			
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	0,061 mg/l, 48 hours
Fish	LC50	Pimephales promelas	0,044 mg/l, 96 hours
1-Propanone, 2-hydroxy-2-methyl-1-[4-(1-methylethenyl)phenyl]-, homopolymer (CAS 163702-01-0)			
Aquatic			
Acute			
Fish	LC50	Oncorhynchus mykiss	> 3,7 mg/l, 96 hours
2,6-di-tert-butyl-p-cresol (CAS 128-37-0)			
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	> 0,17 mg/l, 48 hours
Fish	LC50	Danio rerio	> 0,57 mg/l, 96 hours
2-ethyl-2-[[[(1-oxoallyl)oxy]methyl]-1,3-propanediyl diacrylate; 2,2-bis(acryloyloxymethyl)butyl acrylate; trimethylolpropane triacrylate (CAS 15625-89-5)			
Aquatic			
Acute			
Fish	LC50	Danio rerio	0,87 mg/l, 96 hours
2-propenoic Acid, (tetrahydro-2-furanyl)methyl Ester (CAS 2399-48-6)			
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	37,7 mg/l, 48 hours
Fish	LC50	Danio rerio	7,32 mg/l, 96 hours
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (CAS 75980-60-8)			
Acute			
Other	EC10	Pseudokirchnerella subcapitata	1,56 mg/l, 72 h
	EC50	Pseudokirchnerella subcapitata	> 2,01 mg/l, 72 hours
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	3,53 mg/l, 48 hours
Fish	LC50	Cyprinus carpio	1,4 mg/l, 96 hours
		Danio rerio	1,4 mg/l, 96 hours
Ester Of Acrylic Acid And [polymer Of 2-(chloromethyl)oxirane / 4,4'-isopropylidenediphenol] (CAS 55818-57-0)			
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	> 16 mg/l, 48 hours
Fish	LC50	Cyprinus carpio	> 0,082 mg/l, 96 hours
Glycerol, Propoxylated, Esters With Acrylic Acid (CAS 52408-84-1)			
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	91,4 mg/l, 48 hours
Fish	LC50	Danio rerio	5,74 mg/l, 96 hours
hexamethylene diacrylate; hexane-1,6-diol diacrylate (CAS 13048-33-4)			
Acute			
	EC50	Selenastrum capricornutum (new name Pseudokirchneriella subcapitata)	2,3 mg/l, 72 h

Components		Species		Test Results
Aquatic				
<i>Acute</i>				
Crustacea	EC50	Daphnia magna		2,6 mg/l, 48 hours
Fish	LC50	Oryzias latipes		0,38 mg/l, 96 h
				0,38 mg/l, 96 hours
<i>Chronic</i>				
Fish	NOEC	Oryzias latipes		0,0723 mg/l, 39 d
Neopentylglycol Propoxylated Diacrylate (CAS 84170-74-1)				
<i>Chronic</i>				
Other	EC10	Pseudokirchnerella subcapitata		2,3 mg/l, 72 h
Aquatic				
<i>Acute</i>				
Algae	NOAEL	Algae		1 mg/l, 72 h
Crustacea	NOAEL	Daphnia magna		25,3 mg/l, 48 h
Fish	LC50	Danio rerio		2,7 mg/l, 96 h
N-vinyl Caprolactam (CAS 2235-00-9)				
Aquatic				
<i>Acute</i>				
Crustacea	EC50	Daphnia magna		> 100 mg/l, 48 hours
Fish	LC50	Danio rerio		307 mg/l, 96 hours
tetrahydro-2-furyl-methanol; tetrahydrofurfuryl alcohol (CAS 97-99-4)				
Aquatic				
<i>Acute</i>				
Crustacea	EC50	Daphnia magna		> 91,7 mg/l, 48 hours
Fish	LC50	Oryzias latipes		> 101 mg/l, 96 hours
12.2. Persistence and degradability		No data is available on the degradability of any ingredients in the mixture.		
12.3. Bioaccumulative potential				
Partition coefficient				
n-octanol/water (log Kow)				
1,4-dihydroxybenzene; hydroquinone; quinol		0,59		
2,6-di-tert-butyl-p-cresol		5,1		
hexamethylene diacrylate; hexane-1,6-diol diacrylate		3,08		
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. Endocrine disrupting properties		This mixture does not contain any substances having endocrine disrupting properties with respect to the environment as assessed in accordance with the criteria set out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605, at a concentration equal to or greater than 0.1% by weight.		
12.7. 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.		
12.8. Additional information				
Estonia Dangerous substances in soil Data				
1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)		Hydroquinone (As the sum of Phenols) 0,1 mg/kg		
		Hydroquinone (As the sum of Phenols) 1 mg/kg		
		Hydroquinone (As the sum of Phenols) 10 mg/kg		
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-pyrimidinetrione Complexes (CAS 68511-62-6)		Nickel (Ni) 150 mg/kg		
		Nickel (Ni) 50 mg/kg		
		Nickel (Ni) 500 mg/kg		

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.
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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	UN3082
14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2-propenoic Acid, (tetrahydro-2-furanyl)methyl Ester)
14.3. Transport hazard class(es)	
Class	9
Subsidiary hazard	-
Label(s)	9
Hazard No. (ADR)	90
Tunnel restriction code	-
14.4. Packing group	III
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	UN3082
14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2-propenoic Acid, (tetrahydro-2-furanyl)methyl Ester)
14.3. Transport hazard class(es)	
Class	9
Subsidiary hazard	-
Label(s)	9
14.4. Packing group	III
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	UN3082
14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2-propenoic Acid, (tetrahydro-2-furanyl)methyl Ester)
14.3. Transport hazard class(es)	
Class	9
Subsidiary hazard	-
Label(s)	9
14.4. Packing group	III
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

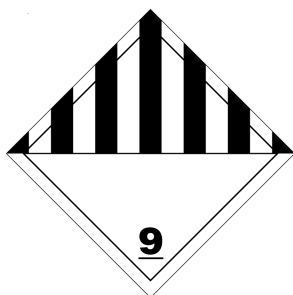
IATA

14.1. UN number	UN3082
14.2. UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (2-propenoic Acid, (tetrahydro-2-furanyl)methyl Ester)
14.3. Transport hazard class(es)	
Class	9
Subsidiary hazard	-
14.4. Packing group	III
14.5. Environmental hazards	No.
ERG Code	9L
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

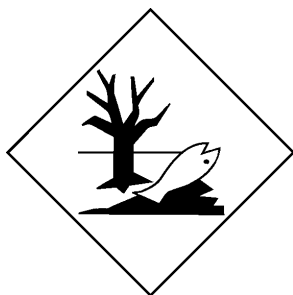
IMDG

14.1. UN number	UN3082
14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2-propenoic Acid, (tetrahydro-2-furanyl)methyl Ester), MARINE POLLUTANT
14.3. Transport hazard class(es)	
Class	9
Subsidiary hazard	-
14.4. Packing group	III
14.5. Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-F
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
14.7. Maritime transport in bulk according to IMO instruments	Not established.

ADN; ADR; IATA; IMDG; RID



Marine pollutant



General information IMDG Regulated Marine Pollutant.

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 and II, as amended

Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 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

Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-pyrimidinetrione Complexes (CAS 68511-62-6)

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (CAS 75980-60-8)

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use, as amended - Conditions of restriction given for the associated entry number should be considered

Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (CAS 75980-60-8)	75
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-pyrimidinetrione Complexes (CAS 68511-62-6)	27
tetrahydro-2-furyl-methanol; tetrahydrofurfuryl alcohol (CAS 97-99-4)	

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex I, as amended

Not listed.

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex II, as amended

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

ANNEX 1, PART 1 Categories of dangerous substances
Hazard categories in accordance with Regulation (EC) No 1272/2008
- E2 Hazardous to the Aquatic Environment Chronic

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (CAS 75980-60-8)
tetrahydro-2-furyl-methanol; tetrahydrofurfuryl alcohol (CAS 97-99-4)
Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-pyrimidinetrione Complexes (CAS 68511-62-6)

Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations

According to Directive 92/85/EEC as amended, pregnant women should not work with the product, if there is the least risk of exposure.

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, as amended Use of this product by young persons under the age of 18 is not allowed in accordance with the Management of Health and Safety at Work Regulations 1999 [SI 1999/3242], as amended. Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

Contains a substance which is included on the TRGS 907 list of registry of sensitizing substances

Nickel, 5,5'-azobis-2,4,6(1h,3h,5h)-pyrimidinetrione Complexes (CAS 68511-62-6)	Nickelverbindungen, Wasserlösliche insbesondere Ni-sulfat und Ni-dichlorid
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France regulations

France INRS Table of Occupational Diseases

1,4-dihydroxybenzene; hydroquinone; quinol (CAS 123-31-9)	Lésions eczématiformes de mécanisme allergique 65
2-ethyl-2-[[[(1-oxoallyl)oxy]methyl]-1,3-propanediyl diacrylate; 2,2-bis(acryloyloxymethyl)butyl acrylate; trimethylolpropane triacrylate (CAS 15625-89-5)	Lésions eczématiformes de mécanisme allergique 65
hexamethylene diacrylate; hexane-1,6-diol diacrylate (CAS 13048-33-4)	Lésions eczématiformes de mécanisme allergique 65
Neopentylglycol Propoxylated Diacrylate (CAS 84170-74-1)	Lésions eczématiformes de mécanisme allergique 65

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

ADN: European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways.
ADR: Agreement concerning the International Carriage of Dangerous Goods by Road.
AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany).
CAS: Chemical Abstract Service.
CEN: European Committee for Standardization.
IATA: International Air Transport Association.
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.
IMDG: International Maritime Dangerous Goods.
MAC: Maximum Allowed Concentration.
MARPOL: International Convention for the Prevention of Pollution from Ships.
PBT: Persistent, bioaccumulative and toxic.
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.
STEL: Short term exposure limit.
TLV: Threshold Limit Value.
TWA: Time Weighted Average.
VLE: Exposure Limit Value.
VME: Exposure Average Value.

References

Information on evaluation method leading to the classification of mixture

Full text of any statements, which are not written out in full under sections 2 to 15

vPvB: Very persistent and very bioaccumulative.

Not available.

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

H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.
H351 Suspected of causing cancer.
H360 May damage fertility or the unborn child.
H360Df May damage the unborn child. Suspected of damaging fertility.
H360Fd May damage fertility. Suspected of damaging the unborn child.
H361f Suspected of damaging fertility.
H372 Causes 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.

Revision information

SECTION 2: Hazards identification: Hazard statements
SECTION 2: Hazards identification: Prevention
SECTION 2: Hazards identification: Response
SECTION 2: Hazards identification: GHS Signal Words
SECTION 2: Hazards identification: GHS Symbols
SECTION 2: Hazards identification: Main symptoms
SECTION 4: First aid measures: Eye contact
SECTION 4: First aid measures: 4.2. Most important symptoms and effects, both acute and delayed
SECTION 8: Exposure controls/personal protection: Eye/face protection
SECTION 11: Toxicological information: Eye contact
SECTION 11: Toxicological information: Eye contact
SECTION 11: Toxicological information: Symptoms

Training information

Follow training instructions when handling this material.

Disclaimer

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