

Tough Resin

Version number: SDS 1.0

Date of compilation: 2024-10-07

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

1.1 Product identifier

Trade name Tough Resin

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

Relevant identified uses. 3D printing resin

1.3 Details of the supplier of the safety data sheet

AprintaPro GmbH
Gutheil Schoder Gasse 17
1230 Wien
Austria

Telephone: +43 1 997809410
e-mail: office@aprintapro.com
Website: <https://www.aprintapro.com>

e-mail (competent person) office@aprintapro.com

1.4 Emergency telephone number

Emergency information service +43 1 997809410
This number is only available during the following office hours:
Mon-Fri 08:00 - 16:00

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

Section	Hazard class	Category	Hazard class and category	Hazard statement
3.2	skin corrosion/irritation	2	Skin Irrit. 2	H315
3.3	serious eye damage/eye irritation	1	Eye Dam. 1	H318
3.4S	skin sensitisation	1	Skin Sens. 1	H317
4.1C	hazardous to the aquatic environment - chronic hazard	2	Aquatic Chronic 2	H411

For full text of abbreviations: see SECTION 16.

The most important adverse physicochemical, human health and environmental effects

Spillage and fire water can cause pollution of watercourses.

2.2 Label elements

Labelling

- Signal word danger

- Pictograms

GHS05, GHS07, GHS09



- Hazard statements

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H411 Toxic to aquatic life with long lasting effects.

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- Precautionary statements

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read carefully and follow all instructions.
P261	Avoid breathing mist/vapours.
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.
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 CENTER/doctor.
P362+P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

- Supplemental hazard information

EUH205 Contains epoxy constituents. May produce an allergic reaction.

- Hazardous ingredients for labelling

phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide, 4-(1-oxo-2-propenyl)-morpholine, (octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate, 2-hydroxyethyl methacrylate, 4,4'-Isopropylodenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)

2.3 Other hazards

Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of $\geq 0,1\%$.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not relevant (mixture)

3.2 Mixtures

Description of the mixture

Name of substance	Identifier	Wt%	Classification acc. to GHS
(octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate	CAS No 42594-17-2	10 – < 25	Skin Sens. 1B / H317 Aquatic Chronic 2 / H411
4-(1-oxo-2-propenyl)-morpholine	CAS No 5117-12-4	5 – < 10	Acute Tox. 4 / H302 Eye Dam. 1 / H318 Skin Sens. 1 / H317 STOT RE 2 / H373
2-hydroxyethyl methacrylate	CAS No 868-77-9	5 – < 10	Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Skin Sens. 1 / H317
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	CAS No 162881-26-7	< 2	Skin Sens. 1A / H317 Aquatic Acute 1 / H400 Aquatic Chronic 4 / H413
4,4'-Isopropylodenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	CAS No 25068-38-6	< 2	Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Skin Sens. 1 / H317 Aquatic Chronic 2 / H411
Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)	CAS No 16096-31-4 933999-84-9	< 2	Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Skin Sens. 1 / H317 Aquatic Chronic 3 / H412
Polymer with quaternized ammonium groups	CAS No 1431957-88-8	< 2	Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410

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Name of substance	Identifier	Wt%	Classification acc. to GHS
triphenyl phosphite	CAS No 101-02-0	< 2	Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410
2,6-di-tert-butyl-p-cresol	CAS No 128-37-0	< 2	Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410

Name of substance	Specific Conc. Limits	M-Factors	ATE	Exposure route
4-(1-oxo-2-propenyl)-morpholine	-	-	588 mg/kg	oral
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	-	M-factor (acute) = 10	-	
4,4'-Isopropylodenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Skin Irrit. 2; H315: C ≥ 5 % Eye Irrit. 2; H319: C ≥ 5 %	-	-	
triphenyl phosphite	Skin Irrit. 2; H315: C ≥ 5 % Eye Irrit. 2; H319: C ≥ 5 %	-	-	

Remarks

For full text of abbreviations: see SECTION 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

Following skin contact

Wash with plenty of soap and water.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water spray, BC-powder, Carbon dioxide (CO₂)

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

Nitrogen oxides (NO_x), Carbon monoxide (CO), Carbon dioxide (CO₂)

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5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow fire-fighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures****For non-emergency personnel**

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.

6.3 Methods and material for containment and cleaning up**Advice on how to contain a spill**

Covering of drains

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur (diatomite), sand, universal binder

Appropriate containment techniques

Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

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

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Use only in well-ventilated areas.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

See section 16 for a general overview.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)											
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Ceiling-C [ppm]	Ceiling-C [mg/m ³]	Notation	Source
GB	2,6-di-tert-butyl-p-cresol	128-37-0	WEL		10						EH40/2005

Notation

- Ceiling-C** ceiling value is a limit value above which exposure should not occur
- STEL** short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
- TWA** time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs of components					
CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
5117-12-4	DNEL	132.2 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
5117-12-4	DNEL	132.2 mg/m ³	human, inhalatory	worker (industry)	acute - systemic effects
5117-12-4	DNEL	300 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
5117-12-4	DNEL	300 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects
868-77-9	DNEL	4.9 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
868-77-9	DNEL	1.3 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
16096-31-4 933999-84-9	DNEL	10.57 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
16096-31-4 933999-84-9	DNEL	10.57 mg/m ³	human, inhalatory	worker (industry)	acute - systemic effects
16096-31-4 933999-84-9	DNEL	0.44 mg/m ³	human, inhalatory	worker (industry)	chronic - local effects
16096-31-4 933999-84-9	DNEL	6 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
16096-31-4 933999-84-9	DNEL	22.6 µg/cm ²	human, dermal	worker (industry)	chronic - local effects
16096-31-4 933999-84-9	DNEL	22.6 µg/cm ²	human, dermal	worker (industry)	acute - local effects
128-37-0	DNEL	1.76 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
128-37-0	DNEL	0.5 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Relevant PNECs of components					
CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
42594-17-2	PNEC	1.6 µg/l	aquatic organisms	freshwater	short-term (single instance)
42594-17-2	PNEC	0.16 µg/l	aquatic organisms	marine water	short-term (single instance)
42594-17-2	PNEC	10 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
42594-17-2	PNEC	0.658 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
42594-17-2	PNEC	0.066 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
42594-17-2	PNEC	0.131 mg/kg	terrestrial organisms	soil	short-term (single instance)

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Relevant PNECs of components					
CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
5117-12-4	PNEC	0.012 mg/l	aquatic organisms	freshwater	short-term (single instance)
5117-12-4	PNEC	0.009 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
5117-12-4	PNEC	0.001 mg/kg	terrestrial organisms	soil	short-term (single instance)
868-77-9	PNEC	0.482 mg/l	aquatic organisms	freshwater	short-term (single instance)
868-77-9	PNEC	0.482 mg/l	aquatic organisms	marine water	short-term (single instance)
868-77-9	PNEC	10 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
868-77-9	PNEC	3.79 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
868-77-9	PNEC	3.79 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
868-77-9	PNEC	0.476 mg/kg	terrestrial organisms	soil	short-term (single instance)
16096-31-4 933999-84-9	PNEC	0.011 mg/l	aquatic organisms	freshwater	short-term (single instance)
16096-31-4 933999-84-9	PNEC	0.001 mg/l	aquatic organisms	marine water	short-term (single instance)
16096-31-4 933999-84-9	PNEC	1 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
16096-31-4 933999-84-9	PNEC	0.283 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
16096-31-4 933999-84-9	PNEC	0.028 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
16096-31-4 933999-84-9	PNEC	0.223 mg/kg	terrestrial organisms	soil	short-term (single instance)
128-37-0	PNEC	0.199 µg/l	aquatic organisms	freshwater	short-term (single instance)
128-37-0	PNEC	0.02 µg/l	aquatic organisms	marine water	short-term (single instance)
128-37-0	PNEC	0.017 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
128-37-0	PNEC	0.458 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
128-37-0	PNEC	0.046 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
128-37-0	PNEC	0.054 mg/kg	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

- Type of material

NBR: acrylonitrile-butadiene rubber

- Material thickness

≥0,6mm

- Breakthrough times of the glove material

>480 minutes (permeation: level 6)

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

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Respiratory protection

In case of inadequate ventilation wear respiratory protection. Filtering half mask (EN 149). P1 (filters at least 80 % of airborne particles, colour code: White).

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties
9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	acc. to product description
Odour	characteristic
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	>168 °C at 101.3 kPa
Flammability	this material is combustible, but will not ignite readily
Lower and upper explosion limit	not determined
Flash point	not determined
Auto-ignition temperature	375 °C (auto-ignition temperature (liquids and gases))
Decomposition temperature	not relevant
PH (value)	6 – 8 (in aqueous solution: 100 mg/cm ³ , 25 °C)
Kinematic viscosity	not determined
Solubility(ies)	not determined
Partition coefficient	
Partition coefficient n-octanol/water (log value)	this information is not available
Vapour pressure	0.08 hPa at 20 °C
Density and/or relative density	
Density	1.1 g/cm ³ at 25 °C
Relative vapour density	information on this property is not available
Particle characteristics	not relevant (liquid)
9.2 Other information	
Information with regard to physical hazard classes	hazard classes acc. to GHS (physical hazards): not relevant
Other safety characteristics	there is no additional information

SECTION 10: Stability and reactivity
10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

If heated:

Exothermic polymerisation

If exposed to light:

Exothermic polymerisation.

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

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10.4 Conditions to avoid

UV-radiation/sunlight.

10.5 Incompatible materials

Oxidisers, Reducing agents

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.
Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification acc. to GHS

Acute toxicity

Shall not be classified as acutely toxic.

Acute toxicity estimate (ATE) of components			
Name of substance	CAS No	Exposure route	ATE
4-(1-oxo-2-propenyl)-morpholine	5117-12-4	oral	588 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Toxic to aquatic life with long lasting effects.

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Aquatic toxicity (chronic) of components				
CAS No	Endpoint	Value	Species	Exposure time
868-77-9	EC50	90.1 mg/l	aquatic invertebrates	21 d
868-77-9	LC50	>100 mg/l	aquatic invertebrates	21 d
162881-26-7	EC50	>100 mg/l	microorganisms	3 h
128-37-0	EC50	0.096 mg/l	aquatic invertebrates	21 d

12.2 Persistence and degradability

Degradability of components					
CAS No	Process	Degradation rate	Time	Method	Source
42594-17-2	oxygen depletion	28 %	28 d		ECHA
162881-26-7	carbon dioxide generation	1 %	29 d		ECHA
16096-31-4 933999-84-9	oxygen depletion	47 %	28 d		ECHA
101-02-0	oxygen depletion	70 %	7 d		ECHA

12.3 Bioaccumulative potential

Data are not available.

Bioaccumulative potential of components			
CAS No	BCF	Log KOW	BOD5/COD
42594-17-2	6.17	4.54 (pH value: 7.3)	
5117-12-4		-0.46 (21 °C)	
868-77-9		0.42 (25 °C)	
162881-26-7	<5	5.8 (pH value: 8.3, 22 °C)	
16096-31-4 933999-84-9	3.57	0.822 (20 °C)	
128-37-0		5.1	
101-02-0		6.62 (25 °C)	

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB. Does not contain a PBT-/vPvB-substance at a concentration of $\geq 0,1\%$.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

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Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information
14.1 UN number or ID number

ADR/RID/ADN	UN 3082
IMDG-Code	UN 3082
ICAO-TI	UN 3082

14.2 UN proper shipping name

ADR/RID/ADN	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
IMDG-Code	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
ICAO-TI	Environmentally hazardous substance, liquid, n.o.s.
Technical name (hazardous ingredients)	(octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate, phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide

14.3 Transport hazard class(es)

ADR/RID/ADN	9
IMDG-Code	9
ICAO-TI	9

14.4 Packing group

ADR/RID/ADN	III
IMDG-Code	III
ICAO-TI	III

14.5 Environmental hazards

Environmental hazards	hazardous to the aquatic environment
Environmentally hazardous substance (aquatic environment)	(octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate, phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Maritime transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations
Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) - Additional information

Classification code	M6
Danger label(s)	9, fish and tree



Environmental hazards	yes (hazardous to the aquatic environment)
Special provisions (SP)	274, 335, 375, 601
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Tunnel restriction code (TRC)	-
Hazard identification No	90
Emergency Action Code	3Z

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Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) - Additional information

Classification code M6
 Danger label(s) 9, fish and tree



Environmental hazards yes (hazardous to water)
 Special provisions (SP) 274, 335, 375, 601
 Excepted quantities (EQ) E1
 Limited quantities (LQ) 5 L
 Transport category (TC) 3
 Hazard identification No 90

International Maritime Dangerous Goods Code (IMDG) - Additional information

Marine pollutant yes (hazardous to the aquatic environment) ((octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate)
 Danger label(s) 9, fish and tree



Special provisions (SP) 274, 335, 969
 Excepted quantities (EQ) E1
 Limited quantities (LQ) 5 L
 EmS F-A, S-F
 Stowage category A

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Environmental hazards yes (hazardous to the aquatic environment)
 Danger label(s) 9, fish and tree



Special provisions (SP) A97, A158, A197, A215
 Excepted quantities (EQ) E1
 Limited quantities (LQ) 30 kg

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Seveso Directive

2012/18/EU (Seveso III)				
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements		Notes
E2	environmental hazards (hazardous to the aquatic environment, cat. 2)	200	500	57)

Notation

57) hazardous to the Aquatic Environment in category Chronic 2

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Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)
none of the ingredients are listed

Water Framework Directive (WFD)

List of pollutants (WFD)			
Name of substance	CAS No	Listed in	Remarks
triphenyl phosphite		a)	
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide		a)	
4,4'-Isopropylodenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane		a)	
Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)		a)	

Legend

a) Indicative list of the main pollutants

Regulation on persistent organic pollutants (POP)

none of the ingredients are listed

National regulations (GB)

List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

none of the ingredients are listed

Restrictions according to GB REACH, Annex 17

Dangerous substances with restrictions (GB REACH, Annex 17)			
Name of substance	Name acc. to inventory	CAS No	No
Tough Resin	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC		3

National inventories

Country	Inventory	Status
AU	AIIC	not all ingredients are listed
CA	DSL	not all ingredients are listed
CA	NDSL	not all ingredients are listed
CN	IECSC	not all ingredients are listed
EU	ECSI	not all ingredients are listed
EU	REACH Reg.	not all ingredients are listed
JP	CSCL-ENCS	not all ingredients are listed
JP	ISHA-ENCS	not all ingredients are listed
KR	KECI	not all ingredients are listed
MX	INSQ	not all ingredients are listed
NZ	NZIoC	not all ingredients are listed
PH	PICCS	not all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	not all ingredients are listed
VN	NCI	not all ingredients are listed
US	TSCA	not all ingredients are listed

Legend

AIIC Australian Inventory of Industrial Chemicals
CICR Chemical Inventory and Control Regulation

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CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory
NCI	National Chemical Inventory
NDSL	Non-domestic Substances List (NDSL)
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
Acute Tox.	Acute toxicity
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
ADR/RID/ADN	Agreements concerning the International Carriage of Dangerous Goods by Road/Rail/Inland Waterways (ADR/RID/ADN)
Aquatic Acute	Hazardous to the aquatic environment - acute hazard
Aquatic Chronic	Hazardous to the aquatic environment - chronic hazard
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BOD	Biochemical Oxygen Demand
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	Ceiling value
COD	Chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
ED	Endocrine disruptor
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GB REACH	The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)

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Abbr.	Descriptions of used abbreviations
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
log KOW	n-Octanol/water
M-factor	Means a multiplying factor. It is applied to the concentration of a substance classified as hazardous to the aquatic environment acute category 1 or chronic category 1, and is used to derive by the summation method the classification of a mixture in which the substance is present
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
Skin Sens.	Skin sensitisation
STEL	Short-term exposure limit
STOT RE	Specific target organ toxicity - repeated exposure
TWA	Time-weighted average
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
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.
H413	May cause long lasting harmful effects to aquatic life.

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Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.