Conforms to EU Regulation 1907/2006/EC as amended. - SDSGHS_NL

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

1.1 Product identifier

Trade name : Derakane™ Signia™ 470
epoxy vinyl ester resin
™ Trademark, ALTA its subsidiaries, registered in various countries

UFI: 8DG0-G0UX-P004-76D9

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

Recommended use : Reserved for industrial and professional use.

Restrictions on use Consumer use

1.3 Details of the supplier of the safety data sheet	1.4 Emergency telephone number
Alta Performance Materials Hispania S.L.U Carretera Reial 137-139 08960 Sant Just Desvern - Barcelona Spain +34 93 206 51 20 (in Spain) sds.composites@altapm.com	001-800-424-9300/001-703-527-3887, or contact your local emergency telephone number at 030 274 88 88. Exclusively for medical professionals in case of acute poisoning. **Regulatory Information Number** +34 93 206 51 20 (in Spain), or contact your local CSR contact person **Product Information** +34 93 206 51 20 (in Spain)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2	H319: Causes serious eye irritation.

Reproductive toxicity, Category 2	H361d: Suspected of damaging the unborn child.
Specific target organ toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.
Specific target organ toxicity - repeated exposure, Category 1	H372: Causes damage to organs through prolonged or repeated exposure.
Long-term (chronic) aquatic hazard, Category 3	H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements :

H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H361d Suspected of damaging the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Hazardous components which must be listed on the label:

Styrene

methacrylic acid

Precautionary statements : **Keep dust/air mixtures away from ignition sources.**

Storage:

When stored below 15 ° C (60 ° F), refer to product technical data sheet

Additional Labelling

EUH208 Contains 4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with maleic anhydride and methacrylic acid. May produce an allergic reaction.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Styrene	100-42-5 202-851-5 601-026-00-0 01-2119457861-32-xxxx	Flam. Liq. 3; H226 Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Repr. 2; H361d	>= 25 - < 40

		STOT SE 3; H335 (Respiratory system) STOT RE 1; H372 (hearing organs) Asp. Tox. 1; H304 Aquatic Chronic 3; H412	
methacrylic acid	79-41-4 201-204-4 607-088-00-5 01-2119463884-26-xxxx	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 3; H311 Skin Corr. 1A; H314 Eye Dam. 1; H318 STOT SE 3; H335 (Respiratory system) --- specific concentration limit STOT SE 3; H335 >= 1 %	>= 1 - < 2,5
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with maleic anhydride and methacrylic acid	36425-16-8 500-090-6 01-2119925011-56-0002	Skin Sens. 1B; H317	>= 0,5 - < 1
tetramethylammonium chloride	75-57-0 200-880-8 01-2119970924-26-xxxx	Acute Tox. 2; H300 Acute Tox. 3; H311 Skin Irrit. 2; H315 STOT SE 1; H370 (Central nervous system) Aquatic Chronic 2; H411 --- Acute toxicity estimate Acute oral toxicity: 47 mg/kg Acute dermal toxicity: 200,02 mg/kg	>= 0,1 - < 0,25

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Move out of dangerous area.
Call a POISON CENTRE or doctor/physician if exposed or you feel unwell.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : Move to fresh air.
IF INHALED: Call a POISON CENTER/ doctor if you feel unwell.
Keep patient warm and at rest.
If unconscious, place in recovery position and seek medical advice.

In case of skin contact : Remove contaminated clothing. If irritation develops, get medical attention.
If on skin, rinse well with water.
Wash contaminated clothing before re-use.
If on clothes, remove clothes.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.

If swallowed : Do NOT induce vomiting.
Rinse mouth.

Obtain medical attention.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : The most important known symptoms and effects are described in the labelling (see Section 2.2) and/or Section 11.

Risks : Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
Suspected of damaging the unborn child.

Causes damage to organs through prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : No hazards which require special first aid measures.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Water spray
Foam
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Organic dusts at sufficient concentration can form explosive mixtures in air.
Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : Carbon dioxide (CO2)
Carbon monoxide
Hydrocarbons
Acrylic monomers

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Specific extinguishing methods	:	Product is compatible with standard fire-fighting agents.
Further information	:	Do not use a solid water stream as it may scatter and spread fire. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Use a water spray to cool fully closed containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Ventilate the area. Evacuate personnel to safe areas. Remove all sources of ignition. Use personal protective equipment. Ensure adequate ventilation. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Comply with all applicable federal, state, and local regulations. Suppress (knock down) gases/vapours/mists with a water spray jet.

6.2 Environmental precautions

Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

For further information see Section 8 and Section 13 of the safety data sheet.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Use only in area provided with appropriate exhaust ventilation.
In case of insufficient ventilation, wear suitable respiratory equipment.
During spraying, wear suitable respiratory equipment.

Open drum carefully as content may be under pressure.
Avoid formation of aerosol.
Provide sufficient air exchange and/or exhaust in work rooms.
Do not breathe vapours/dust.
Do not smoke.
Container hazardous when empty.
Take precautionary measures against static discharges.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
Smoking, eating and drinking should be prohibited in the application area.
For personal protection see section 8.
Dispose of rinse water in accordance with local and national regulations.
Secondary operations, such as grinding and sanding, may produce dust.
Maintain good housekeeping. Do not permit dust layers to accumulate, for example, on floors, ledges, and equipment, in order to avoid any potential for dust explosion hazards.

Advice on protection against fire and explosion : Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). No sparking tools should be used. Keep away from open flames, hot surfaces and sources of ignition. Use only explosion-proof equipment.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.

Wash hands before breaks and at the end of workday. When using do not eat or drink. When using do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage : Keep container tightly closed in a dry and well-ventilated

areas and containers		place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. No smoking.
Further information on storage conditions	:	Keep locked up or in an area accessible only to qualified or authorised persons. When stored below 15 ° C (60 ° F), refer to product technical data sheet
Other data	:	No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Styrene :
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Short-term exposure, Systemic effects
Value: 289 mg/m3
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Short-term exposure, Local effects
Value: 306 mg/m3
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term exposure, Systemic effects
Value: 85 mg/m3
End Use: Workers
Exposure routes: Skin contact
Potential health effects: Long-term exposure, Systemic effects
Value: 406 mg/kg
End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Short-term exposure, Systemic effects
Value: 174,25 mg/m3

End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Short-term exposure, Local effects
Value: 182,75 mg/m3
End Use: Consumers
Exposure routes: Skin contact
Potential health effects: Long-term exposure, Systemic effects
Value: 343 mg/kg
End Use: Consumers
Exposure routes: Ingestion
Potential health effects: Long-term exposure, Systemic effects
Value: 2,1 mg/kg
End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Long-term exposure, Systemic effects
Value: 10,2 mg/m3

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Styrene : Fresh water
Value: 0,028 mg/l
Fresh water
Value: 0,04 mg/lIntermittent use/release

Marine water
Value: 0,014 mg/l
Sewage treatment plant
Value: 5 mg/l
Fresh water sediment
Value: 0,614 mg/kg
Marine sediment
Value: 0,307 mg/kg
Soil
Value: 0,2 mg/kg

8.2 Exposure controls

Engineering measures

Prevent unauthorised persons entering the zone.
Maintain air concentrations below occupational exposure standards.
All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.
Minimize open handling.
Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).
Use closed processing systems or containment technologies to control at source (e.g., glove

boxes/isolators) and to prevent leakage of compounds into the workplace.
Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.
Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.
Provide appropriate exhaust ventilation at places where dust is formed.

Personal protective equipment

Eye protection : Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.

Use eye protection according to EN 166.

Hand protection
- Material : Laminate (Barrier© or Silvershield©)
- Break through time : 480 min
- Glove thickness : > 0,5 mm

Remarks : The exact break through time can be obtained from the protective glove producer and this has to be observed. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Skin and body protection : Wear as appropriate:
Impervious clothing
Safety shoes
Flame-resistant clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Discard gloves that show tears, pinholes, or signs of wear.

Protective clothing complying with EN 13688.
Safety shoes complying with EN ISO 20345.

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.
Wear respiratory equipment when entering the spray area.
In order to avoid inhalation of spray-mist and sanding dust, all spraying and sanding must be done wearing adequate

respirator.

In the case of vapour formation use a respirator with an approved filter.

Filter type : Organic vapour type (A)

Respiratory protection complying with EN 136.
Respiratory protection complying with EN 140.
Respiratory protection complying with EN 14387.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Colour	:	yellow
Odour	:	aromatic
Odour Threshold	:	No data available
Melting point/freezing point	:	No data available
Boiling point/boiling range	:	145 °C Value for Component
Flammability	:	May form combustible dust concentrations in air (during processing).
Upper explosion limit / Upper flammability limit	:	Upper flammability limit 6,1 %(V) Value for Component
Lower explosion limit / Lower flammability limit	:	Lower flammability limit 1,1 %(V) Value for Component
Flash point	:	29,4 °C Method: ASTM D 56
Decomposition temperature	:	No data available

pH	:	No data available
Viscosity		
Viscosity, dynamic	:	330 - 430 cps (25 °C)
Viscosity, kinematic	:	> 20,5 mm2/s (40 °C)
Solubility(ies)		
Water solubility	:	insoluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Vapour pressure	:	6,67 hPa (20 °C) Value for Component
Relative density	:	No data available
Density	:	1,0832 g/cm3 (25 °C)
Relative vapour density	:	No data available

9.2 Other information

Oxidizing properties	:	No data available
Self-ignition	:	No data available
Evaporation rate	:	No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Hazardous polymerisation may occur.

Vapours may form explosive mixture with air.
This product does not present a dust explosion hazard as delivered. However, fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source, is a potential dust explosion hazard.

10.4 Conditions to avoid

Conditions to avoid : temperature extremes
Exposure to air.
Exposure to sunlight.

Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Acids
aluminum
aluminum chloride
Amines
Bases
Copper
Copper alloys
halogens
iron chloride
metal salts
Oxidizing agents
Peroxides

10.6 Hazardous decomposition products

Hazardous decomposition products : Hydrocarbons
Acetone
Carbon dioxide (CO2)
Carbon monoxide

SECTION 11: Toxicological information

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

Information on likely routes of exposure : Inhalation
Skin contact
Eye Contact
Ingestion

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

Components:

Styrene:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 11,8 mg/l, 2770 ppm
Exposure time: 4 h
Test atmosphere: vapour

No observed adverse effect level (Humans): 100 ppm
Exposure time: 7 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

methacrylic acid:

Acute oral toxicity : LD50 (Mouse): 1.250 mg/kg

LD50 (Rat, male): 1.320 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 7,1 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
Assessment: The component/mixture is classified as acute

inhalation toxicity, category 4., The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : LD50 (Rabbit): 500 - 1.000 mg/kg

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with maleic anhydride and methacrylic acid:

Acute oral toxicity : LD50 (Rat, female): > 2.000 mg/kg
Method: OECD Test Guideline 423
GLP: yes
Assessment: The substance or mixture has no acute oral toxicity

tetramethylammonium chloride:

Acute oral toxicity : LD50 (Rat): 47 mg/kg

Acute toxicity estimate: 47 mg/kg
Method: Calculation method

Acute dermal toxicity : LD50 (Rabbit): > 200 - < 500 mg/kg

Acute toxicity estimate: 200,02 mg/kg
Method: Calculation method

Skin corrosion/irritation

Causes skin irritation.

Product:

Result : Repeated exposure may cause skin dryness or cracking.

Remarks : May cause skin irritation and/or dermatitis.

Components:

Styrene:

Species : Rabbit
Result : Irritating to skin.

Species : human skin
Result : No skin irritation

methacrylic acid:

Method : OECD Test Guideline 404
Result : Corrosive after 3 minutes or less of exposure

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with maleic anhydride and methacrylic acid:

Species : reconstructed human epidermis (RhE)
Method : OECD Test Guideline 439
Result : No skin irritation
GLP : yes

tetramethylammonium chloride:

Result : Irritating to skin.

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Remarks : Vapours may cause irritation to the eyes, respiratory system and the skin.
Causes serious eye irritation.

Components:

Styrene:

Result : Irritating to eyes.
Remarks : Vapour during processing may be irritating to the respiratory tract and to the eyes.

methacrylic acid:

Result : Corrosive

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with maleic anhydride and methacrylic acid:

Species : Bovine cornea
Method : OECD Test Guideline 437
Result : No eye irritation
GLP : yes

tetramethylammonium chloride:

Result : Slight, transient irritation

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

Styrene:

Exposure routes	:	Skin contact
Species	:	Guinea pig
Assessment	:	Does not cause skin sensitisation.
Result	:	negative

Exposure routes	:	inhalation (vapour)
Species	:	Humans
Assessment	:	Does not cause respiratory sensitisation.
Result	:	negative

methacrylic acid:

Test Type	:	Buehler Test
Species	:	Guinea pig
Assessment	:	Did not cause sensitisation on laboratory animals.
Method	:	OECD Test Guideline 406

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with maleic anhydride and methacrylic acid:

Assessment	:	The product is a skin sensitiser, sub-category 1B.
Method	:	Maximisation Test

tetramethylammonium chloride:

Test Type	:	Local lymph node assay
Species	:	Mouse
Assessment	:	Did not cause sensitisation on laboratory animals.
Method	:	OECD Test Guideline 429
Result	:	Did not cause sensitisation on laboratory animals.

Germ cell mutagenicity

Not classified based on available information.

Components:

methacrylic acid:

Genotoxicity in vitro : Test Type: Ames test
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 487
Result: negative

Genotoxicity in vivo : Test Type: Mammalian bone marrow sister chromatid exchange
Species: Rat (male)
Cell type: Bone marrow
Method: OECD Test Guideline 475
Result: negative

Species: Mouse (male)
Method: OECD Test Guideline 478
Result: negative

Test Type: Micronucleus test
Species: Mouse (male)
Cell type: peripheral blood cells
Method: OECD Test Guideline 474
Result: negative

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with maleic anhydride and methacrylic acid:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: in vitro assay

Test system: Chinese hamster fibroblasts
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

tetramethylammonium chloride:

Genotoxicity in vitro : Test Type: Ames test
Method: OECD Test Guideline 471
Result: negative

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Suspected of damaging the unborn child.

Components:

Styrene:

Reproductive toxicity - Assessment : Some evidence of adverse effects on development, based on animal experiments.

methacrylic acid:

Effects on fertility : Species: Rat
Application Route: Oral
Fertility: NOAEL Mating/Fertility: 400 mg/kg body weight
Symptoms: No effects on fertility, No effects on reproduction parameters
Method: OECD Test Guideline 416

Effects on foetal development : Species: Rabbit
Application Route: Oral
Developmental Toxicity: NOAEL F1: 450 mg/kg body weight
Symptoms: No specific developmental abnormalities
Method: OECD Test Guideline 414

STOT - single exposure

May cause respiratory irritation.

Components:

Styrene:

Assessment : May cause respiratory irritation.

methacrylic acid:

Exposure routes : Inhalation
Target Organs : Respiratory Tract
Assessment : May cause respiratory irritation.

tetramethylammonium chloride:

Exposure routes : Ingestion
Target Organs : Central nervous system
Assessment : Causes damage to organs.

STOT - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Components:

Styrene:

Exposure routes : inhalation (vapour)
Target Organs : Auditory system
Assessment : Causes damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

Styrene:

Species : Human
: 20 mg/l
Application Route : inhalation (vapour)
Target Organs : Auditory system (hearing)

Species : Human
NOAEL : 615 mg/kg
Application Route : Skin contact

methacrylic acid:

Species : Rat, male and female

	:	352 mg/m3
Application Route	:	inhalation (dust/mist/fume)
Exposure time	:	90 Days
Control Group	:	yes
Symptoms	:	Local irritation, Reduced body weight

Aspiration toxicity

Not classified based on available information.

Components:

Styrene:

May be fatal if swallowed and enters airways.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Product:

Remarks	:	Solvents may degrease the skin.

SECTION 12: Ecological information

12.1 Toxicity

Components:

Styrene:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 4,02 mg/l Exposure time: 96 h
Toxicity to daphnia and other	:	EC50 (Daphnia magna (Water flea)): 4,7 mg/l

aquatic invertebrates		Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 4,9 mg/l Exposure time: 72 h EC10 (Pseudokirchneriella subcapitata (green algae)): 0,28 mg/l Exposure time: 96 h
Toxicity to microorganisms	:	EC50 (activated sludge): ca. 500 mg/l Exposure time: 0,5 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 1,01 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea)
Toxicity to soil dwelling organisms	:	NOEC: 34 mg/kg Exposure time: 14 d Species: Eisenia fetida (earthworms) Method: OECD Test Guideline 207

methacrylic acid:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 85 mg/l Exposure time: 96 h Test Type: flow-through test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 130 mg/l Exposure time: 48 h Test Type: flow-through test
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 20 mg/l End point: Biomass Exposure time: 72 h Test Type: flow-through test Method: OECD Test Guideline 201
Toxicity to fish (Chronic toxicity)	:	NOEC: 10 mg/l Exposure time: 35 d Species: Danio rerio (zebra fish) Test Type: flow-through test Method: OECD Test Guideline 210
Toxicity to daphnia and other aquatic invertebrates	:	NOEC: 53 mg/l Exposure time: 21 d

(Chronic toxicity) Species: Daphnia magna (Water flea)
Test Type: flow-through test
Method: OECD Test Guideline 211

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with maleic anhydride and methacrylic acid:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): > 38 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: WAF
Method: OECD Test Guideline 203
GLP: yes
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates : (Daphnia magna (Water flea)): Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes
Remarks: No toxicity at the limit of solubility

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Test Type: Static
Method: OECD Test Guideline 209
GLP: yes

tetramethylammonium chloride:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 462 mg/l
Exposure time: 96 h
Test Type: flow-through test
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3,6 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
Remarks: Information given is based on data obtained from

similar substances.

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (microalgae)): 115 mg/l
End point: Growth inhibition
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
Remarks: Information given is based on data obtained from similar substances.

NOEC (Pseudokirchneriella subcapitata (microalgae)): 7,5 mg/l
End point: Growth inhibition
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
Remarks: Information given is based on data obtained from similar substances.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,03 mg/l
End point: Reproduction Test
Exposure time: 11 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test

12.2 Persistence and degradability

Components:

Styrene:

Biodegradability : Result: Readily biodegradable.
Biodegradation: > 60 %
Exposure time: 10 d

methacrylic acid:

Biodegradability : Inoculum: activated sludge
Result: Readily biodegradable.
Biodegradation: 87 %
Exposure time: 28 d

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with maleic anhydride and methacrylic acid:

Biodegradability : Result: Not readily biodegradable.

tetramethylammonium chloride:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 28 d
Method: OECD Test Guideline 301B
Remarks: Information given is based on data obtained from similar substances.

12.3 Bioaccumulative potential

Components:

Styrene:

Bioaccumulation : Bioconcentration factor (BCF): < 100

Partition coefficient: n-octanol/water : log Pow: 2,96 (25 °C)

methacrylic acid:

Bioaccumulation : Bioconcentration factor (BCF): 1,0
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 0,93

tetramethylammonium chloride:

Partition coefficient: n-octanol/water : log Pow: -1,6 (20 °C)
Method: OECD Test Guideline 107
GLP: yes

12.4 Mobility in soil

Components:

Styrene:

Distribution among environmental compartments : Koc: 352

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components:

Styrene:

Assessment : Substance is not persistent, bioaccumulative, and toxic (PBT).. Substance is not very persistent and very bioaccumulative (vPvB).

methacrylic acid:

Assessment : Substance is not persistent, bioaccumulative, and toxic (PBT).. Substance is not very persistent and very bioaccumulative (vPvB).

tetramethylammonium chloride:

Assessment : Substance is not persistent, bioaccumulative, and toxic (PBT).. Substance is not very persistent and very bioaccumulative (vPvB).

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

14.1 UN number or ID number

ADN: UN1866
ADR: UN1866
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: UN1866
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: UN1866
INTERNATIONAL MARITIME DANGEROUS GOODS: UN1866
RID: UN1866

14.2 UN proper shipping name

ADN: RESIN SOLUTION
ADR: RESIN SOLUTION
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Resin solution
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Resin solution
INTERNATIONAL MARITIME DANGEROUS GOODS: RESIN SOLUTION
RID: RESIN SOLUTION

14.3 Transport hazard class(es)

ADN: 3
ADR: 3
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: 3

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: 3
INTERNATIONAL MARITIME DANGEROUS GOODS: 3
RID: 3

14.4 Packing group

ADN: III
ADR: III
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: III
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: III
INTERNATIONAL MARITIME DANGEROUS GOODS: III
RID: III

14.5 Environmental hazards

ADN: Not applicable
ADR: Not applicable
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not applicable
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not applicable
INTERNATIONAL MARITIME DANGEROUS GOODS: Not applicable
RID: Not applicable

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to IMO instruments

Ship Type: Not applicable
Hazard code(s): Not applicable
Pollutant Category: Not applicable

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) on substances that deplete the ozone layer	:	Not applicable
Regulation (EC) No 850/2004 on persistent organic pollutants	:	Not applicable
Regulation (EU) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	:	Not applicable
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: (75, 3) Styrene ethyl acetate (40) Hydroquinone (29, 28) toluene (48) 4-tert-butylpyrocatechol 2,2' -Oxybisethanol 2-methoxypropanol (30) benzene (72, 5, 29, 28)

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

		Quantity 1	Quantity 2
P5c	FLAMMABLE LIQUIDS	5.000 t	50.000 t

General Assessment Methodology (GAM)

Aquatic harmfulness	:	B2	Toxic for aquatic organisms.
Abatement effort	:	B	Readily biodegradable aquatic harmful substances.

Other regulations : Take note of Directive 92/85/EEC regarding maternity

protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

Contains a substance which is subject to the SZW-list of reproductive toxic substances (Ministry of Social Affairs and Employment). styrene

The components of this product are reported in the following inventories:

TCSI	:	Not in compliance with the inventory
TSCA		On or in compliance with the active portion of the TSCA inventory
AIIC		On the inventory, or in compliance with the inventory
DSL		This product contains one or several components that are not on the Canadian DSL and have annual quantity limits.
ENCS		Not in compliance with the inventory
ISHL		Not in compliance with the inventory
KECI		On the inventory, or in compliance with the inventory
PICCS		Not in compliance with the inventory
IECSC		On the inventory, or in compliance with the inventory
NZIoC		Not in compliance with the inventory

Inventories
AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

15.2 Chemical safety assessment
No data available

SECTION 16: Other information

Further information
Revision Date: 11.07.2025

Classification procedure:

H226	Flammable liquid and vapour.	Based on product data or assessment
H315	Causes skin irritation.	Calculation method
H319	Causes serious eye irritation.	Calculation method
H361d	Suspected of damaging the unborn child.	Calculation method
H335	May cause respiratory irritation.	Calculation method
H372	Causes damage to organs through prolonged or repeated exposure.	Calculation method
H412	Harmful to aquatic life with long lasting effects.	Calculation method

Full text of H-Statements

H226	Flammable liquid and vapour.
H300	Fatal if swallowed.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H361d	Suspected of damaging the unborn child.
H370	Causes damage to organs if swallowed.
H372	Causes damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Other information : The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the

company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by ALTA's Environmental Health and Safety Department (+34 93 206 51 20 (in Spain)).

Sources of key data used to compile the Safety Data Sheet
ALTA internal data including own and sponsored test reports
The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :
ACGIH : American Conference of Industrial Hygienists
BEI : Biological Exposure Index
CAS : Chemical Abstracts Service (Division of the American Chemical Society).
CMR : Carcinogenic, Mutagenic or Toxic for Reproduction
FG : Food grade
GHS : Globally Harmonized System of Classification and Labeling of Chemicals.
H-statement : Hazard Statement
IATA : International Air Transport Association.
IATA-DGR : Dangerous Goods Regulation by the “International Air Transport Association” (IATA).

ICAO : International Civil Aviation Organization
ICAO-TI (ICAO) : Technical Instructions by the “International Civil Aviation Organization”
IMDG : International Maritime Code for Dangerous Goods
ISO : International Organization for Standardization
logPow : octanol-water partition coefficient
LCxx : Lethal Concentration, for xx percent of test population
LDxx : Lethal Dose, for xx percent of test population.
ICxx : Inhibitory Concentration for xx of a substance
Ecxx : Effective Concentration of xx
N.O.S.: Not Otherwise Specified
OECD : Organization for Economic Co-operation and Development
OEL : Occupational Exposure Limit
P-Statement : Precautionary Statement
PBT : Persistent , Bioaccumulative and Toxic
PPE : Personal Protective Equipment
STEL : Short-term exposure limit
STOT : Specific Target Organ Toxicity

TLV : Threshold Limit Value
TWA : Time-weighted average
vPvB : Very Persistent and Very Bioaccumulative
WEL : Workplace Exposure Level
GAM : Water Hazard Class for the Netherlands
ADR : Agreement concerning the International Carriage of Dangerous Goods by Road.
ADNR: Regulation for the Carriage of Dangerous Substances on the Rhine
CLP : Classification, Labelling and Packaging
CSA : Chemical Safety Assessment
CSR : Chemical Safety Report
DNEL : Derived No Effect Level.
EINECS : European Inventory of Existing Commercial Chemical Substances.
ELINCS : European List of Notified Chemical Substances
GV: Exposure limits (DK)
PEC : Predicted Effect Concentration
PEL : Permissible Exposure Limits
PNEC : Predicted No Effect Concentration
REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals
RID : Regulation Concerning the International Transport of Dangerous Goods by Rail
WGK : German Water Hazard Class

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