Synolite™ 8388-P-1

Version 20.0 Revision Date 14.11.2022 Print Date 15.11.2022

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

1.1 Product identifier

SYNOLITE™ 8388-P-1

Material number: 00011057

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

Use:
Resins system used in the production of fibre reinforced plastics or non-reinforced filled products.

Uses advised against:

Consumer use

1.3 Details of the supplier of the safety data sheet

AOC AG
Bleicheplatz 2
CH-8200 SCHAFFHAUSEN

+41 52 6441212
Email: product.safety@aocresins.com

1.4 Emergency telephone number

Emergency telephone number: +44 161 88 41235 (SGS)
National advisory body/Poison Centre: + 44 844 892 0111

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Flammable liquids, Category 3 (H226)
Acute toxicity, Inhalative, Category 4 (H332)
Skin irritation, Category 2 (H315)
Eye irritation, Category 2 (H319)
Reproductive toxicity, Category 2 (H361d)
Specific target organ toxicity (single exposure), Category 3 (H335 (Respiratory system))
Specific target organ toxicity (repeated exposure), Category 1 (H372)
Chronically hazardous to the aquatic environment, Category 3 (H412)

2.2 Label elements

Danger

Hazardous components which must be listed on the label
styrene

Hazard statements:
H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.

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:
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.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
P403 + P235 Store in a well-ventilated place. Keep cool.

Supplementary hazardous characteristics and labeling elements:

Contains:
Cobalt bis(2-ethylhexanoate)
EUH208 May produce an allergic reaction.

2.3 Other hazards

The following percentage of the mixture consists of ingredient(s) with unknown acute oral toxicity: 61 %
The following percentage of the mixture consists of ingredient(s) with unknown acute dermal toxicity: 61 %
The following percentage of the mixture consists of ingredient(s) with unknown acute inhalation toxicity: 61 %

The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 61 %

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.

SECTION 3: Composition/information on ingredients

Type of product: Mixture

3.2 Mixtures

Hazardous components

styrene
Concentration [wt.-%]: >= 25 - < 50
Index-No.: 601-026-00-0
EC-No.: 202-851-5
REACH Registration Number: 01-2119457861-32-0008, 01-2119457861-32-0096, 01-2119457861-32-0101, 01-2119457861-32-0209, 01-2119457861-32-0333
CAS-No.: 100-42-5
Classification (1272/2008/CE): Flam. Liq. 3 H226 Acute Tox. 4 Inhalative H332 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Repr. 2 H361d STOT SE 3 H335 (Respiratory system) STOT RE 1 Inhalative H372 (auditory system) Asp. Tox. 1 H304 Aquatic Chronic 3 H412
ATE (inhalation, vapour): 11.8 mg/l

Cobalt bis(2-ethylhexanoate)
Concentration [wt.-%]: >= 0.025 - < 0.1
EC-No.: 205-250-6
CAS-No.: 136-52-7
Classification (1272/2008/CE): Eye Irrit. 2 H319 Skin Sens. 1A H317 Repr. 1B H360FD Aquatic Acute 1 H400 Aquatic Chronic 3 H412
M-factor (acute aquat. tox.): 1

Candidate List of Substances of Very High Concern for Authorisation
This product contains no substances of very high concern in concentrations where an information obligation applies (REACH Regulation (EC) No. 1907/2006, Article 59).

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice: Take off all contaminated clothing immediately.

For effective first-aid, special training / education is needed.

If inhaled: Take the person into the fresh air and keep him warm, let him rest; if there is difficulty in breathing, medical advice is required. If breathing is irregular or stopped, administer artificial respiration. If unconscious, place in recovery position and seek medical advice. Consult a physician if necessary. In the case of hazardous fumes, wear self contained breathing apparatus. Inhalation may provoke the following symptoms: respiratory tract irritation coughing

In case of skin contact: In case of skin contact wash affected areas thoroughly with soap and plenty of water. Obtain medical attention. Remove contaminated clothing and shoes. Thoroughly clean shoes before reuse. Wash clothing before reuse. Most important symptoms Redness Skin irritation

In case of eye contact: Immediately flush eye(s) with plenty of water. Hold the eyes open and rinse with preferably lukewarm water for a sufficiently long period of time (at least 10 minutes). Contact an ophthalmologist. Remove contact lenses. Eye contact may provoke the following symptoms eye redness irritant effects In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed: DO NOT induce vomiting. Wash/clean mouth with water. Medical advice is required. If a person vomits when lying on his back, place him in the recovery position. If symptoms persist, call a physician. Wash mouth out with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting. If conscious, give 2 glasses of water. Get immediate medical attention. If conscious, make the victim drink the following: Give small amounts of water to drink.

4.2 Most important symptoms and effects, both acute and delayed

Notes to physician: Treat symptomatically. Basic first aid, decontamination, symptomatic treatment. Allergic symptoms may develop within 12 hours after exposure. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. corrosive effects

4.3 Indication of any immediate medical attention and special treatment needed

Therapeutic measures: No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Carbon dioxide (CO2), Foam, extinguishing powder, Water spray

Unsuitable extinguishing media: High volume water jet

5.2 Special hazards arising from the substance or mixture

Flammable Liquid. Vapors may spread long distances and ignite. Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition. Cool endangered vessels and containers with sprayed water. Heating raises pressure with consequent risk of bursting and explosion. The vapors are heavier than air and creep at ground level. If they are ignited, the flame may cover large distances. In the event of fire and/or explosion do not breathe fumes. Formation of carbon monoxide, carbon dioxide and other toxic gases in the event of fire or during thermal decomposition. Fire will produce dense black smoke containing hazardous combustion products (see section 10). In case of fire, may produce hazardous decomposition products such as: Aldehydes Organic acids

5.3 Advice for fire-fighters

Use personal protective equipment. Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

Do not allow contaminated extinguishing water to enter the soil, ground-water or surface waters. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Immediately evacuate personnel to safe areas. Put on protective equipment (see section 8). Ensure adequate ventilation/exhaust extraction. Keep unauthorized persons away. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. Keep away from sources of ignition. Remove all sources of ignition. Wear respiratory protection.

6.2 Environment related measures

In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Do not allow to escape into waterways, wastewater or soil. Inform the responsible authorities in case of gas leakage, or of entry into waterways, soil or drains.

6.3 Methods and material for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Dilute with water. Use explosion-proof equipment.

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).

Dispose of wastes in an approved waste disposal facility.

Do not discharge large quantities of concentrated spills or residues into surface water or sanitary sewer system.

6.4 Reference to other sections

Do not breathe vapours/dust. Use only in an area containing flame proof equipment. Use only in an area containing explosion proof equipment.

For personal protection see section 8. For further disposal measures see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Wash skin thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. Avoid contact with the skin and the eyes. When handling observe the usual precautionary measures for chemicals. Do not re-use empty containers. Do not use sparking tools. Use explosion-proof electrical, ventilating and lighting equipment. Take precautionary measures against static discharges. Avoid exposure - obtain special instructions before use. Do not breathe vapours or spray mist. Do not ingest. Do not use in areas without adequate ventilation. Ensure adequate ventilation. Keep only in original packaging. Do not enter areas where used or stored until adequately ventilated. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ensure proper ventilation and extraction, including at floor level. Avoid contact during pregnancy and while nursing.

Keep away from foodstuffs, drinks and tobacco. Wash hands and face before breaks and at the end of work. Keep working clothes separately. Change contaminated or soaked clothing immediately.

7.2 Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Store in original container. Protect against heat and direct sunlight. Keep in properly labelled containers. Use appropriate container to avoid environmental contamination. Further information on the storage conditions which must be observed to preserve quality can be found in our product information sheet. Store locked up. Keep away from oxidizing agents.

7.3 Specific end use(s)

Resins system used in the production of fibre reinforced plastics or non-reinforced filled products.

SECTION 8: Exposure controls/personal protection

UK Workplace Exposure Limits (WEL), per EH40 document (Health & Safety Executive). If no UK value exists, EU exposure limits given where available.

8.1 Control parameters

Components with workplace control parameters

Substance	CAS-No.	Basis	Type	Value	Ceiling Limit Value	Remarks
styrene	100-42-5	EH40 WEL	STEL	250 ppm 1,080 mg/m3		
styrene	100-42-5	EH40 WEL	TWA	100 ppm 430 mg/m3		
Silicon dioxide	7631-86-9	EH40 WEL	TWA	6 mg/m3		
Silicon dioxide	7631-86-9	EH40 WEL	TWA	2.4 mg/m3		
Cobalt bis(2-ethylhexanoate)	136-52-7	EH40 WEL	TWA	0.1 mg/m3		measured as Co

Derived No Effect Level (DNEL)

styrene

Value type	Route of exposure	Health Effects	Value	Remarks
Workers	Inhalation	Long-term systemic effects	85 mg/m3	Most sensitive endpoint: Repeated dose toxicity (By inhalation)
Workers	Inhalation	Acute systemic effects	289 mg/m3	Most sensitive endpoint: Acute toxicity (By inhalation)
Workers	Inhalation	Long-term local effects		Low hazard (no threshold derived)
Workers	Inhalation	Acute local effects	306 mg/m3	Most sensitive endpoint: Acute toxicity
Workers	Dermal	Long-term systemic effects	406 mg/kg bw/day	Most sensitive endpoint: Repeated dose toxicity (By inhalation)
Workers	Dermal	Acute systemic effects		Low hazard (no threshold derived)
Workers	Dermal	Long-term local effects		Low hazard (no threshold derived)
Workers	Dermal	Acute local effects		Low hazard (no threshold derived)
Workers	Eye contact	Local effects		Low hazard (no threshold derived)

Predicted No Effect Concentration (PNEC)

styrene

Compartment	Value	Remarks
Fresh water	0.028 mg/l	
Fresh water sediment	0.614 mg/kg dry weight	
Marine water	0.014 mg/l	
Marine sediment	0.307 mg/kg dry weight	
Sewage treatment plant	5 mg/l	
Air		Not derived
Soil	0.2 mg/kg dry weight	
Oral		Not relevant
Intermittent use/release	0.04 mg/l	

8.2 Exposure controls

Appropriate engineering controls
Use explosion-proof electrical, ventilating and lighting equipment.Use a local and/or general ventilation system.Use feasible engineering controls to minimize exposure to compound.Ensure adequate ventilation.Use process enclosures, local exhaust ventilation or other engineering controls to keep concentrations below lower explosive limits.

Respiratory protection
Respiratory equipment with gas filter A (identifying colour brown) is recommended. Respiratory protection required in insufficiently ventilated working areas.

Hand protection
Conditionally suitable materials for protective gloves; EN 374:
Viton: thickness >=0,7mm; Break through time: 240 - 480 min
Contaminated and/or damaged gloves must be changed.
Nitrile rubber: thickness >=0,4mm; Break through time: < 60 min
Contaminated and/or damaged gloves must be changed.

Eye protection
Safety glasses with side-shields Ensure that eyewash stations and safety showers are close to the workstation location.
Equipment should conform to EN 166

Skin and body protection
Wear suitable protective clothing and if necessary full protective suit. Use appropriate degowning techniques to remove potentially contaminated clothing.
Equipment should conform to EN 1149

Further protective measures
Wear suitable protective equipment. When using do not eat, drink or smoke. Ensure that eyewash stations and safety showers are close to the workstation location. Take off contaminated clothing and wash it before reuse. Wash face, hands and any exposed skin thoroughly after handling. Use appropriate degowning techniques to remove potentially contaminated clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state:	liquid at 20 °C at 1,013 hPa
Appearance:	liquid
Colour:	blue
Odour:	characteristic
Odour Threshold:	0.15 - 25 ppm
pH:	7 at 0.02 %
Melting point/range:	< 25 °C

Boiling point/boiling range:	145 °C
Flash point:	33 °C, closed cup
Evaporation rate:	12.4(Butyl Acetate=1.0)
Flammability:	not established
Burning number:	not established
Upper/lower flammability or explosive limits:	upper: 6.1 %(V) / lower: 1.1 %(V)
Vapour pressure:	6.69945 hPa at 20 °C
Relative vapour density:	3.6 (Air = 1.0)
Density:	1.1 g/cm³ at 23 °C
Bulk density:	1,100 kg/m³ at 23 °C
Miscibility with water:	immiscible
Water solubility:	< 0.02 g/l at 20 °C
Surface tension:	not established
Partition coefficient (n−octanol/water):	log Pow: > 2
Auto-ignition temperature:	490 °C
Ignition temperature:	not established
Decomposition temperature:	not established
Heat of combustion:	not established
Viscosity, dynamic:	320 - 390 mPa.s at 20 °C
Viscosity, kinematic:	> 20.5 mm2/s at 40 °C > 290 mm2/s at 20 °C

9.2 Other information

The indicated values do not necessarily correspond to the product specification. Please refer to the technical information sheet for specification data.

Explosive properties:	not established
Dust explosion class:	not established
Oxidising properties:	not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

This information is not available.

10.2 Chemical stability

No thermal decomposition when stored and handled correctly.

10.3 Possibility of hazardous reactions

No hazardous reactions when stored and handled correctly. Stable under normal conditions.

10.4 Conditions to avoid

Keep away from heat and sources of ignition. Electrical spark Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Electrostatic discharge

10.5 Incompatible materials

Strong acids , Oxidizing agents

10.6 Hazardous decomposition products

This information is not available.

SECTION 11: Toxicological information

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

Acute toxicity, oral
styrene
LD50 rat, male/female: ca. 5,000 mg/kg

Cobalt bis(2-ethylhexanoate)
LD50 rat, female: 3,129 mg/kg
Method: OECD Test Guideline 425

Acute toxicity, dermal
styrene
LD50 rat, male/female: > 2,000 mg/kg
Method: OECD Test Guideline 402

Cobalt bis(2-ethylhexanoate)
LD50 rat, male/female: > 2,000 mg/kg
Method: OECD Test Guideline 402

Acute toxicity, inhalation
ATEmix (inhal.): 12.76 mg/l, 4 h
Test atmosphere: vapour
Method: Calculation method

styrene
LC50 rat: 11.8 mg/l, 4 h
Test atmosphere: vapour

Cobalt bis(2-ethylhexanoate)
study technically not feasible

Primary skin irritation
styrene
Species: rabbit
Result: irritating
Classification: Causes skin irritation.

Cobalt bis(2-ethylhexanoate)
Species: In vitro test system
Result: non-irritant
Classification: No skin irritation
Method: OECD Test Guideline 439

Primary mucosae irritation
styrene
Species: rabbit
Result: irritating
Classification: Causes serious eye irritation.

Cobalt bis(2-ethylhexanoate)
Species: In vitro test system
Result: irritating
Classification: Causes serious eye irritation.
Method: OECD Test Guideline 405

Sensitisation
styrene
Skin sensitisation:

Result: negative
Classification: Does not cause skin sensitization.

Respiratory sensitization

Classification: Does not cause respiratory sensitization.

Cobalt bis(2-ethylhexanoate)
Local lymph node assay (LLNA)
Species: Mouse
Result: positive
Classification: May cause sensitization by skin contact (Sub cat. 1A)
Method: OECD Test Guideline 429

Respiratory sensitization

no data available

Subacute, subchronic and prolonged toxicity
styrene
NOAEL: 0.8 mg/l
Application Route: Inhalative
Species: rat, male/female
Dose Levels: 0 - 0,21 - 0,8 - 2,2 - 4,3 mg/l
Exposure duration: 2 Years
Frequency of treatment: 6 hours a day, 5 days a week
Test substance: vapour
Method: OECD Test Guideline 453

NOAEL: 0.85 mg/l
Application Route: Inhalative
Species: rat, male
Dose Levels: 0 - 0,21 - 0,85 - 3,41 mg/l
Exposure duration: 13 Weeks
Frequency of treatment: 6 hours a day, 5 days a week
Target Organs: auditory system
Test substance: vapour

Cobalt bis(2-ethylhexanoate)
NOAEL: 3 mg/kg
Application Route: Oral
Species: rat, male/female
Exposure duration: 90 d
Frequency of treatment: daily
Method: OECD Test Guideline 408

Carcinogenicity
styrene
Species: rat, male/female
Application Route: Inhalative
Dose Levels: 0 - 0,21 - 0,83 - 2,16 - 4,34 mg/l
Test substance: vapour
Exposure duration: 2 year(s)
Frequency of treatment: 6 hours/day, 5 days/week
Method: OECD Test Guideline 453
No increase in the incidence of tumors.

Cobalt bis(2-ethylhexanoate)
LOAEL (Toxicity): 0.001 mg/l
Species: Mouse, male/female
Application Route: Inhalative
Exposure duration: 105 week(s)
Frequency of treatment: 6 hours/day, 5 days/week
Method: OECD Test Guideline 451

Reproductive toxicity/Fertility
styrene
NOAEL - Parents: 0.64 mg/l
NOAEL – F1: 0.64 mg/l
NOAEL – F2: 0.21 mg/l
NOAEL (parents, fertility): 2,13

Test type: Two-generation study
Species: rat, male/female
Application Route: Inhalative
Dose Levels: 0 - 0,21 - 0,64 - 2,13
Test substance: vapour
Frequency of treatment: 6 hours/day 7 days/week
Method: OECD Test Guideline 416
Animal testing did not show any effects on fertility.

Cobalt bis(2-ethylhexanoate)
NOAEL - Parents: 30 mg/kg
Species: rat, male/female
Application Route: Oral
Frequency of treatment: daily
Test period: 90 d
Method: OECD Test Guideline 408

Reproductive toxicity/Developmental Toxicity/Teratogenicity
styrene
NOAEL (teratogenicity): >= 2.13 mg/l
NOAEL (maternal): >= 2.13 mg/l
NOAEL (developmental toxicity): 0,21
LOAEL (developmental toxicity): 0,64
Species: rat, female
Application Route: Inhalative
Dose Levels: 0 - 0,21 - 0,64 - 2,13 mg/l
Test substance: vapour

Cobalt bis(2-ethylhexanoate)
NOAEL (maternal): 25 mg/kg
NOAEL (developmental toxicity): 100 mg/kg body weight/day
Species: rat, male and female
Application Route: Oral
Frequency of treatment: Daily from day 6 to day 20 of the gestation
Method: OECD Test Guideline 414

Genotoxicity in vitro
styrene
Test type: Salmonella/microsome test (Ames test)
Metabolic activation: with/without
Result: positive

Test type: Chromosome aberration test in vitro
Test system: Human lymphocytes
Metabolic activation: without
Result: positive

Cobalt bis(2-ethylhexanoate)
Test type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 471

Test type: Micronucleus test
Metabolic activation: without
Result: negative

Test type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 476

Test type: Chromosome aberration test in vitro
Test system: Human lymphocytes
Metabolic activation: with/without
Result: negative
Method: OECD Test Guideline 473

Genotoxicity in vivo
styrene
Test type: In vivo micronucleus test
Species: Mouse, male
Application Route: Inhalative
Dose: 0 - 750 - 1500 mg/m³
Result: negative
Method: OECD Test Guideline 474
Test substance: vapour

Test type: Unscheduled DNA synthesis (UDS)
Species: Mouse, female
Application Route: Inhalative
Exposure duration: 6 h
Dose: 0 - 530 - 1060 mg/m³
Result: negative
Test substance: vapour

Cobalt bis(2-ethylhexanoate)
Species: rat, male/female
Application Route: Oral
Result: negative
Method: OECD Test Guideline 475

Test type: In vivo micronucleus test
Species: Mouse, male/female
Application Route: Oral
Result: negative
Method: OECD Test Guideline 474

STOT evaluation – one-time exposure
styrene
May cause respiratory irritation.

Cobalt bis(2-ethylhexanoate)
Based on available data, the classification criteria are not met.

STOT evaluation – repeated exposure
styrene
Route of exposure: Inhalative
Target Organs: auditory system
Causes damage to organs through prolonged or repeated exposure.

Cobalt bis(2-ethylhexanoate)
Based on available data, the classification criteria are not met.

Aspiration toxicity

styrene
May be fatal if swallowed and enters airways.

Cobalt bis(2-ethylhexanoate)
Based on available data, the classification criteria are not met.

CMR Assessment
styrene
Carcinogenicity: Based on available data, the classification criteria are not met.
Mutagenicity: Based on available data, the classification criteria are not met.
Teratogenicity: Suspected of damaging the unborn child (Repr. 2).
Reproductive toxicity/Fertility: Based on available data, the classification criteria are not met.

Cobalt bis(2-ethylhexanoate)
Carcinogenicity: No valid data available.
Mutagenicity: Based on available data, the classification criteria are not met.
Teratogenicity: May damage the unborn child (Repr. 1B).
Reproductive toxicity/Fertility: May damage fertility (Repr. 1B).

Toxicology Assessment
styrene
Acute effects: Harmful if inhaled. The product causes irritation of eyes, skin and mucous membranes.
Sensitization: Based on available data, the classification criteria are not met.

11.2 Information on other hazards

Endocrine disrupting properties
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 12: Ecological information

12.1 Toxicity

Acute Fish toxicity
styrene
LC50 4.02 mg/l
Species: Pimephales promelas (fathead minnow)
Exposure duration: 96 h

Cobalt bis(2-ethylhexanoate)
LC50 54.1 mg/l
Species: Pimephales promelas (fathead minnow)
Exposure duration: 96 h

Chronic Fish toxicity
styrene
No data available.

Cobalt bis(2-ethylhexanoate)
NOEC 0.21 mg/l
Species: Pimephales promelas (fathead minnow)
Exposure duration: 34 d

Acute toxicity for daphnia
styrene
EC50 4.7 mg/l
Species: Daphnia magna (Water flea)
Exposure duration: 48 h
Method: OECD Test Guideline 202

Cobalt bis(2-ethylhexanoate)
LC50 3.29 mg/l
Test type: Fresh water study
Species: Hyalella azteca
Exposure duration: 96 h
Method: OECD Test Guideline 202

Chronic toxicity to daphnia
styrene
NOEC (Reproduction) 1.01 mg/l
Species: Daphnia magna (Water flea)
Exposure duration: 21 d
Method: OECD Test Guideline 211

Cobalt bis(2-ethylhexanoate)
NOEC > 86.4 µg/l
Exposure duration: 7 d

0.06 mg/l
Species: Daphnia magna (Water flea)
Exposure duration: 21 d
Method: OECD Test Guideline 211

Acute toxicity for algae
styrene
ErC50 4.9 mg/l
endpoint: Growth inhibition
Species: Pseudokirchneriella subcapitata (green algae)
Exposure duration: 72 h
Method: EPA OTS 797.1050

EC10 0.28 mg/l
endpoint: Growth inhibition
Species: Pseudokirchneriella subcapitata (green algae)
Exposure duration: 96 h
Method: EPA OTS 797.1050

Cobalt bis(2-ethylhexanoate)
NOEC 0.032 mg/l
Species: Pseudokirchneriella subcapitata (green algae)
Exposure duration: 72 h

EC50 0.144 mg/l
Species: Pseudokirchneriella subcapitata (green algae)
Exposure duration: 72 h

Acute bacterial toxicity
styrene
EC50 ca. 500 mg/l
Test type: Respiration inhibition
Species: activated sludge
Exposure duration: 0.5 h
Method: OECD Test Guideline 209

Cobalt bis(2-ethylhexanoate)
EC50 120 mg/l
Species: activated sludge
Exposure duration: 30 h
Method: OECD Test Guideline 209

Toxicity to soil dwelling organisms
styrene
NOEC (change in weight) 34 mg/kg
Species: Eisenia fetida (earthworms)
Exposure duration: 14 d
Method: OECD Test Guideline 207

Sediment Toxicity
styrene
Due to the low n-octanol-water partition coefficient, an adsorption on the sediment is not to be expected.

Ecotoxicology Assessment
styrene
Acute aquatic toxicity: Based on available data, the classification criteria are not met.
Chronic aquatic toxicity: Harmful to aquatic life with long lasting effects.
Impact on Sewage Treatment: Because of the low bacterial toxicity, there is no risk of an adverse effect on the performance of biological waste water treatment plants.

Cobalt bis(2-ethylhexanoate)
Acute aquatic toxicity: Very toxic to aquatic life.
Chronic aquatic toxicity: Harmful to aquatic life with long lasting effects.

M-Factor
Cobalt bis(2-ethylhexanoate)
M-factor (acute aquat. tox.): 1

12.2 Persistence and degradability

Biodegradability
styrene
Test type: aerobic
Inoculum: activated sludge
Biodegradation: 70.9 %, 28 d, i.e. readily biodegradable
Method: ISO DIN 9408

Cobalt bis(2-ethylhexanoate)
Test type: aerobic
Inoculum: Sewage sludge
Biodegradation: 60 %, 10 d, i.e. readily biodegradable
Method: OECD Test Guideline 301 B

Stability in water
styrene
Test type: Hydrolysis

The study does not need to be conducted since the substance is readily biodegradable.

Photodegradation
styrene
Test type: Phototransformation in air
sensitizer: OH-radicals
Half-life indirect photolysis: 0.31 d
After evaporation or exposure to the air, the product will be rapidly degraded by photochemical processes.

Test type: Phototransformation in water
sensitizer: OH-radicals
Half-life indirect photolysis: 237 d
After evaporation or exposure to the air, the product will be slowly degraded by photochemical processes.

Volatility (Henry's Law constant)
styrene
Calculated value = 231.6 Pa*m3/mol
The substance has to be scored as being highly volatile from water.

12.3 Bioaccumulative potential

Bioaccumulation
styrene
Bioconcentration factor (BCF): 74
Method: (calculated)
Due to the low n-octanol-water partition coefficient, an accumulation in organisms is not to be expected.

Cobalt bis(2-ethylhexanoate)
Bioaccumulation is unlikely.

Partition coefficient (n−octanol/water)

log Pow: > 2

12.4 Mobility in soil

Distribution among environmental compartments
styrene
Adsorption
Medium: Soil
Koc value: 352
log Koc value: 2.55
Method: value calculated
Moderately mobile in soils

Environmental distribution
styrene
Method: Calculation according to Mackay, Level I
The target compartment is air.

12.5 Results of PBT and vPvB 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.

12.6 Endocrine disrupting properties

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

No data available.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. Reference number 2008/98/EC

Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose in accordance with applicable international, national and local laws, ordinances and statutes. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used. Offer surplus and non-recyclable solutions to a licensed disposal company. Do not dispose of waste into sewer. The classification of the product may meet the criteria for a hazardous waste.

13.1 Waste treatment methods

After containers have been emptied as thoroughly as possible (e.g. by pouring, scraping or draining until "drip-dry"), they can be sent to an appropriate collection point set up within the framework of the existing take-back scheme of the chemical industry. Empty containers retain residue and can be dangerous. Containers must be recycled in compliance with national legislation and environmental regulations. Dispose of empty containers and wastes safely. Do not burn, or use a cutting torch on, the empty drum. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally.

No disposal into waste water.

SECTION 14: Transport information

ADR/RID

14.1 UN number or ID number	:	UN 1866
14.2 UN proper shipping name	:	RESIN SOLUTION
14.3 Transport hazard class(es)	:	3
Hazard Identification Number	:	30
14.4 Packing group	:	III
14.5 Environmental hazards	:	no

Limited quantity regulations applicable in accordance with chapter 3.4 ADR/RID in compliance with threshold value

ADN

14.1 UN number or ID number	:	UN 1866
14.2 UN proper shipping name	:	RESIN SOLUTION
14.3 Transport hazard class(es)	:	3
Hazard Identification Number	:	30
14.4 Packing group	:	III
14.5 Environmental hazards	:	no

This classification data does not apply to transportation by tanker. If required, additional information can be requested from the manufacturer.

IATA

14.1 UN number or ID number	:	UN 1866
14.2 UN proper shipping name	:	RESIN SOLUTION
14.3 Transport hazard class(es)	:	3
14.4 Packing group	:	III

14.5 Environmental hazards : no

IMDG

14.1 UN number or ID number	:	UN 1866
14.2 UN proper shipping name	:	RESIN SOLUTION
14.3 Transport hazard class(es)	:	3
14.4 Packing group	:	III
14.5 Marine pollutant	:	no
EmS Code	:	F-E - S-E
Segregation Group IMDG	:	not applicable

14.6 Special precautions for user

See section 6 - 8.

Additional information : Combustible. Keep away from foodstuffs, acids and alkalis.

14.7 Maritime transport in bulk according to IMO instruments

Product is not transported by us in bulk.

SECTION 15: Regulatory information

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

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances.
P5c Flammable liquids
Quantity1: 5,000 t Quantity2: 50,000 t

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)
Conditions of restriction for the following entries should be considered: 3, 40

This product contains substances subject to EU Regulation 1907/2006 (REACH), Annex XVII.

styrene
CAS-No.: 100-42-5, EC-No.: 202-851-5
Subject to REACH Annex XVII, No. 40

Water contaminating class (Germany)
3 highly water endangering
Classification according to AwSV, Annex 1 (5.2)

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.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for:
styrene

SECTION 16: Other information

Full text of the hazard statements of the CLP classification (1272/2008/CE) referred to under sections 2, 3 and 10.

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H360FD	May damage fertility. May damage the unborn child.
H361d	Suspected of damaging the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Abbreviations and acronyms

ADN	Accord européen relatif au transport international des marchandises Dangereuses par voie de Navigation intérieure
ADR	Accord européen relatif au transport international des marchandises Dangereuses par Route
ANSI	American National Standards Institute
ASTM	American Society of Testing and Materials (US)
ATE	Acute Toxic Estimate
AwSv	Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen
BCF	Bioconcentration Factor
CAS	Chemical Abstract Service
CLP	Regulation on Classification, Labelling and Packaging of Substances and Mixtures
CMR	Cancerogenic Mutagenic Reprotoxic
DIN	Deutsches Institut für Normung
DNEL	Derived No-Effect Level
EC…	Effect Concentration ... %
EWC	European Waste Catalogue
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
LOAEL	Lowest Observable Adverse Effect Level
LC…	Lethal Concentration, ...%
LD…	Lethal Dose, ...%
MARPOL	International Convention for the Prevention of Pollution From Ships
NOAEL	No Observed Adverse Effect Level
NOEL/NOEC	No Observed Effect Level/Concentration
OECD	Organisation for Economic Co-operation and Development
PBT	persistent, bioaccumulative, toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire de marchandises Dangereuses
STOT	Specific Target Organ Toxicity
TRGS	Technische Regeln für Gefahrstoffe
vPvB	very Persistent, very Bioaccumulative
WGK	Wassergefährdungsklasse

Further information

Classification of the mixture:	Classification procedure:
Flam. Liq. 3 H226	Based on product data or assessment
Acute Tox. 4 H332	Calculation method
Skin Irrit. 2 H315	Calculation method
Eye Irrit. 2 H319	Calculation method
Repr. 2 H361d	Calculation method
STOT SE 3 H335	Calculation method
STOT RE 1 H372	Calculation method
Aquatic Chronic 3 H412	Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.