

## PALATAL® P 65 TV-959

Version 1.1

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

#### 1.1 Product identifier

##### **PALATAL® P 65 TV-959**

unsaturated polyester resin

**Material number:** 00022649

#### 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.

#### 1.3 Details of the supplier of the safety data sheet

金陵力联思树脂有限公司  
Jinling AOC Resins Co., Ltd.  
中国江苏省南京市建邺区云龙山路88号  
No.88 Yunlongshan Road,  
210019 Jianye District, Nanjing, China

电话 / TEL : +86 25 85493888  
Email: product.safety@aocresins.com

#### 1.4 Emergency telephone number

应急咨询电话：国家化学事故应急咨询专线 已签委托协议) 0086-532-83889090 (24h)  
National Emergency Response Telephone Number for Chemical Accidents  
(signed agreement) 0086-532-83889090 (24h)

### SECTION 2: Hazards identification

#### 2.0 Emergency overview

green-brown, clear, liquid, characteristic. Flammable liquid and vapour. Causes skin irritation. Causes serious eye irritation. Harmful if inhaled. May cause respiratory irritation. Suspected of damaging the unborn child. Causes damage to organs through prolonged or repeated exposure. Harmful to aquatic life with long lasting effects.

#### 2.1 Classification of the substance or mixture

##### **GHS Classification:**

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

#### 2.2 Label elements

##### **GHS-Labeling**



Danger

**Hazardous components which must be listed on the label**

styrene

Cobalt bis(2-ethylhexanoate)

**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 + P202 Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P260 Do not breathe mist or vapours.

P264 Wash hands thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P312 Call a POISON CENTER or doctor/ physician if you feel unwell.

P314 Get medical advice/ attention if you feel unwell.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P370 + P378 In case of fire: Use carbon dioxide for extinction.

P362 + P364 Take off contaminated clothing and wash it before reuse.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

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

P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

**2.3 Other hazards**

The following percentage of the mixture consists of ingredient(s) with unknown acute oral toxicity: 58 %

The following percentage of the mixture consists of ingredient(s) with unknown acute dermal toxicity: 58 %

The following percentage of the mixture consists of ingredient(s) with unknown acute inhalation toxicity: 58 %

The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 58 %

**SECTION 3: Composition/information on ingredients**

**Type of product:** Mixture

### 3.2 Mixtures

unsaturated polyester resin

#### Hazardous components

styrene

Concentration [wt.-%]:  $\geq 25$  -  $< 50$

GHS Classification: Flam. Liq. 3 H226 Acute Tox. 4 Inhalative H332 Eye Irrit. 2 H319 Skin Irrit. 2 H315  
Repr. 2 H361d STOT RE 1 Inhalative H372 Asp. Tox. 1 H304 Aquatic Chronic 3 H412 STOT SE 3 H335  
(Respiratory system)

Cobalt bis(2-ethylhexanoate)

Concentration [wt.-%]:  $\geq 0.0025$  -  $< 0.025$

GHS Classification: 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

## 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 (CO<sub>2</sub>), 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)

No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Components with workplace control parameters

Substance		Basis	Type	Value	Ceiling Limit Value	Remarks
styrene		CN OEL	TWA	50 mg/m <sup>3</sup>		
styrene		CN OEL	STEL	100 mg/m <sup>3</sup>		
styrene		CN OEL				Dermal absorption possible

### 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  $\geq 0,7$ mm; Break through time: 240 - 480 min  
 Contaminated and/or damaged gloves must be changed.  
 Nitrile rubber: thickness  $\geq 0,4$ mm; 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.

#### Skin and body protection

Wear suitable protective clothing and if necessary full protective suit. Use appropriate degowning techniques to remove potentially contaminated clothing.

#### 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:	green-brown, clear
Odour:	characteristic
Odour Threshold:	0.15 - 25 ppm
pH:	7 at 0.02 %
Melting point/freezing point:	< 25 °C
Boiling point/boiling range:	145 °C
Flash point:	33 °C, Pensky-Martens 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:	0.67 kPa at 20 °C
Relative vapour density:	3.6 (Air = 1.0)
Density:	1,090 kg/m <sup>3</sup> at 20 °C
Bulk density:	1,090 kg/m <sup>3</sup> at 23 °C
Miscibility with water:	not established
Water solubility:	< 0.02 g/l
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:	300 - 600 mPa.s at 23 °C
Viscosity, kinematic:	> 275 cSt at 23 °C > 20.5 cSt at 40 °C
Explosive properties:	not established
Dust explosion class:	not established
Oxidising properties:	not applicable

### 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.

## 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 toxicological effects

#### 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.): 12.35 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):  $\geq 2.13$  mg/l  
NOAEL (maternal):  $\geq 2.13$  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/m<sup>3</sup>  
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/m<sup>3</sup>  
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.

**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\*m<sup>3</sup>/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**

No data available.

#### **12.6 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**

#### **Land transport China**

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

**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 dry.  
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**

**Law on the Prevention and Control of Occupational Diseases:** refer to section 8

**Measures for the Implementation of the Permits for the Safe Use of Hazardous Chemicals:** comply with the regulations

**Catalogue of Highly Toxic Chemicals:** not applicable

**Hazardous Chemicals for Priority Management under SAWS :** not applicable

**China Severely Restricted Toxic Chemicals for Import and Export :** not applicable

**Catalogue of Hazardous Chemicals :** Listed

**Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218): category:** Flammable liquids **threshold quantity:** 5,000 t

**China. Inventory of Existing Chemical Substances (IECSC):** Limited marketability. Import or manufacturing allowed only by the notifier.

**China Hyper Toxic Chemical Inventory:** Not subject to list of China Hyper Toxic Chemical Inventory

**List of hazardous chemicals Liable to produce explosives (2017):** Not subject to List of hazardous chemicals liable to produce explosives

**China Precursor Chemicals for import/export permit:** Not subject to China Precursor Chemicals for import/export permit

**Other regulations**

Only China: Compliant with the following local regulations:

Only China: Decree 591 Regulations on the control over safety of hazardous chemicals

Only China: GB/T 16483 Safety data sheet for Chemical products-Content and order of section

Only China: GB 13690 General rule for classification and hazard communication of chemicals

GB 30000.2-29 Safety rules for classification and labelling of chemicals

Only China: GB 15258, General rules for preparation of precautionary label of chemicals

**SECTION 16: Other information**

**Full text of the hazard statements of the GHS classification 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.

**Further information**

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.