

**SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

Revision Date 11.12.2015

Version 8.4

**SECTION 1. Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Catalogue No.	820975
Product name	Phenothiazine for synthesis
REACH Registration Number	A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.	92-84-2

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

Identified uses	Chemical for synthesis For additional information on uses please refer to the Merck Chemicals portal ( <a href="http://www.merckgroup.com">www.merckgroup.com</a> ).
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**1.3 Details of the supplier of the safety data sheet**

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: <a href="mailto:prodsafe@merckgroup.com">prodsafe@merckgroup.com</a>

**1.4 Emergency telephone number**      **Please contact the regional company representation in your country.**

**SECTION 2. Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Acute toxicity, Category 4, Oral, H302  
Skin sensitisation, Category 1, H317  
Specific target organ toxicity - repeated exposure, Category 2, Oral, Blood, H373  
Acute aquatic toxicity, Category 1, H400  
Chronic aquatic toxicity, Category 1, H410  
For the full text of the H-Statements mentioned in this Section, see Section 16.

**Classification (67/548/EEC or 1999/45/EC)**

Xn	Harmful	R22 - 48/22
	Sensitising	R43
N	Dangerous for the environment	R50/53

For the full text of the R-phrases mentioned in this Section, see Section 16.

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## 2.2 Label elements

### Labelling (REGULATION (EC) No 1272/2008)

#### Hazard pictograms



#### Signal word

Warning

#### Hazard statements

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

H373 May cause damage to organs (Blood) through prolonged or repeated exposure if swallowed.

H410 Very toxic to aquatic life with long lasting effects.

#### Precautionary statements

##### Prevention

P273 Avoid release to the environment.

P280 Wear protective gloves.

##### Response

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

P314 Get medical advice/ attention if you feel unwell.

#### Reduced labelling ( $\leq 125$ ml)

#### Hazard pictograms



#### Signal word

Warning

#### Hazard statements

H317 May cause an allergic skin reaction.

#### Precautionary statements

P280 Wear protective gloves.

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

Contains: phenthiazine

CAS-No. 92-84-2

## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula	C <sub>12</sub> H <sub>9</sub> NS (Hill)
EC-No.	202-196-5
Molar mass	199,26 g/mol

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**Hazardous components (REGULATION (EC) No 1272/2008)**

*Chemical Name (Concentration)*

CAS-No.	Registration number	Classification
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phenothiazine (<= 100 % )		
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92-84-2	*)	
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Acute toxicity, Category 4, H302  
Skin sensitisation, Category 1, H317  
Specific target organ toxicity - repeated exposure, Category 2,  
H373

Acute aquatic toxicity, Category 1, H400  
Chronic aquatic toxicity, Category 1, H410

M-Factor: 1

\*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

For the full text of the H-Statements mentioned in this Section, see Section 16.

**Hazardous components (1999/45/EC)**

*Chemical Name (Concentration)*

CAS-No.	Classification
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phenothiazine (<= 100 % )	
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92-84-2	Xn, Harmful; Xn; R22-48/22
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R43

N, Dangerous for the environment; R50/53

M-Factor: 1

For the full text of the R-phrases mentioned in this Section, see Section 16.

**3.2 Mixture**

Not applicable

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**SECTION 4. First aid measures**

**4.1 Description of first aid measures**

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

After eye contact: rinse out with plenty of water.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**

Allergic reactions, Skin disorders, Vomiting, Convulsions

**4.3 Indication of any immediate medical attention and special treatment needed**

No information available.

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**SECTION 5. Firefighting measures**

**5.1 Extinguishing media**

*Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), Foam, Dry powder

*Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

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**5.2 Special hazards arising from the substance or mixture**

Combustible.  
Risk of dust explosion.  
Development of hazardous combustion gases or vapours possible in the event of fire.  
Fire may cause evolution of:  
nitrogen oxides, Sulphur oxides

**5.3 Advice for firefighters**

*Special protective equipment for firefighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*Further information*

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6. Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

**6.4 Reference to other sections**

Indications about waste treatment see section 13.

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**SECTION 7. Handling and storage**

**7.1 Precautions for safe handling**

*Advice on safe handling*

Observe label precautions.

*Hygiene measures*

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**7.2 Conditions for safe storage, including any incompatibilities**

*Storage conditions*

Tightly closed. Dry.

Recommended storage temperature see product label.

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Predicted No Effect Concentration (PNEC)

PNEC Fresh water	0,012 mg/l
PNEC Marine water	0,001 mg/l
PNEC Aquatic intermittent release	0,119 mg/l
PNEC Sewage treatment plant	7,2 mg/l
PNEC Fresh water sediment	0,047 mg/kg
PNEC Marine sediment	0,005 mg/kg

### 8.2 Exposure controls

#### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

#### Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

##### *Eye/face protection*

Safety glasses

##### *Hand protection*

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet (>,<) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

##### *Other protective equipment*

protective clothing

##### *Respiratory protection*

required when dusts are generated.

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Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances  
The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Environmental exposure controls**  
Do not let product enter drains.

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**SECTION 9. Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

Form	pellets
Colour	yellow
Odour	characteristic
Odour Threshold	No information available.
pH	6 at 10 g/l 20 °C (aqueous suspension)
Melting point	182 - 185 °C
Boiling point/boiling range	381 °C at 1.011 hPa Method: OECD Test Guideline 103
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	not auto-flammable Flammability (solids)
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	0,0000647 Pa at 20 °C Method: OECD Test Guideline 104
Relative vapour density	No information available.
Density	1,296 g/cm <sup>3</sup> at 20 °C Method: OECD Test Guideline 109
Relative density	No information available.

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Water solubility	0,127 mg/l at 23 °C Method: OECD Test Guideline 105
Partition coefficient: n-octanol/water	Pow: ca. log Pow: 3,78 (25 °C) OECD Test Guideline 117 Bioaccumulation is not expected.
Auto-ignition temperature	397 °C at 1.013 hPa
Decomposition temperature	> 250 °C
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

#### 9.2 Other data

Ignition temperature	470 °C Method: DIN 51794
Bulk density	ca.650 kg/m <sup>3</sup>
Particle size	500 - 2.000 µm Method: OECD Test Guideline 110

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### SECTION 10. Stability and reactivity

#### 10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

#### 10.2 Chemical stability

Sensitivity to light  
sublimable  
Sensitive to air.

#### 10.3 Possibility of hazardous reactions

Violent reactions possible with:  
Strong acids

#### 10.4 Conditions to avoid

Strong heating (decomposition).

#### 10.5 Incompatible materials

no information available

#### 10.6 Hazardous decomposition products

in the event of fire: See section 5.

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**SECTION 11. Toxicological information**

**11.1 Information on toxicological effects**

*Acute oral toxicity*

LD50 Rat: 1.370 mg/kg

(ECHA)

absorption

*Acute inhalation toxicity*

LC50 Rat: > 5 mg/l; 4 h ; dust/mist  
(External MSDS)

*Acute dermal toxicity*

LD50 Rat: > 2.000 mg/kg  
OECD Test Guideline 402

*Skin irritation*

Rabbit

Result: No irritation

OECD Test Guideline 404

*Eye irritation*

Rabbit

Result: No eye irritation

OECD Test Guideline 405

*Sensitisation*

In animal experiments: Guinea pig

Result: positive

Method: OECD Test Guideline 406

May cause photosensitisation.

May cause an allergic skin reaction.

*Germ cell mutagenicity*

*Genotoxicity in vivo*

Micronucleus test

Rat

male

Oral

Result: negative

(ECHA)

*Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

(IUCLID)

*Carcinogenicity*

This information is not available.



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*Reproductive toxicity*

This information is not available.

*Teratogenicity*

This information is not available.

*Specific target organ toxicity - single exposure*

This information is not available.

*Specific target organ toxicity - repeated exposure*

Target Organs: Blood

May cause damage to organs through prolonged or repeated exposure.

*Aspiration hazard*

This information is not available.

### 11.2 Further information

Systemic effects:

After absorption of large quantities:

Skin disorders, Vomiting, Convulsions, tachycardia

Damage to:

Liver, gastrointestinal tract

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 12. Ecological information

### 12.1 Toxicity

*Toxicity to fish*

static test LC50 *Oncorhynchus mykiss* (rainbow trout): 0,579 mg/l; 96 h

Analytical monitoring: yes

OECD Test Guideline 203

*Toxicity to daphnia and other aquatic invertebrates*

static test EC50 *Daphnia magna* (Water flea): 0,154 mg/l; 48 h

Analytical monitoring: yes

OECD Test Guideline 202

*Toxicity to algae*

static test NOEC *Desmodesmus subspicatus* (green algae):  $\geq 0,66$  mg/l; 72 h

Analytical monitoring: yes

OECD Test Guideline 201

*Toxicity to bacteria*

static test IC50 activated sludge:  $> 0,75$  mg/l; 3 h

OECD Test Guideline 209

### 12.2 Persistence and degradability

*Biodegradability*

0 %; 28 d; aerobic

OECD Test Guideline 301D

Not biodegradable

*Chemical Oxygen Demand (COD)*

25 mg/g

(IUCLID)

### 12.3 Bioaccumulative potential

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*Partition coefficient: n-octanol/water*

Pow: ca.

log Pow: 3,78 (25 °C)

OECD Test Guideline 117

Bioaccumulation is not expected.

*Bioaccumulation*

Bioconcentration factor (BCF): 127 - 660

Cyprinus carpio (Carp); 56 d

MITI test

#### 12.4 Mobility in soil

*Distribution among environmental compartments*

log Koc: 3,76

OECD Test Guideline 121

#### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

#### 12.6 Other adverse effects

Discharge into the environment must be avoided.

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### SECTION 13. Disposal considerations

*Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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### SECTION 14. Transport information

#### Land transport (ADR/RID)

14.1 UN number UN 3077

14.2 Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (PHENOTHIAZINE)

14.3 Class 9

14.4 Packing group III

14.5 Environmentally hazardous yes

14.6 Special precautions for user yes

Tunnel restriction code E

Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

#### Inland waterway transport (ADN)

Not relevant

#### Air transport (IATA)

14.1 UN number UN 3077

14.2 Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (PHENOTHIAZINE)

14.3 Class 9

14.4 Packing group III

14.5 Environmentally hazardous yes

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**14.6 Special precautions for user** no

Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

**Sea transport (IMDG)**

**14.1 UN number** UN 3077

**14.2 Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (PHENOTHIAZINE)

**14.3 Class** 9

**14.4 Packing group** III

**14.5 Environmentally hazardous** yes

**14.6 Special precautions for user** yes

EmS F-A S-F

Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not relevant

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**SECTION 15. Regulatory information**

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

*EU regulations*

Major Accident Hazard SEVESO III  
Legislation ENVIRONMENTAL HAZARDS  
E1  
Quantity 1: 100 t  
Quantity 2: 200 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of  $\geq 0.1$  % (w/w).

*National legislation*

Storage class 10 - 13

**15.2 Chemical Safety Assessment**

For this product a chemical safety assessment was not carried out.

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**SECTION 16. Other information**

**Full text of H-Statements referred to under sections 2 and 3.**

H302 Harmful if swallowed.  
H317 May cause an allergic skin reaction.  
H373 May cause damage to organs through prolonged or repeated exposure if swallowed.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

**Full text of R-phrases referred to under sections 2 and 3**

R22 Harmful if swallowed.  
R43 May cause sensitisation by skin contact.  
R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.  
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Training advice**

Provide adequate information, instruction and training for operators.

**Labelling**

*Hazard pictograms*



*Signal word*

Warning

*Hazard statements*

H302 Harmful if swallowed.  
H317 May cause an allergic skin reaction.  
H373 May cause damage to organs (Blood) through prolonged or repeated exposure if swallowed.  
H410 Very toxic to aquatic life with long lasting effects.

*Precautionary statements*

Prevention

P273 Avoid release to the environment.



P280 Wear protective gloves.

Response

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

P314 Get medical advice/ attention if you feel unwell.

**Labelling (67/548/EEC or 1999/45/EC)**

Symbol(s)  Xn Harmful  
 N Dangerous for the environment

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*R*-phrase(s) 22-48/22-43-50/53 Harmful if swallowed. Harmful: danger of serious damage to health by prolonged exposure if swallowed. May cause sensitisation by skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

*S*-phrase(s) 24-37-61 Avoid contact with skin. Wear suitable gloves. Avoid release to the environment. Refer to special instructions/ Safety data sheets.

EC-No. 202-196-5

**Reduced labelling (≤125 ml)**

Symbol(s) 

Xn  
N

Harmful  
Dangerous for the environment

*R*-phrase(s) 22-48/22-43

Harmful if swallowed. Harmful: danger of serious damage to health by prolonged exposure if swallowed. May cause sensitisation by skin contact.

*S*-phrase(s) 24-37

Avoid contact with skin. Wear suitable gloves.

Contains: phenothiazine

**Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

**Regional representation**

This information is given on the authorised Safety Data Sheet for your country.

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*