

Safety data sheet

according to 1907/2006/EC, Article 31





Printing date 02.11.2014

Revision: 02.11.2014

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

- **1.1 Product identifier**
- **Trade name: Phenol:Chloroform 1:1 pH6.7-8.0**
- **Article number:** 40-1210-01
- **Registration number**
Mixture:
 - Phenol: 01-2119471329-32
 - Chloroform: 01-2119486657-20
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory reagent
- **Uses advised against** The product is strictly intended for industrial or professional use.
- **1.3 Details of the supplier of the safety data sheet**
Severn Biotech Ltd.
Unit 2,
Park Lane,
Kidderminster,
Worcestershire.
DY11 6TJ
UK
Tel: 0044 1562 825286
Fax: 0044 1562 825284
email: info@severnbiotech.com
- **Further information obtainable from:** Product safety department.
- **1.4 Emergency telephone number:** Tel: 0044 1562 825286 (not 24 hours)

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
- 
 GHS06 skull and crossbones
 Acute Tox. 3 H331 Toxic if inhaled.
- 
 GHS08 health hazard
 Muta. 2 H341 Suspected of causing genetic defects.
 Carc. 2 H351 Suspected of causing cancer.
 Repr. 2 H361d Suspected of damaging the unborn child.
 STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.
- 
 GHS05 corrosion
 Skin Corr. 1B H314 Causes severe skin burns and eye damage.
- 
 GHS07
 Acute Tox. 4 H302 Harmful if swallowed.
 Acute Tox. 4 H312 Harmful in contact with skin.

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Classification according to Directive 67/548/EEC or Directive 1999/45/EC


T; Toxic

R23/24/25: Toxic by inhalation, in contact with skin and if swallowed.



C; Corrosive

R34: Causes burns.



Xn; Harmful

R40-48/20/21/22-68: Limited evidence of a carcinogenic effect. Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. Possible risk of irreversible effects.

Information concerning particular hazards for human and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation.

Hazard pictograms GHS05, GHS06, GHS08

Signal word Danger

Hazard-determining components of labelling:

phenol

Chloroform

Hazard statements

H302+H312 Harmful if swallowed or in contact with skin.

H331 Toxic if inhaled.

H314 Causes severe skin burns and eye damage.

H341 Suspected of causing genetic defects.

H351 Suspected of causing cancer.

H361d Suspected of damaging the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

P260 Do not breathe mist/vapours/spray.

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

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

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

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

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

Additional information:

For use in industrial installations only.

2.3 Other hazards
Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

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SECTION 3: Composition/information on ingredients

- **3.1 Chemical characterisation: Substances**

- **CAS No. Description**

- 108-95-2 phenol

- **Identification number(s)**

- **EC number:** 203-632-7

- **Index number:** 604-001-00-2

- **3.2 Chemical characterisation: Mixtures**

- **Description:** Mixture of substances listed below with nonhazardous additions.

- **Dangerous components:**

CAS: 108-95-2 EINECS: 203-632-7	phenol 	25-50%
CAS: 67-66-3 EINECS: 200-663-8	Chloroform 	25-50%

- **Additional information:** For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

- **4.1 Description of first aid measures**

- **General information:**

- Immediately remove any clothing soiled by the product.

- Remove breathing equipment only after contaminated clothing have been completely removed.

- In case of irregular breathing or respiratory arrest provide artificial respiration.

- First-aider to wear safety gloves and other PPE as required for self protection.

- Keep polyethylene glycol (Lutrol) and Ambubag available for first aider use.

- In all cases of significant exposure the patient should be transferred to a hospital as soon as possible.

- **After inhalation:**

- DO NOT DELAY!

- Use a respiratory bag or breathing device.

- Do not use mouth to mouth or mouth to nose resuscitation.

- Supply fresh air or oxygen; call for doctor.

- In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact:**

- DO NOT DELAY!

- Immediately wash with water and soap and rinse thoroughly.

- Immediately remove wetted clothing, shoes and stockings. Continuously rinse the affected parts of the body with polyethylene glycol (e.g. Lutrol) or with plenty of water, followed by washing with olive oil or edible oil (to remove the phenol component). If large areas of the skin have been wetted, IMMEDIATELY call a doctor to the site of the accident, otherwise in every case immediately take the patient to the nearest accident and emergency unit and provide a copy of this safety data sheet.

- **After eye contact:**

- DO NOT DELAY!

- Check for and remove any contact lenses.

- Seek immediate medical advice.

- Rinse opened eye for several minutes under running water. Then consult a doctor.

- **After swallowing:**

- DO NOT DELAY!

- Rinse out mouth and then drink plenty of water.

- Do not induce vomiting; call for medical help immediately.

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Drink plenty of water and provide fresh air. Call for a doctor immediately.
If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

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

No further relevant information available.

· **Information for doctor:**

Contains PHENOL:

No specific antidote therapy for phenol poisoning is known. Therefore it is important to remove the phenol completely from the body surface and out of the body as quickly as possible, and in the case of inhalation prophylactic treatment to prevent pulmonary oedema is of great importance.

Phenol causes strong caustic burns of the skin and mucous membranes due to its protein degenerating action. The skin initially discolours white, later red. After initial pain, local anaesthesia appears. Absorptive poisoning by large amounts of phenol is possible also through small affected skin regions and quickly leads to paralysis of the central nervous system as well as strong depression of the body temperature.

Inhaling phenol vapours can lead to damage of the bronchial system and pulmonary oedema. Systemic damage to kidneys, liver and heart as well as neuropsychiatric disturbances are produced.

TREATMENT: Thoroughly clean the wetted skin areas, if possible with polyethylene glycol (e.g. Lutrol). In the case of eye contact, rinse copiously with water, in the case of burns rinse continuously with water as far as possible and take to an eye specialist or eye clinic. In the case of inhalation, to prevent pulmonary oedema, initiate inhalative cortisone therapy as early as possible (e.g. every 10 minutes 5 strokes of a cortisone containing aerosol dosing spray such as Auxilison, Thomae); administer codeine against dry coughing. In the case of commencing or manifested pulmonary oedema, systemic administration of cortisone (e.g. Solu Decortin 1000 or Fortecortin 100). Caution: A low symptom or symptom-free interval is possible.

If swallowed, gastric lavage after intubation, activated charcoal, saline laxative.

Contains CHLOROFORM:

Do not administer catecholamines (because of the cardiac effect caused by the product).

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

No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**

· **Suitable extinguishing agents:**

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

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

Formation of toxic gases is possible during heating or in case of fire.

In a fire situation explosive vapour/air mixtures may be formed.

· **5.3 Advice for firefighters**

· **Protective equipment:**

Wear fully protective suit.

Wear self-contained respiratory protective device.

Do not inhale explosion gases or combustion gases.

Mouth respiratory protective device.

Tightly closing chemical protection clothing with respirator equipment independent of the ambient air is required for protection against pyrolytic phenol vapours.

· **Additional information**

Heating leads to pressure increase entailing danger of bursting and explosion. Immediately cool neighbouring packages and containers with sprayed water and, if possible, remove them out of the danger zone.

SECTION 6: Accidental release measures

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

Ensure adequate ventilation

Wear protective equipment. Keep unprotected persons away.

Remove persons from danger area.

· **6.2 Environmental precautions:**

Do not allow to penetrate the ground/soil.

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- Do not allow product to reach sewage system or any water course.
- Inform respective authorities in case of seepage into water course or sewage system.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Send for recovery or disposal in suitable receptacles.
Ensure adequate ventilation.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Restrict the quantity stored at the work place.
Avoid direct contact (skin contact, ingestion and/or inhalation of fume/mist/dust) with the product.
Safety showers and eye wash facilities should be available at the work area.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
Welding and other hot work operations in the work area must only be permitted under supervision.
The product must only be handled by authorised, trained and experienced professionals under strictly controlled conditions.
A trained first-aider must be available whilst this product is being handled.

Risk of phosgene generation:
 - Keep ignition sources away, do NOT smoke in the work area.
 - Welding operations must only be permitted only under supervision.
 - No naked flames or uv light sources allowed in the work area.
- **Information about fire - and explosion protection:** Keep respiratory protective device available.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Prevent any seepage into the ground.
Store only in the original receptacle.
Use only steel or stainless steel containers. Various plastics are attacked (e.g. soft PVC). Hose connections must be made of special rubber
- **Information about storage in one common storage facility:**
Store away from oxidising agents.
Store away from foodstuffs.
Store away from metals.
Do not store together with textiles.
- **Further information about storage conditions:**
Protect from frost.
Keep container tightly sealed.
Store in a bonded area.
Store locked up with keys available only to trained and authorised persons.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

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· 8.1 Control parameters

· Ingredients with limit values that require monitoring at the workplace:

108-95-2 phenol

WEL	Short-term value: 16 mg/m ³ , 4 ppm Long-term value: 7.8 mg/m ³ , 2 ppm Sk
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67-66-3 Chloroform

WEL	Long-term value: 9.9 mg/m ³ , 2 ppm Sk
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· **Additional information:** The lists valid during the making were used as basis.

· 8.2 Exposure controls

· Personal protective equipment:

Select PPE appropriate for the operations taking place taking into account the product properties.

· General protective and hygienic measures:

Pregnant women should strictly avoid inhalation or skin contact.

Do not eat, drink, smoke or sniff while working.

Storing food in the working area is prohibited.

Ensure that washing facilities are available at the work place.

A safe system of work must be formulated and followed to ensure that workers who may be pregnant or breastfeeding do not come into direct contact with the product.

A safe system of work must be formulated and followed to ensure safe working with this product. Relevant workers must receive suitable and sufficient training and supervision.

Ensure that eyewash stations and safety showers are close to the workstation location.

Take note of assigned Workplace Exposure Limits.

Depending on the degree of exposure, periodic medical examination is suggested.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Do not inhale gases / fumes / aerosols.

· Respiratory protection:

Use suitable respiratory protective device in case of insufficient ventilation.

Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

Not required if the product is handled in a fume cupboard.

· Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Wear chemically resistant protective gloves (tested according to DIN EN 374)

Material of gloves: Neoprene, PVC

Penetration time of glove material:

- 140 min. (Neoprene)

- 75 min. (PVC)

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· Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:

Face protection



Tightly sealed goggles

Chemical goggles (DIN EN 58211, code number 3) or face protection shield. If a splashing of the product is possible wear full face protection.

· Body protection:

Impervious protective clothing

Body protection must be chosen depending on product properties, activity and possible exposure.

PVC jacket, PVC trousers with bib, robust closed shoes if handled in significant quantities..

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties
· General Information
· Appearance:

Form:	Fluid
Colour:	Light yellow
· Odour:	Characteristic
· Odour threshold:	0.04ppm (phenol)

· pH-value: Not determined.

· Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.

· Flash point: 82 °C

· Flammability (solid, gaseous): Not applicable.

· Ignition temperature:

Decomposition temperature: Not determined.

· Self-igniting: Product is not selfigniting.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

Lower:	1.3 Vol %
Upper:	9.5 Vol %

· Vapour pressure at 20 °C: 210 hPa

· Density at 20 °C:	1.25 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.

· Solubility in / Miscibility with water: Slightly soluble.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic:	Not determined.
Kinematic:	Not determined.

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· **9.2 Other information** No further relevant information available.

SECTION 10: Stability and reactivity

· **10.1 Reactivity**

· **10.2 Chemical stability**

· **Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

Residue upon evaporation decomposes on heating. This produces toxic fumes.

· **10.3 Possibility of hazardous reactions**

PHENOL

Phenol is sensitive to oxidizing agents. This generates fire and explosion hazard.

Reacts with aldehydes, isocyanates, nitrites, nitrides and Friedel-Craft catalysts (sometimes violently or explosively). It may react to form catechol, hydroquinone, etc. as a result of radical formation.

The solution is a weak acid.

CHLOROFORM

At high temperature, chloroform thermally decomposes giving toxic and corrosive products : Hydrogen chloride gas, Phosgene

· **10.4 Conditions to avoid** No further relevant information available.

· **10.5 Incompatible materials:**

Strong acids and oxidising agents

Strong bases.

Finely divided metals.

Aldehydes, isocyanates, nitrites, nitrides, Friedel-Craft catalysts, catechol, hydroquinone.

Aluminium, Magnesium, Zinc, Titanium (risk of explosion).

Oxygen.

· **10.6 Hazardous decomposition products:**

Carbon monoxide and carbon dioxide

Hydrogen chloride (HCl)

Phosgene

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

108-95-2 phenol

Oral	LD50	340 mg/kg (rat)
Dermal	LD50	660 mg/kg (rat)

67-66-3 Chloroform

Oral	LD50	1100 mg/kg (rat)
Dermal	LD50	>4000 mg/kg (rat)

· **Primary irritant effect:**

· **on the skin:** Caustic effect on skin and mucous membranes.

· **on the eye:** Strong caustic effect.

· **Sensitisation:** No sensitising effects known.

· **Subacute to chronic toxicity:**

Effects of long-term or repeated exposure: Repeated or prolonged contact with skin may cause dermatitis.

Phenol may have effects on the liver and kidneys.

· **Additional toxicological information:**

Depending on the degree of exposure, periodic medical examination is suggested.

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

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Toxic

Corrosive

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

ROUTES OF ENTRY: Phenol can be absorbed into the body by inhalation of its vapour/mist, through the skin and by ingestion.

Phenol exerts a marked corrosive action on any tissue of contact when ingested, inhaled or after skin exposure. Its cellular uptake is both rapid and passive due to its lipophilic character, and signs of systemic toxicity develop soon after exposure. Phenol's main target organs are the liver and kidney. It may also effect the respiratory and cardiovascular systems.

Effects of short-term exposure: Phenol and its vapour are corrosive to the eyes, skin and respiratory tract. Inhalation of the vapour may cause lung oedema. It may cause effects on the central nervous system, heart and kidneys. This may result in convulsions, coma, cardiac disorders, respiratory failure and collapse. Exposure could cause death. The effects may be delayed. Medical observation is indicated.

ROUTES OF ENTRY: The main route of exposure of chloroform is inhalation but in some cases poisoning is due to ingestion; skin absorption is limited.

NO smoking in or near the work area - breakdown products such as phosgene may be produced in the burning area of the tobacco.

· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

Muta. 2, Carc. 2, Repr. 2

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

108-95-2 phenol

EC50	3.1 mg/kg (daphnia)
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67-66-3 Chloroform

EC50	353 mg/kg (daphnia)
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· **12.2 Persistence and degradability** No further relevant information available.

· **12.3 Bioaccumulative potential** Product is not expected to bioaccumulate.

· **12.4 Mobility in soil** No further relevant information available.

· **Additional ecological information:**

· **General notes:**

Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Must not reach sewage water or drainage ditch undiluted or unneutralised.

Danger to drinking water if even extremely small quantities leak into the ground.

· **12.5 Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**

· **Recommendation**

Recommended Hierarchy of Controls:

- Minimise waste;
- Reuse if not contaminated;
- Recycle, if possible; or
- Safe disposal (if all else fails).

Contact waste processors for recycling information.

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Must not be disposed together with household garbage. Do not allow product to reach sewage system.

Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.

· **European waste catalogue**

Waste key numbers in accordance with the European Waste Catalogue (EWC) are origin-referred defined. Since this product is used in several industries, no waste key can be provided by the supplier. The waste key number should be determined in arrangement with your waste disposal partner or the responsible authority.

· **Uncleaned packaging:**

· **Recommendation:**

Container remains hazardous when empty. Continue to observe all precautions.

Do not mix with other waste streams.

Containers, even those that are "empty," may contain residues that can develop flammable vapours upon heating. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers.

SECTION 14: Transport information

· **14.1 UN-Number**

· **ADR, IMDG, IATA**

UN2810

· **14.2 UN proper shipping name**

· **ADR**

2810 TOXIC LIQUID, ORGANIC, N.O.S. (PHENOL, CHLOROFORM)

· **IMDG, IATA**

TOXIC LIQUID, ORGANIC, N.O.S. (PHENOL, CHLOROFORM)

· **14.3 Transport hazard class(es)**

· **ADR, IMDG, IATA**



· **Class**

6.1 Toxic substances.

· **Label**

6.1

· **14.4 Packing group**

· **ADR, IMDG, IATA**

II

· **14.5 Environmental hazards:**

· **Marine pollutant:**

No

· **14.6 Special precautions for user**

Warning: Toxic substances.

· **Danger code (Kemler):**

60

· **EMS Number:**

F-A,S-A

· **Segregation groups**

Liquid halogenated hydrocarbons

· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

· **Transport/Additional information:**

· **ADR**

· **Limited quantities (LQ)**

100 ml

· **Transport category**

2

· **Tunnel restriction code**

D/E

· **UN "Model Regulation":**

UN2810, TOXIC LIQUID, ORGANIC, N.O.S. (PHENOL, CHLOROFORM), 6.1, II

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SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**

- | | |
|--------------|--|
| H301 | Toxic if swallowed. |
| H302 | Harmful if swallowed. |
| H311 | Toxic in contact with skin. |
| H314 | Causes severe skin burns and eye damage. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H331 | Toxic if inhaled. |
| H341 | Suspected of causing genetic defects. |
| H351 | Suspected of causing cancer. |
| H361d | Suspected of damaging the unborn child. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| R22 | Harmful if swallowed. |
| R23/24/25 | Toxic by inhalation, in contact with skin and if swallowed. |
| R34 | Causes burns. |
| R38 | Irritating to skin. |
| R40 | Limited evidence of a carcinogenic effect. |
| R48/20/21/22 | Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. |
| R48/20/22 | Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed. |
| R68 | Possible risk of irreversible effects. |

- **Abbreviations and acronyms:**

- Acute Tox. 3: Acute toxicity, Hazard Category 3
 Acute Tox. 4: Acute toxicity, Hazard Category 4
 Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B
 Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
 Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
 Muta. 2: Germ cell mutagenicity, Hazard Category 2
 Carc. 2: Carcinogenicity, Hazard Category 2
 Repr. 2: Reproductive toxicity, Hazard Category 2
 STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1
 STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2