

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 06.03.2013

Revision: 03.03.2013

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

- **Product identifier**
- **Trade name: Phenol Solution pH8.0 - Tris Buffered**
- **Article number:** 40-1000-20
- **Registration number**  
Mixture  
Phenol: 01-2119471329-32
- **Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.
- **Application of the substance / the preparation** Laboratory reagent
- **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.
- **Emergency telephone number:** Tel: 0044 1562 825286 (not 24 hours)

### 2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS06 skull and crossbones

Acute Tox. 3 H311 Toxic in contact with skin.

Acute Tox. 3 H331 Toxic if inhaled.



GHS08 health hazard

Muta. 2 H341 Suspected of causing genetic defects.

STOT RE 2 H373 May cause 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.

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



C; Corrosive

R34: Causes burns.

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Xn; Harmful

R20/21/22-68: Harmful by 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.

- **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

- **Hazard statements**

H302 Harmful if swallowed.

H311+H331 Toxic in contact with skin or if inhaled.

H314 Causes severe skin burns and eye damage.

H341 Suspected of causing genetic defects.

H373 May cause damage to organs through prolonged or repeated exposure.

- **Precautionary statements**

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

P103 Read label before use.

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.

P310 Immediately call a POISON CENTER or doctor/physician.

P361 Remove/Take off immediately all contaminated clothing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization: Substances**

- **CAS No. Description**

108-95-2 phenol

- **Identification number(s)**

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

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

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

- **Dangerous components:**

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CAS: 108-95-2 EINECS: 203-632-7	phenol  T R23/24/25;  C R34;  Xn R48/20/21/22-68 Muta. Cat. 3 <hr style="border-top: 1px dashed black;"/>  Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331;  Muta. 2, H341; STOT RE 2, H373;  Skin Corr. 1B, H314	60-90%
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· **Additional information:** For the wording of the listed risk phrases refer to section 16.

## 4 First aid measures

· **Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

First-aiders 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. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

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.

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

Seek immediate medical advice.

· **After swallowing:**

DO NOT DELAY!

Rinse out mouth and then drink plenty of water.

Call for a doctor immediately.

Drink plenty of water and provide fresh air. Call for a doctor immediately.

· **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 Auxilolon, Thomae); administer codeine against dry coughing. In the

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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.

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

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

No further relevant information available.

### 5 Firefighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.

· **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.

· **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 pyrotic 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.

### 6 Accidental release measures

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

Ensure adequate ventilation

Wear protective equipment. Keep unprotected persons away.

Remove persons from danger area.

· **Environmental precautions:**

Do not allow to penetrate the ground/soil.

Do not allow to enter sewers/ surface or ground water.

· **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.

Dispose of the material collected according to regulations.

Ensure adequate ventilation.

· **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.

### 7 Handling and storage

· **Handling:**

· **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.

Prevent formation of aerosols.

A trained first-aider must be available whilst this product is being handled.

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- **Information about fire - and explosion protection:** No special measures required.
- **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 oxidizing agents.  
Store away from foodstuffs.  
Store away from metals.  
Do not store together with textiles.
- **Further information about storage conditions:**  
Keep container tightly sealed.  
Protect from frost.  
Store locked up with keys available only to trained and authorised persons.
- **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

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

<b>Ingredients with limit values that require monitoring at the workplace:</b>	
<b>108-95-2 phenol</b>	
WEL	Short-term value: 16 mg/m <sup>3</sup> , 4 ppm
	Long-term value: 7.8 mg/m <sup>3</sup> , 2 ppm
	Sk

- **DNELs**

PHENOL

WORKERS

Acute / short-term exposure - local effects

Inhalation DN(M)EL

- DNEL (Derived No Effect Level): 16 mg/m<sup>3</sup>

Long-term exposure - systemic effects

Dermal DN(M)EL

- DNEL (Derived No Effect Level): 1.23 mg/kg bw/day

Inhalation DN(M)EL

- DNEL (Derived No Effect Level): 8 mg/m<sup>3</sup>

## GENERAL POPULATION

Long-term exposure - systemic effects

Dermal DN(M)EL

- DNEL (Derived No Effect Level): 0.4 mg/kg bw/day

Inhalation DN(M)EL

- DNEL (Derived No Effect Level): 1.32 mg/m<sup>3</sup>

Oral DN(M)EL

- DNEL (Derived No Effect Level): 0.4 mg/kg bw/day

- **PNECs**

PHENOL

PNEC aqua (freshwater): 0.0077 mg/L

PNEC aqua (marine water): 0.00077 mg/L

PNEC aqua (intermittent releases): 0.031 mg/L

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PNEC STP: 2.1 mg/L

PNEC sediment (freshwater): 0.0915 mg/kg sediment dw

PNEC sediment (marine water): 0.00915 mg/kg sediment dw

PNEC soil: 0.136 mg/kg soil dw

PNEC oral: No potential for bioaccumulation

· **Additional information:** The lists valid during the making were used as basis.

· **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.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Do not inhale gases / fumes / aerosols.

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

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

None 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)

· **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

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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  
PVC jacket, PVC trousers with bib, robust closed shoes.

## 9 Physical and chemical properties

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

- **General Information**

- **Appearance:**

<b>Form:</b>	Fluid
<b>Colour:</b>	Light yellow
<b>Odour:</b>	Characteristic
<b>Odour threshold:</b>	0.04ppm

- **pH-value:** 8

- **Change in condition**

<b>Melting point/Melting range:</b>	15 °C
<b>Boiling point/Boiling range:</b>	Undetermined.

- **Flash point:** 79 °C

- **Flammability (solid, gaseous):** Not applicable.

- **Ignition temperature:** >250 °C

- **Decomposition temperature:** Not determined.

- **Self-igniting:** Product is not selfigniting.

- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits:**

<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.

- **Vapour pressure at 20 °C:** 23 hPa

<b>Density at 20 °C:</b>	1.06 g/cm <sup>3</sup>
<b>Relative density</b>	Not determined.
<b>Vapour density</b>	Not determined.
<b>Evaporation rate</b>	Not determined.

- **Solubility in / Miscibility with water:** Fully miscible.

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

- **Viscosity:**

<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.

- **Other information** No further relevant information available.

## 10 Stability and reactivity

- **Reactivity**

- **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.

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- **Possibility of hazardous reactions**  
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.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**  
Strong acids and oxidising agents  
Strong bases.  
Finely divided metals.  
Aldehydes, isocyanates, nitrites, nitrides, Friedel-Craft catalysts, catechol, hydroquinone.
- **Hazardous decomposition products:** Carbon monoxide and carbon dioxide

## 11 Toxicological information

- **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)

- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Subacute to chronic toxicity:**  
Effects of long-term or repeated exposure: Repeated or prolonged contact with skin may cause dermatitis. The substance 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:  
Harmful  
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. The substance 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.

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### 12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

<b>108-95-2 phenol</b>	
EC50	3.1 mg/kg (daphnia)

- **Persistence and degradability** No further relevant information available.

- **Behaviour in environmental systems:**

- **Bioaccumulative potential** Product is not expected to bioaccumulate.

- **Mobility in soil** No further relevant information available.

- **Additional ecological information:**

- **General notes:**

Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

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

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

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **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.

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.

- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

### 14 Transport information

- **UN-Number**

- **ADR, IMDG, IATA**

UN2821

- **UN proper shipping name**

- **ADR**

2821 PHENOL SOLUTION

- **IMDG, IATA**

PHENOL SOLUTION

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- **Transport hazard class(es)**

- **ADR, IMDG, IATA**



- **Class** 6.1 Toxic substances.
- **Label** 6.1

- **Packing group**

- **ADR, IMDG, IATA** II

- **Environmental hazards:**

- **Marine pollutant:** No

- **Special precautions for user**

Warning: Toxic substances.

- **Danger code (Kemler):**

60

- **EMS Number:**

F-A,S-A

- **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":**

UN2821, PHENOL SOLUTION, 6.1, II

## 15 Regulatory information

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

- **National regulations:**

Class	Share in %
Wasser	93.0
I	7.0

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 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.

H311 Toxic in contact with skin.

H314 Causes severe skin burns and eye damage.

H331 Toxic if inhaled.

H341 Suspected of causing genetic defects.

H373 May cause damage to organs through prolonged or repeated exposure.

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

R34 Causes burns.

R48/20/21/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.

R68 Possible risk of irreversible effects.