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

1.1 Product identifier

Trade name: Paranol S
Article number: 102106

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 Black and white developer for photographic use

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:
TETENAL Europe GmbH
Schützenwall 31-35
D-22844 Norderstedt / Germany
Phone: +49 (0) 40 521 45-0; Fax: +49 (0) 40-52145-296
www.tetenal.com; E-Mail: info@tetenal.com

TETENAL Ltd.,
2 Meridian West, Meridian Business Park, Leicester LE19 1WX
Phone: 0116 - 289 3644; E-Mail: uk@tetenal.com; www.tetenaluk.com

Further information obtainable from: Department environment and safety. E-Mail: info@tetenal.com

1.4 Emergency telephone number:
Poison Information Centre Berlin (Germany): +49 (0) 30 - 30686 790

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

GHS08
Muta. 2  H341  Suspected of causing genetic defects.

GHS05
Skin Corr. 1B  H314  Causes severe skin burns and eye damage.
Eye Dam. 1  H318  Causes serious eye damage.

GHS09
Aquatic Chronic 2  H411  Toxic to aquatic life with long lasting effects.

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

C; Corrosive
R34:  Causes burns.

Xn; Harmful
R68:  Possible risk of irreversible effects.

N; Dangerous for the environment
R51/53:  Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
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  GHS08  GHS09

Signal word Danger

Hazard-determining components of labelling:
potassium hydroxide
4-aminophenol

Hazard statements
H314 Causes severe skin burns and eye damage.
N R50/53 Muta. Cat. 3
H341 Suspected of causing genetic defects.
STOT RE 2, H373;
Aquatic Acute 1, H400;
Aquatic Chronic 1, H410;
Acute Tox. 4, H400;
H373;
STOT RE 2, H373;
Aquatic Acute 1, H400;
Aquatic Chronic 1, H410;
Acute Tox. 4, H302;
Acute Tox. 4, H332

Precautionary statements
P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
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.
P501 Dispose of contents/container in accordance with local regulations.

2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Chemical characterisation: Mixtures
Description: Mixture of substances listed below and with nonhazardous additions.

<table>
<thead>
<tr>
<th>CAS: 1310-58-3</th>
<th>C R35; Xn R22</th>
<th>2-5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index number: 019-002-00-8</td>
<td>Reg.nr.: 01-2119487136-33</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS: 123-30-8</th>
<th>4-aminophenol</th>
<th>1-5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>EINECS: 204-616-2</td>
<td>Xn R20/22-68; N R50/53</td>
<td></td>
</tr>
<tr>
<td>Index number: 612-128-00-0-X</td>
<td>Muta. Cat. 3</td>
<td></td>
</tr>
<tr>
<td>Reg.nr.: 01-2119535388-31</td>
<td>Mut. 2, H341; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H400; Acute Tox. 4, H332</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 4: First aid measures

4.1 Description of first aid measures

General information: Immediately remove any clothing/shoes soiled by the product.

After inhalation: In case of unconsciousness place patient stably in side position for transportation.

After skin contact: Immediately wash with water and soap and rinse thoroughly.

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

After swallowing:
Do not induce vomiting; call for medical help immediately.

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

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

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

Nitrogen oxides (NOx)
Carbon monoxide (CO)
Sulphur dioxide (SO2)
Under certain fire conditions, traces of other toxic gases cannot be excluded.

5.3 Advice for firefighters

Protective equipment: Do not inhale explosion gases or combustion gases.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

6.2 Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

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

6.3 Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralising agent.

Dispose contaminated material as waste according to item 13.

Pick up mechanically.

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
Ensure good ventilation/exhaustion at the workplace.

Information about fire - and explosion protection: Protect from heat.

7.2 Conditions for safe storage, including any incompatibilities
Storage:
- Requirements to be met by storerooms and receptacles: Store only in the original receptacle.
- Information about storage in one common storage facility:
  Store away from foodstuffs.
  Do not store together with acids.
  Store away from oxidising agents.

Further information about storage conditions:
- Keep container tightly sealed.
- Store in cool, dry conditions in well sealed receptacles.
- Protect from heat and direct sunlight.
- Store under lock and key and out of the reach of children.
- Recommended storage temperature: 5-30 °C
- Protect from exposure to the light.

7.3 Specific end use(s)
No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:
- 1310-58-3 potassium hydroxide (1-5%)
  WEL, Short-term value: 2 mg/m³

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

8.2 Exposure controls

General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Do not inhale gases / fumes / aerosols.
- Avoid contact with the eyes and skin.

Respiratory protection: required at the appearance from fumes/vapours/aerosol. Filter ABEK

Protection of hands:

Protective gloves
- Impervious gloves
- Alkaline resistant 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.
Trade name: Paranol S

- Butyl rubber, BR
- Nitrile rubber, NBR
- Neoprene gloves

**Penetration time of glove material**

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough-time</th>
<th>Layer thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butyl rubber</td>
<td>&gt;480 min</td>
<td>≥0.4 mm</td>
</tr>
<tr>
<td>Nitrile rubber</td>
<td>&gt;480 min</td>
<td>≥0.38 mm</td>
</tr>
<tr>
<td>Neoprene</td>
<td>&gt;240 min</td>
<td>≥0.65 mm</td>
</tr>
</tbody>
</table>

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

- **Eye protection:**
  - Tightly sealed goggles

- **Body protection:** Protective work clothing

---

**SECTION 9: Physical and chemical properties**

- **9.1 Information on basic physical and chemical properties**
  - **General Information**
  - **Appearance:**
    - Form: Fluid
    - Colour: Light brown
    - Odour: Phenol-like
  - **pH-value at 25 °C:** 14
  - **Change in condition**
    - Melting point/Melting range: Undetermined.
    - Boiling point/Boiling range: > 100 °C
  - **Flash point:** Not applicable.
  - **Self-igniting:** Product is not self-igniting.
  - **Danger of explosion:** Product does not present an explosion hazard.
  - **Vapour pressure at 20 °C:** 23 hPa
  - **Density at 20 °C:** 1.386 g/cm³
  - **Solubility in / Miscibility with water:** Fully miscible.
  - **Solvent content:**
    - Organic solvents: 0.0 %
    - Water: >55 %
  - **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:** Stable at environment temperature.
  - **10.3 Possibility of hazardous reactions**
    - Reacts with acids, alkalis and oxidising agents.

(Contd. on page 6)
10.4 Conditions to avoid
No further relevant information available.

10.5 Incompatible materials:
- Nitrogen oxides (NOx)
- Carbon monoxide (CO)
- Sulphur dioxide (SO2)
Under certain fire conditions, traces of other toxic gases cannot be excluded.

10.6 Hazardous decomposition products: Irritant gases/vapours

11.1 Information on toxicological effects

Acute toxicity:

- LD/LC50 values relevant for classification:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Oral LD50</th>
</tr>
</thead>
<tbody>
<tr>
<td>123-30-8 4-aminophenol</td>
<td>375 mg/kg</td>
</tr>
<tr>
<td>1310-58-3 potassium hydroxide</td>
<td>365 mg/kg</td>
</tr>
</tbody>
</table>

Primary irritant effect:
- on the skin: Caustic effect on skin and mucous membranes.
- on the eye: Strong caustic effect.
- Sensitisation: No sensitising effects known.

Additional toxicological information:
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:
- Corrosive
- Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
- CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)
- Muta. 2

12.1 Toxicity

Aquatic toxicity:

<table>
<thead>
<tr>
<th>Substance</th>
<th>EC50 48h</th>
<th>LC50 48h</th>
</tr>
</thead>
<tbody>
<tr>
<td>123-30-8 4-aminophenol</td>
<td>0.24 mg/l</td>
<td>1.2 mg/l</td>
</tr>
<tr>
<td>1310-58-3 potassium hydroxide</td>
<td></td>
<td>80 mg/l</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability
No further relevant information available.

12.3 Bioaccumulative potential
No further relevant information available.

12.4 Mobility in soil
No further relevant information available.

Ecotoxic effects:
- Remark: Toxic for fish

Additional ecological information:
- General notes:
  - Do not allow product to reach ground water, water course or sewage system.
  - Also poisonous for fish and plankton in water bodies.
  - Toxic for aquatic organisms
Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous. Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water. 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
  Must not be disposed together with household garbage. Do not allow product to reach sewage system.

European waste catalogue
- 09 01 01 water-based developer and activator solutions

Uncleaned packaging:
- Recommendation: Disposal must be made according to official regulations.
- Recommended cleansing agents: Water, if necessary together with cleansing agents.

SECTION 14: Transport information

14.1 UN-Number
- ADR, IMDG, IATA
  UN1814

14.2 UN proper shipping name
- ADR
  1814 POTASSIUM HYDROXIDE SOLUTION
- IMDG
  POTASSIUM HYDROXIDE SOLUTION, MARINE POLLUTANT
- IATA
  POTASSIUM HYDROXIDE SOLUTION

14.3 Transport hazard class(es)
- ADR
  Class 8 (C5) Corrosive substances.
  Label 8
- IMDG
  Class 8 Corrosive substances.

(Contd. on page 8)
Trade name: Paranol S

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.4</td>
<td>Packing group, ADR, IMDG, IATA: II</td>
</tr>
<tr>
<td>14.5</td>
<td>Environmental hazards: Corrosive substances</td>
</tr>
<tr>
<td>14.6</td>
<td>Special precautions for user: Warning: Corrosive substances</td>
</tr>
<tr>
<td>14.7</td>
<td>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable</td>
</tr>
</tbody>
</table>

Transport/Additional information:

<table>
<thead>
<tr>
<th>ADR</th>
<th>1L Code: E2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum net quantity per inner packaging: 30 ml</td>
</tr>
<tr>
<td></td>
<td>Maximum net quantity per outer packaging: 500 ml</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IMDG</th>
<th>1L Code: E2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum net quantity per inner packaging: 30 ml</td>
</tr>
<tr>
<td></td>
<td>Maximum net quantity per outer packaging: 500 ml</td>
</tr>
</tbody>
</table>

UN "Model Regulation": UN1814, POTASSIUM HYDROXIDE SOLUTION, ENVIRONMENTALLY HAZARDOUS, 8, II

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

H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H332 Harmful if inhaled.
H341 Suspected of causing genetic defects.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
R20/22 Harmful by inhalation and if swallowed.
R22 Harmful if swallowed.
R35 Causes severe burns.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R68 Possible risk of irreversible effects.

Contact: e-mail: sida@tetenal.com

Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Met. Corr. 1: Corrosive to metals, Hazard Category 1
Acute Tox. 4: Acute toxicity, Hazard Category 4
Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A
Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B
Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1
Muta. 2: Germ cell mutagenicity, Hazard Category 2
STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2
Aquatic Acute 1: Hazardous to the aquatic environment - Acute Hazard, Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1
Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2

* Data compared to the previous version altered.