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

1.1 Product identifier
Trade name: Trihexyl(tetradecyl)phosphonium chloride > 97%
Article number: PH0601C
CAS Number: 258864-54-9
EC number: 684-206-1

1.2 Relevant identified uses of the substance or mixture and uses advised against
No other important information available.

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier: Solvionic SA
195 route d'Espagne
31036 TOULOUSE
FRANCE
Phone number: +33 (0)5.34.63.35.35
Further information obtainable from: HSE Department

1.4 Emergency telephone number:
ORFILA (INRS): +33 (0)1.45.42.59.59
CCHST: 1-800-668-4284 (Canada & U.S.A)

SECTION 2: Hazards identification

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

<table>
<thead>
<tr>
<th>GHS05</th>
<th>Skin Corr. 1B</th>
<th>H314 Causes severe skin burns and eye damage.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eye Dam. 1</td>
<td>H318 Causes serious eye damage.</td>
</tr>
</tbody>
</table>

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

| GHS07 | Acute Tox. 4 | H302 Harmful if swallowed. |

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008 The substance is classified and labelled according to the CLP regulation.

Hazard pictograms

Signal word Danger

Hazard-determining components of labelling:
Trihexyl(tetradecyl)phosphonium chloride
triphenylphosphine oxide

Hazard statements
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements
P260 Do not breathe dusts or mists.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

(Contd. on page 2)
Trade name: Trihexyl(tetradecyl)phosphonium chloride > 97%

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/doctor.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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

SECTION 3: Composition/information on ingredients

3.1 Chemical characterisation: Substances
- CAS No. / Description
  258864-54-9 Trihexyl(tetradecyl)phosphonium chloride
- Identification number(s)
  EC number: 684-206-1
  Molecular formula: C32 H68 CI P
  Molar mass: 519,31 g/mol
- Dangerous components:
  CAS: 258864-54-9
  EC number: 684-206-1
  Trihexyl(tetradecyl)phosphonium chloride
  Skin Corr. 1B, H314; Aquatic Chronic 2, H411; Acute Tox. 4, H302
  97%
  CAS: 791-28-6
  EINECS: 212-338-8
  triphenylphosphine oxide
  Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335
  ≤2,5%

SECTION 4: First aid measures

4.1 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.
  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: Call for a doctor 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: Use fire extinguishing methods suitable to surrounding conditions.

5.2 Special hazards arising from the substance or mixture
During heating or in case of fire poisonous gases are produced.

5.3 Advice for firefighters
- Protective equipment: Mouth respiratory protective device.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
Use individual protective gear.

6.2 Environmental precautions:
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.
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).
Trade name: Trihexyl(tetradecyl)phosphonium chloride > 97%

Use neutralising agent.
Dispose contaminated material as waste according to item 13.
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.
Prevent formation of aerosols.

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: No special requirements.
Information about storage in one common storage facility: Not required.
Further information about storage conditions: Keep container tightly sealed.

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.

8.1 Control parameters
- Ingredients with limit values that require monitoring at the workplace: Not required.
- Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls
- Personal protective equipment:
  . 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.
  Avoid contact with the eyes.
  Avoid contact with the eyes and skin.
  . 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.
  . Protection of hands:
  Protective gloves
  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
  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.
  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:
  Tightly sealed goggles
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
- General Information
  . Appearance:
    . Form: Fluid
    . Colour: Yellow
    . Odour: Not determined.
    . Odour threshold: Not determined.
- pH-value: Not determined.
- Change in condition
  . Melting point/freezing point: -66 °C
  . Initial boiling point and boiling range: Undetermined.
- Flash point: 118 °C
- Flammability (solid, gas): Not applicable.
- Decomposition temperature: Not determined.
- Auto-ignition temperature: Not determined.
- Explosive properties: Product does not present an explosion hazard.
- Explosion limits:
  . Lower: Not determined.
  . Upper: Not determined.
- Flash point:
  . Vapour pressure: Not determined.
  . Density at 20 °C: 0,888 g/cm³
  . Bulk density: 892 kg/m³
  . Relative density: Not determined.
  . Vapour density: Not determined.
  . Evaporation rate: Not determined.
- Solubility in / Miscibility with
  . water: Not miscible or difficult to mix.
- Partition coefficient: n-octanol/water: Not determined.
- Viscosity:
  . Dynamic at 20 °C: 1.990 mPas
  . Kinematic: Not determined.
- Solvent content:
  . VOC (EC): 0,00 %

9.2 Other information
No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity
No further relevant information available.

10.2 Chemical stability
Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

10.3 Possibility of hazardous reactions
No dangerous reactions known.

10.4 Conditions to avoid
No further relevant information available.

10.5 Incompatible materials: Strong oxidizer and strong base.

10.6 Hazardous decomposition products: No dangerous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity
Harmful if swallowed.
LD/LC50 values relevant for classification:
CAS: 258864-54-9 Trihexyl(tetradecyl)phosphonium chloride
Dermal LD50 >2.000 mg/kg (rabbit)
- Primary irritant effect:
  . Skin corrosion/irritation
  Causes severe skin burns and eye damage.
  . Serious eye damage/irritation
  Causes serious eye damage.
Safety data sheet
according to 1907/2006/EC, Article 31

Trade name: Trihexyl(tetradecyl)phosphonium chloride > 97%

(Contd. of page 4)

- Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
- CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
  - Germ cell mutagenicity Based on available data, the classification criteria are not met.
  - Carcinogenicity Based on available data, the classification criteria are not met.
  - Reproductive toxicity Based on available data, the classification criteria are not met.
- Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.
- Specific target organ toxicity - repeated exposure Based on available data, the classification criteria are not met.
- Aspiration hazard Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.

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.

Ecotoxicological effects:
Remark: Toxic for fish
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 unneutralised.
Danger to drinking water if even small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms

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
HP 6 Acute Toxicity
HP 8 Corrosive
HP 14 Ecotoxic

Uncleaned packaging:
Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

14.1 UN-Number
ADR/RID/ADN, IMDG, IATA UN1760

14.2 UN proper shipping name
ADR/RID/ADN UN1760 CORROSIVE LIQUID, N.O.S. (Trihexyl(tetradecyl) phosphonium chloride), ENVIRONMENTALLY HAZARDOUS CORROSIVE LIQUID, N.O.S. (Trihexyl(tetradecyl)phosphonium chloride), MARINE POLLUTANT CORROSIVE LIQUID, N.O.S. (Trihexyl(tetradecyl)phosphonium chloride)

IMDG

IATA
Trade name: Trihexyl(tetradecyl)phosphonium chloride > 97%

### 14.3 Transport hazard class(es)

ADR/RID/ADN, IMDG

- **Class**: 8 Corrosive substances.
- **Label**: 8
- **IATA**: 8

### 14.4 Packing group

ADR/RID/ADN, IMDG, IATA

- **Packing group**: II

### 14.5 Environmental hazards:

Product contains environmentally hazardous substances:

- **Marine pollutant**: Symbol (fish and tree)
- **Special marking (ADR/RID/ADN)**: Symbol (fish and tree)

### 14.6 Special precautions for user

- **Warning**: Corrosive substances.
- **Danger code (Kemler)**: 80
- **EMS Number**: F-A,S-B
- **Stowage Category**: B
- **Stowage Code**: SW2 Clear of living quarters.

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

- **Not applicable.**

#### Transport/Additional information:

<table>
<thead>
<tr>
<th>ADR/RID/ADN</th>
<th>IMDG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Limited quantities (LQ)</strong></td>
<td>1L</td>
</tr>
<tr>
<td><strong>Excepted quantities (EQ)</strong></td>
<td>Code: E2</td>
</tr>
<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>

| **Transport category** | 2 |
| **Tunnel restriction code** | E |

| **Limited quantities (LQ)** | 1L |
| **Excepted quantities (EQ)** | Code: E2 |
| | Maximum net quantity per inner packaging: 30 ml |
| | Maximum net quantity per outer packaging: 500 ml |

### UN "Model Regulation":

UN 1760 CORROSIVE LIQUID, N.O.S. (TRIHEXYL(TETRADECYL)PHOSPHONIUM CHLORIDE), 8, II, ENVIRONMENTALLY HAZARDOUS

### SECTION 15: Regulatory information

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

**Directive 2012/18/EU**

Named dangerous substances - ANNEX I Substance is not listed.

Seveso category E2 Hazardous to the Aquatic Environment

Qualifying quantity (tonnes) for the application of lower-tier requirements 200 t

Qualifying quantity (tonnes) for the application of upper-tier requirements 500 t

REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

**15.2 Chemical safety assessment:**

For this product, no chemical safety assessment has been performed. A Chemical Safety Assessment has not been carried out.

(Contd. on page 7)
SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

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.

For research and development use only.

**Relevant phrases**
- H302 Harmful if swallowed.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H335 May cause respiratory irritation.
- H411 Toxic to aquatic life with long lasting effects.

**Department issuing SDS:** Environmental Protection Service

**Contact:**
Mail: hse@solvionic.com
Phone number: +33 (0)5.34.63.35.35

**Abbreviations and acronyms:**
- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- 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)
- VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
- Acute Tox. 4: Acute toxicity – Category 4
- Skin Corr. 1B: Skin corrosion/irritation – Category 1B
- Skin Irrit. 2: Skin corrosion/irritation – Category 2
- Eye Dam. 1: Serious eye damage/eye irritation – Category 1
- Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
- STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
- Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2