SAFETY DATA SHEET
GC Internal Standard - EN Method 15662, Part Number 5190-0501

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

1.1 Product identifier
Product name: GC Internal Standard - EN Method 15662, Part Number 5190-0501
Part no.: 5190-0501

1.2 Relevant identified uses of the substance or mixture and uses advised against
Material uses: Reagents and Standards for Analytical Chemistry Laboratory Use
1 x 1 ml

1.3 Details of the supplier of the safety data sheet
Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000
e-mail address of person responsible for this SDS: pdl-msds_author@agilent.com

1.4 Emergency telephone number
Emergency telephone number (with hours of operation): CHEMTREC®: +(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Product definition: Mixture
Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

H225 FLAMMABLE LIQUIDS Category 2
H302 ACUTE TOXICITY (oral) Category 4
H312 ACUTE TOXICITY (dermal) Category 4
H332 ACUTE TOXICITY (inhalation) Category 4
H319 SERIOUS EYE DAMAGE/EYE IRRITATION Category 2
H373 SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE Category 2
H412 LONG-TERM (CHRONIC) AQUATIC HAZARD Category 3

See Section 16 for the full text of the H statements declared above.
See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements
Hazard pictograms:

Signal word: Danger
GC Internal Standard - EN Method 15662, Part Number 5190-0501

SECTION 2: Hazards identification

Hazard statements:
- H225 - Highly flammable liquid and vapour.
- H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.
- H319 - Causes serious eye irritation.
- H373 - May cause damage to organs through prolonged or repeated exposure.
- H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements:

Prevention:
- P280 - Wear protective gloves and protective clothing. Wear eye or face protection.
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P273 - Avoid release to the environment.
- P260 - Do not breathe vapour.

Response:
- P314 - Get medical advice/attention if you feel unwell.

Storage:
- Not applicable.

Disposal:
- P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients:
- Acetonitrile
- 2,2',5,5'-Tetrachlorobiphenyl
- tris[2-Chloro-1-(chloromethyl)ethyl] phosphate

Supplemental label elements:
- Tactile warning of danger: Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles:
- Not applicable.

Special packaging requirements:
- Not applicable.

2.3 Other hazards:
- Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII:
  - This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification:
- None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures:
- Mixture

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>%</th>
<th>Regulation (EC) No. 1272/2008 [CLP]</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CAS: 75-05-8</td>
<td></td>
<td>Acute Tox. 4, H302</td>
<td>[2]</td>
</tr>
<tr>
<td></td>
<td>Index: 608-001-00-3</td>
<td></td>
<td>Acute Tox. 4, H312</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 4, H332</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2, H319</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT RE 2, H373</td>
<td>[1]</td>
</tr>
<tr>
<td>2,2',5,5'-Tetrachlorobiphenyl</td>
<td>CAS: 35693-99-3</td>
<td>≤1</td>
<td>Aquatic Acute 1, H400 (M=1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index: 602-039-00-4</td>
<td></td>
<td>Aquatic Chronic 1, H410 (M=1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carc. 2, H351</td>
<td></td>
</tr>
<tr>
<td>phosphate</td>
<td>CAS: 13674-87-8</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index: 015-199-00-X</td>
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</tr>
</tbody>
</table>

Date of issue/Date of revision: 02/11/2020  Date of previous issue: 26/02/2018  Version: 3
SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance classified with a health or environmental hazard</th>
<th>Substance with a workplace exposure limit</th>
<th>Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII</th>
<th>Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII</th>
<th>Substance of equivalent concern</th>
<th>Additional disclosure due to company policy</th>
</tr>
</thead>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

### Type
1. Substance classified with a health or environmental hazard
2. Substance with a workplace exposure limit
3. Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
4. Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
5. Substance of equivalent concern
6. Additional disclosure due to company policy

SECTION 4: First aid measures

#### 4.1 Description of first aid measures

**Eye contact**
- Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

**Inhalation**
- Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention following exposure or if feeling unwell. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Skin contact**
- Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

**Ingestion**
- Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Protection of first-aiders**
- No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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

**Potential acute health effects**
- **Eye contact**: Causes serious eye irritation.
- **Inhalation**: Harmful if inhaled.
- **Skin contact**: Harmful in contact with skin.
- **Ingestion**: Harmful if swallowed.

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SECTION 4: First aid measures

**Over-exposure signs/symptoms**

- **Eye contact**: Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness

- **Inhalation**: No specific data.

- **Skin contact**: No specific data.

- **Ingestion**: No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

**Notes to physician**: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Specific treatments**: No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

**Suitable extinguishing media**: Use dry chemical, CO₂, water spray (fog) or foam.

**Unsuitable extinguishing media**: Do not use water jet.

5.2 Special hazards arising from the substance or mixture

**Hazardous combustion products**: Decomposition products may include the following materials:
- carbon dioxide
- carbon monoxide
- nitrogen oxides
- cyanides

5.3 Advice for firefighters

**Special precautions for fire-fighters**: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Special protective equipment for firefighters**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel**: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spill material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
SECTION 6: Accidental release measures

For emergency responders: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections: See Section 1 for emergency contact information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Do not breathe vapour or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Storage: Store between the following temperatures: 18 to 25°C (64.4 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds

<table>
<thead>
<tr>
<th>Category</th>
<th>Notification and MAPP threshold</th>
<th>Safety report threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>P5c</td>
<td>5000 tonne</td>
<td>50000 tonne</td>
</tr>
</tbody>
</table>

7.3 Specific end use(s)

Recommendations: Industrial applications, Professional applications.
SECTION 7: Handling and storage

Industrial sector specific solutions: Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Exposure limit values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetonitrile</td>
<td>EH40/2005 WELs (United Kingdom (UK), 8/2018). STEL: 102 mg/m³ 15 minutes. STEL: 60 ppm 15 minutes. TWA: 40 ppm 8 hours. TWA: 68 mg/m³ 8 hours.</td>
</tr>
</tbody>
</table>

Recommended monitoring procedures: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Type</th>
<th>Exposure</th>
<th>Value</th>
<th>Population</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetonitrile</td>
<td>DNEL</td>
<td>Short term Oral</td>
<td>0.6 mg/kg bw/day</td>
<td>General population</td>
<td>Systemic</td>
</tr>
<tr>
<td></td>
<td>DNEL</td>
<td>Long term Inhalation</td>
<td>4.8 mg/m³</td>
<td>General population</td>
<td>Local</td>
</tr>
<tr>
<td></td>
<td>DNEL</td>
<td>Long term Inhalation</td>
<td>4.8 mg/m³</td>
<td>General population</td>
<td>Systemic</td>
</tr>
<tr>
<td></td>
<td>DNEL</td>
<td>Short term Inhalation</td>
<td>22 mg/m³</td>
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<td>Local</td>
</tr>
<tr>
<td></td>
<td>DNEL</td>
<td>Long term Dermal</td>
<td>32.2 mg/kg bw/day</td>
<td>Workers</td>
<td>Systemic</td>
</tr>
<tr>
<td></td>
<td>DNEL</td>
<td>Short term Inhalation</td>
<td>68 mg/m³</td>
<td>Workers</td>
<td>Local</td>
</tr>
<tr>
<td></td>
<td>DNEL</td>
<td>Long term Inhalation</td>
<td>68 mg/m³</td>
<td>Workers</td>
<td>Local</td>
</tr>
<tr>
<td></td>
<td>DNEL</td>
<td>Short term Inhalation</td>
<td>68 mg/m³</td>
<td>Workers</td>
<td>Systemic</td>
</tr>
<tr>
<td></td>
<td>DNEL</td>
<td>Long term Inhalation</td>
<td>68 mg/m³</td>
<td>Workers</td>
<td>Systemic</td>
</tr>
<tr>
<td></td>
<td>DNEL</td>
<td>Short term Inhalation</td>
<td>220 mg/m³</td>
<td>General population</td>
<td>Systemic</td>
</tr>
<tr>
<td></td>
<td>DNEL</td>
<td>Long term Oral</td>
<td>0.017 mg/kg bw/day</td>
<td>General population</td>
<td>Systemic</td>
</tr>
<tr>
<td></td>
<td>DNEL</td>
<td>Long term Dermal</td>
<td>0.017 mg/kg bw/day</td>
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<td>Systemic</td>
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<td>DNEL</td>
<td>Long term Inhalation</td>
<td>0.058 mg/m³</td>
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<tr>
<td>tris[2-Chloro-1-(chloromethyl)ethyl] phosphate</td>
<td>DNEL</td>
<td>Long term Inhalation</td>
<td>0.327 mg/m³</td>
<td>General population</td>
<td>Systemic</td>
</tr>
</tbody>
</table>

PNECs
SECTION 8: Exposure controls/personal protection

8.2 Exposure controls

**Appropriate engineering controls**

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**Individual protection measures**

**Hygiene measures**

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection**

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

**Skin protection**

**Hand protection**

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

**Body protection**

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.

**Other skin protection**

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection**

Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

**Environmental exposure controls**

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

**Appearance**

**Physical state**

Liquid.

**Colour**

Colourless.

**Odour**

Aromatic.

**Odour threshold**

Not available.

**pH**

Not available.

**Melting point/freezing point**

-48°C

**Initial boiling point and boiling range**

81 to 82°C
SECTION 9: Physical and chemical properties

Flash point: Closed cup: 5.56°C
Evaporation rate: Not available.
Flammability (solid, gas): Not applicable.
Upper/lower flammability or explosive limits: Lower: 4.4%
Vapour pressure: 13.3 kPa [room temperature]
Vapour density: 1.4 [Air = 1]
Relative density: 0.786
Density: 0.786 g/cm³
Solubility(ies): Soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water: Not available.
Auto-ignition temperature: 523.89°C
Decomposition temperature: Not available.
Flash point: Closed cup: 5.56°C
Viscosity: Not available.
Explosive properties: Not available.
Oxidising properties: Not available.

9.2 Other information
No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity: No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability: The product is stable.

10.3 Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid: Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour to accumulate in low or confined areas.

10.5 Incompatible materials: Reactive or incompatible with the following materials:
- oxidising materials
- Reactive or incompatible with the following materials: acids.

10.6 Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetonitrile</td>
<td>LC50 Inhalation Vapour</td>
<td>Rat</td>
<td>17100 ppm</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>2460 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>&gt;23700 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>tris[2-Chloro-1-(chloromethyl)ethyl phosphate</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>1850 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Acute toxicity estimates
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SECTION 11: Toxicological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Oral (mg/kg)</th>
<th>Dermal (mg/kg)</th>
<th>Inhalation (gases) (ppm)</th>
<th>Inhalation (vapours) (mg/l)</th>
<th>Inhalation (dusts and mists) (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GC Internal Standard - EN Method 15662, Part Number 5190-0501 Acetonitrile</td>
<td>509.5</td>
<td>1121</td>
<td>N/A</td>
<td>11.2</td>
<td>N/A</td>
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<tr>
<td></td>
<td>500</td>
<td>1100</td>
<td>N/A</td>
<td>11</td>
<td>N/A</td>
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</table>

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetonitrile</td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 100 Ul</td>
<td>-</td>
</tr>
<tr>
<td>Acetonitrile</td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 mg</td>
<td>-</td>
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<tr>
<td>tris[2-Chloro-1-(chloromethyl)ethyl] phosphate</td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>0.5 Ml</td>
<td>-</td>
</tr>
</tbody>
</table>

Sensitiser

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2',5,5'-Tetrachlorobiphenyl</td>
<td>Category 2</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Aspiration hazard

Not available.

Information on likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Inhalation : Harmful if inhaled.
Ingestion : Harmful if swallowed.
Skin contact : Harmful in contact with skin.
Eye contact : Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation : No specific data.
Ingestion : No specific data.
Skin contact : No specific data.
Eye contact : Adverse symptoms may include the following: pain or irritation watering redness

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure
SECTION 11: Toxicological information

Potential immediate effects: Not available.
Potential delayed effects: Not available.

Long term exposure

Potential immediate effects: Not available.
Potential delayed effects: Not available.

Potential chronic health effects

General: May cause damage to organs through prolonged or repeated exposure.
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.
Reproductive toxicity: No known significant effects or critical hazards.

Other information: Adverse symptoms may include the following: May cause headache, weakness, dizziness, shortness of breath, cyanosis, rapid heart beat, unconsciousness and possible death.

SECTION 12: Ecological information

12.1 Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetonitrile</td>
<td>Acute IC50 3685000 μg/l Fresh water</td>
<td>Aquatic plants - Lemna minor</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 3600000 μg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 1000000 μg/l Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 1000000 μg/l Fresh water</td>
<td>Aquatic plants - Lemna minor</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 160000 μg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>21 days</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 25 μg/l Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>7 weeks</td>
</tr>
<tr>
<td>2,2',5,5'-Tetrachlorobiphenyl</td>
<td>Chronic NOEC 1.2 mg/l Fresh water</td>
<td>Algae</td>
<td>72 days</td>
</tr>
<tr>
<td>tris[2-Chloro-1-(chloromethyl)ethyl] phosphate</td>
<td>Acute EC50 3.8 mg/l Fresh water</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 0.418 mg/l Fresh water</td>
<td>Fish - Danio rerio - Embryo</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 0.5 mg/l Fresh water</td>
<td>Daphnia</td>
<td>21 days</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 0.56 mg/l Fresh water</td>
<td>Fish</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetonitrile</td>
<td>OECD 310 Ready Biodegradability - CO2 in Sealed Vessels (Headspace Test)</td>
<td>70 % - Readily - 21 days</td>
<td>-</td>
<td>Activated sludge</td>
</tr>
<tr>
<td>tris[2-Chloro-1-(chloromethyl)ethyl] phosphate</td>
<td>OECD 301B Ready Biodegradability - CO2 Evolution Test</td>
<td>0 % - Not readily - 28 days</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetonitrile</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
<tr>
<td>2,2',5,5'-Tetrachlorobiphenyl</td>
<td>-</td>
<td>-</td>
<td>Not readily</td>
</tr>
<tr>
<td>tris[2-Chloro-1-(chloromethyl)ethyl] phosphate</td>
<td>-</td>
<td>-</td>
<td>Not readily</td>
</tr>
</tbody>
</table>
SECTION 12: Ecological information

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetonitrile</td>
<td>-0.34</td>
<td>3</td>
<td>low</td>
</tr>
<tr>
<td>2',2',5,5'-Tetrachlorobiphenyltris[2-Chloro-1-(chloromethyl)ethyl] phosphate</td>
<td>6.09</td>
<td>18197.01</td>
<td>high</td>
</tr>
<tr>
<td></td>
<td>3.69</td>
<td>31 to 59</td>
<td>low</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

Soil/water partition coefficient (K<sub>OC</sub>) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste

Packaging

Methods of disposal : The classification of the product may meet the criteria for a hazardous waste.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

<table>
<thead>
<tr>
<th>14.1 UN number</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN1648</td>
<td>UN1648</td>
<td>UN1648</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.2 UN proper shipping name</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACETONITRILE solution</td>
<td>ACETONITRILE solution</td>
<td>Acetonitrile solution</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.3 Transport hazard class(es)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

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SECTION 14: Transport information

14.4 Packing group

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
</tr>
</thead>
</table>

14.5 Environmental hazards

<table>
<thead>
<tr>
<th>Remarks</th>
<th>De minimis quantities</th>
</tr>
</thead>
</table>

ADR/RID

Hazard identification number: 33
Limited quantity: 1 L
Tunnel code: (D/E)

IMDG

Emergency schedules: F-E, S-D

IATA

Cargo Aircraft Only: 60 L. Packaging instructions: 364.
Limited Quantities - Passenger Aircraft: 1 L. Packaging instructions: Y341.

14.6 Special precautions for user

Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to IMO instruments

Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>EC number</th>
<th>CAS number</th>
<th>Restriction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polychlorobiphenyls</td>
<td>35693-99-3</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Label: Not applicable.

Other EU regulations

Industrial emissions (integrated pollution prevention and control) - Air

Listed

Industrial emissions (integrated pollution prevention and control) - Water

Listed

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)
SECTION 15: Regulatory information

### Seveso Directive
This product is controlled under the Seveso Directive.

#### Danger criteria

<table>
<thead>
<tr>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>P5c</td>
</tr>
</tbody>
</table>

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals
Not listed.

#### Montreal Protocol
Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>List name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polychlorinated Biphenyls; PCB</td>
<td>Annex A - Elimination - Production</td>
<td>Listed</td>
</tr>
<tr>
<td>-</td>
<td>Annex A - Elimination - Use</td>
<td>Listed</td>
</tr>
<tr>
<td>-</td>
<td>Annex C - Unintentional - Production</td>
<td>Listed</td>
</tr>
</tbody>
</table>

#### Rotterdam Convention on Prior Informed Consent (PIC)

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polychlorinated Biphenyls; Aroclor; Chlorinated biphenyl; PCBs</td>
<td>Listed</td>
</tr>
</tbody>
</table>

#### UNECE Aarhus Protocol on POPs and Heavy Metals

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>List name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCB</td>
<td>POPs - Annex 1 - Production</td>
<td>Listed</td>
</tr>
<tr>
<td>-</td>
<td>POPs - Annex 1 - Use</td>
<td>Listed</td>
</tr>
<tr>
<td>-</td>
<td>POPs - Annex 2</td>
<td>Listed</td>
</tr>
</tbody>
</table>

### Inventory list

- **Australia**: Not determined.
- **Canada**: Not determined.
- **China**: Not determined.
- **Europe**: Not determined.
- **Japan**: **Japan inventory (ENCS)**: Not determined. **Japan inventory (ISHL)**: Not determined.
- **New Zealand**: Not determined.
- **Philippines**: Not determined.
- **Republic of Korea**: Not determined.
- **Taiwan**: All components are listed or exempted.
- **Thailand**: Not determined.
- **Turkey**: Not determined.
- **United States**: Not determined.
- **Viet Nam**: All components are listed or exempted.

#### Inventory list

**15.2 Chemical safety assessment**: This product contains substances for which Chemical Safety Assessments might still be required.
GC Internal Standard - EN Method 15662, Part Number 5190-0501

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms:

ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 2, H225</td>
<td>On basis of test data</td>
</tr>
<tr>
<td>Acute Tox. 4, H302</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Acute Tox. 4, H312</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Acute Tox. 4, H332</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Eye Irrit. 2, H319</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT RE 2, H373</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Aquatic Chronic 3, H412</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

Full text of abbreviated H statements

H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H351 Suspected of causing cancer.
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.
H412 Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Acute Tox. 4
Aquatic Acute 1
Aquatic Chronic 1
Aquatic Chronic 3
Carc. 2
Eye Irrit. 2
Flam. Liq. 2
STOT RE 2

ACUTE TOXICITY - Category 4
SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
CARCINOGENICITY - Category 2
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
FLAMMABLE LIQUIDS - Category 2
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2

Date of issue/ Date of revision : 02/11/2020
Date of previous issue : 26/02/2018
Version : 3

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