1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

<table>
<thead>
<tr>
<th>Product name</th>
<th>p-Xylene</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Number</td>
<td>95680</td>
</tr>
<tr>
<td>Brand</td>
<td>Sigma-Aldrich</td>
</tr>
<tr>
<td>Index-No.</td>
<td>601-022-00-9</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>106-42-3</td>
</tr>
</tbody>
</table>

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

<table>
<thead>
<tr>
<th>Company</th>
<th>Sigma-Aldrich</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>3050 Spruce Street SAINT LOUIS MO 63103 USA</td>
</tr>
<tr>
<td>Telephone</td>
<td>+1 800-325-5832</td>
</tr>
<tr>
<td>Fax</td>
<td>+1 800-325-5052</td>
</tr>
</tbody>
</table>

1.4 Emergency telephone number

Emergency Phone #: +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
- Flammable liquids (Category 3), H226
- Acute toxicity, Inhalation (Category 4), H332
- Acute toxicity, Dermal (Category 4), H312
- Skin irritation (Category 2), H315
- Acute aquatic toxicity (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word: Warning

Hazard statement(s)
- H226: Flammable liquid and vapour.
- H312 + H332: Harmful in contact with skin or if inhaled
- H315: Causes skin irritation.
- H401: Toxic to aquatic life.

Precautionary statement(s)
- P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P233: Keep container tightly closed.
- P240: Ground/bond container and receiving equipment.
2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Synonyms : 1,4-Dimethylbenzene

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>p-Xylene</td>
<td>Flam. Liq. 3;</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td></td>
<td>Acute Tox. 4;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin Irrit. 2;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aquatic Acute 2;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H226, H312 + H332, H315, H401</td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

**Components with workplace control parameters**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>p-Xylene</td>
<td>106-42-3</td>
<td>TWA</td>
<td>100.000000 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Remarks: Eye &amp; Upper Respiratory Tract irritation</td>
</tr>
<tr>
<td>Substance</td>
<td>STEL</td>
<td>Value</td>
<td>Source</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>------</td>
<td>-------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>Central Nervous System impairment</td>
<td>STEL</td>
<td>150.000000 ppm</td>
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<th>Source</th>
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<th>TWA</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Nervous System impairment</td>
<td>TWA</td>
<td>435.000000 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
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<td>TWA</td>
<td>435.000000 ppm</td>
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</tr>
</tbody>
</table>

The value in mg/m3 is approximate.
### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>p-Xylene</td>
<td>106-42-3</td>
<td>Methylhippuric acids</td>
<td>1.5g/g creatinine</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
</tbody>
</table>

**Remarks**
- End of shift (As soon as possible after exposure ceases)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th>1,500,000 0 mg/g</th>
<th>Urine</th>
<th>ACGIH - Biological Exposure Indices (BEI)</th>
</tr>
</thead>
</table>

**Remarks**
- End of shift (As soon as possible after exposure ceases)

### 8.2 Exposure controls

**Appropriate engineering controls**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Personal protective equipment**

**Eye/face protection**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Full contact**
- Material: Fluorinated rubber
- Minimum layer thickness: 0.7 mm
- Break through time: 480 min
- Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

**Splash contact**
- Material: Nitrile rubber
- Minimum layer thickness: 0.4 mm
- Break through time: 30 min
- Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Body Protection**
Complete suit protecting against chemicals. Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance
   Form: liquid, clear
   Colour: colourless

b) Odour
   No data available

c) Odour Threshold
   No data available

d) pH
   No data available

e) Melting point/freezing point
   13.0 °C (55.4 °F)

f) Initial boiling point and boiling range
   137.0 - 138.0 °C (278.6 - 280.4 °F)

g) Flash point
   25.0 °C (77.0 °F) - closed cup

h) Evaporation rate
   No data available

i) Flammability (solid, gas)
   No data available

j) Upper/lower flammability or explosive limits
   Upper explosion limit: 7 %(V)
   Lower explosion limit: 1.1 %(V)

k) Vapour pressure
   21.3 hPa (16.0 mmHg) at 37.7 °C (99.9 °F)
   12.0 hPa (9.0 mmHg) at 20.0 °C (68.0 °F)

l) Vapour density
   No data available

m) Relative density
   0.86 g/cm3

n) Water solubility
   0.2 g/l

o) Partition coefficient: n-octanol/water
   log Pow: 3.15

p) Auto-ignition temperature
   529.0 °C (984.2 °F)

q) Decomposition temperature
   No data available

r) Viscosity
   No data available

s) Explosive properties
   No data available

t) Oxidizing properties
   No data available

9.2 Other safety information

Surface tension
   28.3 mN/m at 20.0 °C (68.0 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
   No data available

10.2 Chemical stability
   Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
   Vapours may form explosive mixture with air.

10.4 Conditions to avoid
   Heat, flames and sparks.
10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 5,000 mg/kg
LD50 Oral - Rat - male - 3,523 mg/kg
LC50 Inhalation - Rat - 4 h - 4550 ppm
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Moderate skin irritation - 4 h

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (p-Xylene)
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
May cause reproductive disorders.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: ZE2625000
narcosis, Lung irritation, chest pain, pulmonary edema, Central nervous system depression, Gastrointestinal disturbance, Liver injury may occur, Kidney injury may occur, Blood disorders
Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Toxicity to fish
- LC50 - Oncorhynchus mykiss (rainbow trout) - 2.60 mg/l - 96 h
- LC50 - Carassius auratus (goldfish) - 18.00 mg/l - 24 h

Toxicity to daphnia and other aquatic invertebrates
- EC50 - Daphnia magna (Water flea) - 35.50 - 63.10 mg/l - 48 h

Toxicity to algae
- EC50 - Pseudokirchneriella subcapitata (green algae) - 3.20 - 4.40 mg/l - 72 h

12.2 Persistence and degradability
Biodegradability Result: 87.8 % - Readily biodegradable

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
- UN number: 1307
- Class: 3
- Packing group: III
- Proper shipping name: Xylenes
- Reportable Quantity (RQ): 100 lbs
- Poison Inhalation Hazard: No

IMDG
- UN number: 1307
- Class: 3
- Packing group: III
- Proper shipping name: XYLENES
- EMS-No: F-E, S-D

IATA
- UN number: 1307
- Class: 3
- Packing group: III
- Proper shipping name: Xylenes

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>p-Xylene</td>
<td>106-42-3</td>
<td>2007-07-01</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard
California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

| Acute Tox. | Acute toxicity |
| Aquatic Acute | Acute aquatic toxicity |
| Flam. Liq. | Flammable liquids |
| H226 | Flammable liquid and vapour. |
| H312 | Harmful in contact with skin. |
| H312 + H332 | Harmful in contact with skin or if inhaled |
| H315 | Causes skin irritation. |
| H332 | Harmful if inhaled. |

HMIS Rating
Health hazard: 1
Chronic Health Hazard: *
Flammability: 3
Physical Hazard 0

NFPA Rating
Health hazard: 1
Fire Hazard: 3
Reactivity Hazard: 0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956
Version: 3.9 Revision Date: 05/23/2016 Print Date: 10/12/2016