

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Xylene (isomers) ≥97 %, for synthesis

article number: **2662**
Version: **1.0 en**

date of compilation: 2016-06-28

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

1.1 Product identifier

| | |
|---------------------------------|------------------------------------|
| Identification of the substance | Xylene (isomers) |
| Article number | 2662 |
| Registration number (REACH) | This information is not available. |
| Index No | 601-022-00-9 |
| EC number | 215-535-7 |
| CAS number | 1330-20-7 |

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

Identified uses: laboratory chemical

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0

Telefax: +49 (0) 721 - 56 06 149

e-mail: sicherheit@carlroth.de

Website: www.carlroth.de

Competent person responsible for the safety data sheet : Department Health, Safety and Environment

e-mail (competent person) : sicherheit@carlroth.de

1.4 Emergency telephone number

Emergency information service **Poison Centre Munich: +49/(0)89 19240**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

| Classification acc. to GHS | | | |
|----------------------------|---|---------------------------|------------------|
| Section | Hazard class | Hazard class and category | Hazard statement |
| 2.6 | flammable liquid | (Flam. Liq. 3) | H226 |
| 3.1D | acute toxicity (dermal) | (Acute Tox. 4) | H312 |
| 3.1I | acute toxicity (inhal.) | (Acute Tox. 4) | H332 |
| 3.2 | skin corrosion/irritation | (Skin Irrit. 2) | H315 |
| 3.3 | serious eye damage/eye irritation | (Eye Irrit. 2) | H319 |
| 3.8R | specific target organ toxicity - single exposure (respiratory tract irritation) | (STOT SE 3) | H335 |

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| Classification acc. to GHS | | | |
|----------------------------|--|---------------------------|------------------|
| Section | Hazard class | Hazard class and category | Hazard statement |
| 3.9 | specific target organ toxicity - repeated exposure | (STOT RE 2) | H373 |
| 3.10 | aspiration hazard | (Asp. Tox. 1) | H304 |

Remarks

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word

Danger

Pictograms



Hazard statements

| | |
|-----------|--|
| H226 | Flammable liquid and vapour. |
| H304 | May be fatal if swallowed and enters airways. |
| H312+H332 | Harmful in contact with skin or if inhaled. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H335 | May cause respiratory irritation. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |

Precautionary statements

Precautionary statements - prevention

| | |
|------|---|
| P210 | Keep away from heat, hot surfaces, sparks, open flames. No smoking. |
| P260 | Do not breathe mist/vapours/spray. |

Precautionary statements - response

| | |
|-----------|--|
| P301+P310 | IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician. |
| P302+P352 | IF ON SKIN: Wash with plenty of soap and water. |
| P331 | Do NOT induce vomiting. |

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



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| | |
|-------------------|---|
| H304 | May be fatal if swallowed and enters airways. |
| P301+P310 P331 | IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician. Do NOT induce vomiting. |

2.3 Other hazards

There is no additional information.

SECTION 3: Composition/information on ingredients

3.1 Substances

| | |
|-------------------|------------------|
| Name of substance | Xylene (isomers) |
| Index No | 601-022-00-9 |
| EC number | 215-535-7 |
| CAS number | 1330-20-7 |
| Molecular formula | C_8H_{10} |
| Molar mass | 106,2 g/mol |

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off immediately all contaminated clothing. Symptoms can occur only after several hours.

Following inhalation

Provide fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

Following skin contact

Gently wash with plenty of soap and water. In case of extensive skin contact serious poisoning possible. Call a physician in any case.

Following eye contact

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. Consult an ophthalmologist.

Following ingestion

Rinse mouth immediately and drink plenty of water. Observe aspiration hazard if vomiting occurs. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Irritation, Cough, Headache, Impairment of vision, Dizziness, Vertigo, Nausea, Vomiting, Diarrhoea, Breathing difficulties, Unconsciousness, Aspiration hazard

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4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings
water spray, foam, dry extinguishing powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible. Vapours can form explosive mixtures with air.

Hazardous combustion products

In case of fire may be liberated: carbon monoxide (CO), carbon dioxide (CO₂)

5.3 Advice for firefighters

Vapours are heavier than air. Beware of reignition. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray. Use personal protective equipment as required. Avoidance of ignition sources.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Explosive properties.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains.

Advices on how to clean up a spill

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8.
Incompatible materials: see section 10. Disposal considerations: see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provide adequate ventilation as well as local exhaust at critical locations. Avoid exposure. When not in use, keep containers tightly closed.

- Measures to prevent fire as well as aerosol and dust generation



Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge.

Advice on general occupational hygiene

Do not to eat, drink and smoke in work areas. Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

Ground/bond container and receiving equipment.

- Ventilation requirements

Use local and general ventilation.

- Specific designs for storage rooms or vessels

Recommended storage temperature: 15 - 25 °C.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

| Country | Name of agent | CAS No | Identifier | TWA [ppm] | TWA [mg/m ³] | STEL [ppm] | STEL [mg/m ³] | Source |
|---------|----------------------------|-----------|------------|-----------|--------------------------|------------|---------------------------|------------|
| EU | xylene | 1330-20-7 | IOELV | 50 | 221 | 100 | 442 | 2000/39/EC |
| GB | xylene, mixture of isomers | 1330-20-7 | WEL | 50 | 220 | 100 | 441 | EH40/2005 |

Notation

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period unless otherwise specified

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average

Biological limit values

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| Country | Name of agent | Parameter | Identifier | Value | Material | Source |
|---------|---------------|----------------------|------------|--------------|----------|-----------|
| GB | xylene | methylhippuric acids | BMGV | 650 mmol/mol | urine | EH40/2005 |

Relevant DNELs/DMELs/PNECs and other threshold levels

• human health values

| Endpoint | Threshold level | Protection goal, route of exposure | Used in | Exposure time |
|----------|-----------------------|------------------------------------|-------------------|----------------------------|
| DNEL | 289 mg/m ³ | human, inhalatory | worker (industry) | acute - local effects |
| DNEL | 289 mg/m ³ | human, inhalatory | worker (industry) | acute - systemic effects |
| DNEL | 180 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| DNEL | 77 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |

• environmental values

| Endpoint | Threshold level | Environmental compartment |
|----------|-----------------|------------------------------|
| PNEC | 0,327 mg/l | freshwater |
| PNEC | 0,327 mg/l | marine water |
| PNEC | 6,58 mg/l | sewage treatment plant (STP) |
| PNEC | 12,46 mg/kg | freshwater sediment |
| PNEC | 12,46 mg/kg | marine sediment |
| PNEC | 2,31 mg/kg | soil |

8.2 Exposure controls

Individual protection measures (personal protective equipment)



Eye/face protection

Use safety goggle with side protection.

Skin protection

• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

• type of material

FKM (fluoro rubber)

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- **material thickness**

0,4 mm.

- **breakthrough times of the glove material**

>480 minutes (permeation: level 6)

- **other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection

Respiratory protection necessary at: Aerosol or mist formation. Type: A (against organic gases and vapours with a boiling point of > 65 °C , colour code: Brown).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

| | |
|-----------------|-------------------|
| Physical state | liquid (fluid) |
| Colour | colourless |
| Odour | characteristic |
| Odour threshold | No data available |

Other physical and chemical parameters

| | |
|---|--|
| pH (value) | This information is not available. |
| Melting point/freezing point | <-25 °C |
| Initial boiling point and boiling range | 138 - 144 °C |
| Flash point | 24 - 30 °C (c.c.) |
| Evaporation rate | no data available |
| Flammability (solid, gas) | not relevant (fluid) |
| <u>Explosive limits</u> | |
| • lower explosion limit (LEL) | 1 vol% |
| • upper explosion limit (UEL) | 8 vol% |
| Explosion limits of dust clouds | not relevant |
| Vapour pressure | 8 hPa at 20 °C |
| Density | 0,87 g/cm ³ at 20 °C |
| Vapour density | 3,66 (air = 1) |
| Bulk density | Not applicable |
| Relative density | Information on this property is not available. |

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Solubility(ies)

Water solubility ~ 0,2 g/l at 25 °C

Partition coefficient

n-octanol/water (log KOW) 3,16 (exp. Lit.)
(TOXNET)

Soil organic carbon/water (log KOC) 2,73 (ECHA)

Auto-ignition temperature 465 - 540 °C

Decomposition temperature no data available

Viscosity

• kinematic viscosity <0,9 mm²/s at 20 °C

• dynamic viscosity 0,61 mPa s at 20 °C

Explosive properties none

Oxidising properties none

9.2 Other information

Temperature class (EU, acc. to ATEX) T1 (Maximum permissible surface temperature on the equipment: 450°C)

SECTION 10: Stability and reactivity

10.1 Reactivity

risk of ignition. Vapours can form explosive mixtures with air.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Violent reaction with: Oxidisers, Nitric acid, Sulphuric acid, Sulphur

10.4 Conditions to avoid

Keep away from heat.

10.5 Incompatible materials

plastic and rubber

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

| Exposure route | Endpoint | Value | Species | Source |
|--------------------|----------|--------------|---------|--------|
| inhalation: vapour | LC50 | 21,7 mg/l/4h | rat | GESTIS |
| oral | LD50 | 4.300 mg/kg | rat | TOXNET |
| dermal | LD50 | 1.700 mg/kg | rabbit | TOXNET |

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

• Specific target organ toxicity - single exposure

May cause respiratory irritation.

• Specific target organ toxicity - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

diarrhoea, vomiting, aspiration hazard

• If in eyes

Causes serious eye irritation

• If inhaled

irritant effects, cough, breathing difficulties, pulmonary oedema

• If on skin

causes skin irritation, risk of absorption via the skin

Other information

Other adverse effects: Headache, Impairment of vision, Dizziness, Vertigo, Nausea, Dyspnoea, Unconsciousness, Liver and kidney damage, Symptoms can occur only after several hours

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SECTION 12: Ecological information

12.1 Toxicity

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

| Endpoint | Value | Species | Source | Exposure time |
|----------|----------|-------------------------------------|--------|---------------|
| EC50 | 1,1 mg/l | daphnia magna | ECHA | 24 h |
| LC50 | 2,6 mg/l | rainbow trout (Oncorhynchus mykiss) | ECHA | 96 h |

Aquatic toxicity (chronic)

| Endpoint | Value | Species | Source | Exposure time |
|----------|-----------|---------------------------------|--------|---------------|
| ErC50 | 4,36 mg/l | algae | ECHA | 73 h |
| EC50 | 2,2 mg/l | Pseudokirchneriella subcapitata | ECHA | 73 h |
| EC50 | >157 mg/l | microorganisms | ECHA | 3 h |
| NOEC | 1,17 mg/l | Ceriodaphnia dubia | ECHA | 7 d |
| NOEC | 0,44 mg/l | Pseudokirchneriella subcapitata | ECHA | 73 h |

12.2 Process of degradability

The substance is readily biodegradable.
Theoretical Oxygen Demand: 3,125 mg/g
Theoretical Carbon Dioxide: 3,316 mg/mg

12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

n-octanol/water (log KOW) 3,16
BCF <12,2

12.4 Mobility in soil

Henry's law constant 665 Pa m³/mol at 25 °C
The Organic Carbon normalised adsorption coefficient 2,73

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Hazardous to water.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

| | | |
|------|---|--|
| 14.1 | UN number | 1307 |
| 14.2 | UN proper shipping name | XYLENES |
| | Hazardous ingredients | Xylene (isomers) |
| 14.3 | Transport hazard class(es) | |
| | Class | 3 (flammable liquids) |
| 14.4 | Packing group | III (substance presenting low danger) |
| 14.5 | Environmental hazards | none (non-environmentally hazardous acc. to the dangerous goods regulations) |
| 14.6 | Special precautions for user | |
| | Provisions for dangerous goods (ADR) should be complied within the premises. | |
| 14.7 | Transport in bulk according to Annex II of MARPOL and the IBC Code | |
| | The cargo is not intended to be carried in bulk. | |
| 14.8 | Information for each of the UN Model Regulations | |
| | • Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) | |
| | UN number | 1307 |
| | Proper shipping name | XYLENES |
| | Particulars in the transport document | UN1307, XYLENES, 3, III, (D/E) |
| | Class | 3 |
| | Classification code | F1 |
| | Packing group | III |
| | Danger label(s) | 3 |

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| | |
|---|------------------------------------|
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 5 L |
| Transport category (TC) | 3 |
| Tunnel restriction code (TRC) | D/E |
| Hazard identification No | 30 |
| Emergency Action Code | 3YE |
| • International Maritime Dangerous Goods Code (IMDG) | |
| UN number | 1307 |
| Proper shipping name | XYLENES |
| Particulars in the shipper's declaration | UN1307, XYLENES, 3, III, 24°C c.c. |
| Class | 3 |
| Packing group | III |
| Danger label(s) | 3 |



| | |
|--------------------------|----------|
| Special provisions (SP) | 223 |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 5 L |
| EmS | F-E, S-D |
| Stowage category | A |

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

- **Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)**
Not listed.
- **Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)**
Not listed.

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SECTION 16: Other information

Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|------------|---|
| 2000/39/EC | Commission Directive establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC |
| ADN | Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways) |
| ADR | Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road) |
| BCF | BioConcentration Factor |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| CLP | Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures |
| CMR | Carcinogenic, Mutagenic or toxic for Reproduction |
| DMEL | Derived Minimal Effect Level |
| DNEL | Derived No-Effect Level |
| EH40/2005 | EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/) |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| IMDG | International Maritime Dangerous Goods Code |
| index No | the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008 |
| IOELV | indicative occupational exposure limit value |
| MARPOL | International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant") |
| NLP | No-Longer Polymer |
| PBT | Persistent, Bioaccumulative and Toxic |
| PNEC | Predicted No-Effect Concentration |
| ppm | parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| RID | Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail) |
| STEL | short-term exposure limit |
| TWA | time-weighted average |
| VOC | Volatile Organic Compounds |
| vPvB | very Persistent and very Bioaccumulative |
| WEL | workplace exposure limit |

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Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

| Code | Text |
|------|---|
| H226 | flammable liquid and vapour |
| H304 | may be fatal if swallowed and enters airways |
| H312 | harmful in contact with skin |
| H315 | causes skin irritation |
| H319 | causes serious eye irritation |
| H332 | harmful if inhaled |
| H335 | may cause respiratory irritation |
| H373 | may cause damage to organs through prolonged or repeated exposure |

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.