

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 28.02.2024

Version number 4 (replaces version 3)

Revision: 23.12.2023

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

1.1 Product identifier**Trade name:** 2,3',4,5'-Tetrachlorobiphenyl Standard (BZ-68) (1X2 mL)**Part number:** RPC-188AS**1.2 Relevant identified uses of the substance or mixture and uses advised against**
Reagents and Standards for Analytical Chemical Laboratory Use**1.3 Details of the supplier of the safety data sheet****Manufacturer/Supplier:**Agilent Technologies Deutschland GmbH
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany**Further information obtainable from:**Telephone: 0800 603 1000
pdl-msds_author@agilent.com**1.4 Emergency telephone number:** CHEMTREC®: +(44)-870-8200418

2 Hazards identification

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

GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



GHS08 health hazard

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

2.2 Label elements**Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

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· **Hazard pictograms**



· **Signal word** Danger

· **Hazard-determining components of labelling:**

2,2,4-trimethylpentane

· **Hazard statements**

H225 Highly flammable liquid and vapour.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

H304 May be fatal if swallowed and enters airways.

H410 Very toxic to aquatic life with long lasting effects.

· **Precautionary statements**

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

P103 Read carefully and follow all instructions.

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof [electrical/ventilating/lighting] equipment.

P242 Use non-sparking tools.

P243 Take action to prevent static discharges.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P321 Specific treatment (see on this label).

P331 Do NOT induce vomiting.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312 Call a POISON CENTER/doctor if you feel unwell.

P362+P364 Take off contaminated clothing and wash it before reuse.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P370+P378 In case of fire: Use CO₂, powder or water spray to extinguish.

P391 Collect spillage.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P403+P235 Store in a well-ventilated place. Keep cool.

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.

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· vPvB: Not applicable.

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3 Composition/information on ingredients

· **3.2 Mixtures**· **Description:** Mixture of substances listed below with nonhazardous additions.· **Dangerous components:**

| | | |
|-------------------|--|----------|
| CAS: 540-84-1 | 2,2,4-trimethylpentane | 99.9855% |
| EINECS: 208-759-1 |  Flam. Liq. 2, H225;  Asp. Tox. 1, H304;  Aquatic Acute 1, H400;  Aquatic Chronic 1, H410;  Skin Irrit. 2, H315; STOT SE 3, H336 | |

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First aid measures

· **4.1 Description of first aid measures**· **General information:** Immediately remove any clothing soiled by the product.· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.· **After eye contact:** Rinse opened eye for several minutes under running water.· **After swallowing:** If symptoms persist consult doctor.· **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.

5 Firefighting measures

· **5.1 Extinguishing media**· **Suitable extinguishing agents:**CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.· **For safety reasons unsuitable extinguishing agents:** Water with full jet· **5.2 Special hazards arising from the substance or mixture** No further relevant information available.· **5.3 Advice for firefighters**· **Protective equipment:** No special measures required.

6 Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

· **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).

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.

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See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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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 ignition sources away - Do not smoke.
Protect against electrostatic charges.

· 7.2 Conditions for safe storage, including any incompatibilities**· Storage:****· Requirements to be met by storerooms and receptacles:** Store in a cool location.**· Information about storage in one common storage facility:** Not required.**· Further information about storage conditions:**

Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.

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

8 Exposure controls/personal protection

· 8.1 Control parameters**· Ingredients with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· Additional information: The lists valid during the making were used as basis.**· 8.2 Exposure controls****· Appropriate engineering controls** No further data; see item 7.**· Individual protection measures, such as 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 skin.
Avoid contact with the eyes and skin.

· Respiratory protection:

When used as intended with Agilent instruments the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.

Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device equipment with appropriate organic or acid gas cartridge.

· Hand protection

Although not recommended for constant contact with the chemicals or for clean up, nitrile gloves 11-13mil thickness are recommended for normal use. The breakthrough time is 1hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.

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- **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness
- **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: > 4 hours
- **Eye/face protection**



Tightly sealed goggles

9 Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

| | |
|---|-----------------------------------|
| · Physical state | Fluid |
| · Colour: | Colourless |
| · Odour: | Nearly odourless |
| · Odour threshold: | Not determined. |
| · Melting point/freezing point: | -107 °C |
| · Boiling point or initial boiling point and boiling range | 99 °C |
| · Flammability | Highly flammable. |
| · Lower and upper explosion limit | |
| · Lower: | 1.1 Vol % |
| · Upper: | 6 Vol % |
| · Flash point: | -12 °C |
| · Ignition temperature: | 410 °C |
| · Decomposition temperature: | Not determined. |
| · pH | Not determined. |
| · Viscosity: | |
| · Kinematic viscosity | Not determined. |
| · Dynamic: | Not determined. |
| · Solubility | |
| · water: | Not miscible or difficult to mix. |
| · Partition coefficient n-octanol/water (log value) | Not determined. |
| · Vapour pressure at 20 °C: | 41.25 hPa |
| · Density and/or relative density | |
| · Density at 20 °C: | 0.692 g/cm ³ |
| · Relative density | Not determined. |
| · Vapour density | Not determined. |

· 9.2 Other information

| | |
|--|------------------------------|
| · Appearance: | |
| · Form: | Fluid |
| · Important information on protection of health and environment, and on safety. | |
| · Auto-ignition temperature: | Product is not selfigniting. |

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| | |
|--|---|
| · Explosive properties: | Product is not explosive. However, formation of explosive air/vapour mixtures are possible. |
| · Solvent content: | |
| · Organic solvents: | 100.0 % |
| · VOC (EC) | 99.99 % |
| · Molecular weight | 114.23 g/mol |
| · Change in condition | |
| · Evaporation rate | Not determined. |
| · Information with regard to physical hazard classes | |
| · Explosives | Void |
| · Flammable gases | Void |
| · Aerosols | Void |
| · Oxidising gases | Void |
| · Gases under pressure | Void |
| · Flammable liquids | Highly flammable liquid and vapour. |
| · Flammable solids | Void |
| · Self-reactive substances and mixtures | Void |
| · Pyrophoric liquids | Void |
| · Pyrophoric solids | Void |
| · Self-heating substances and mixtures | Void |
| · Substances and mixtures, which emit flammable gases in contact with water | Void |
| · Oxidising liquids | Void |
| · Oxidising solids | Void |
| · Organic peroxides | Void |
| · Corrosive to metals | Void |
| · Desensitised explosives | Void |

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:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values relevant for classification:**

540-84-1 2,2,4-trimethylpentane

| | | |
|------------|----------|-----------------------|
| Oral | LD50 | >5,000 mg/kg (rat) |
| Dermal | LD50 | >2,000 mg/kg (rabbit) |
| Inhalative | LC50/4 h | >33.52 mg/L (rat) |

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- **Skin corrosion/irritation** Causes skin irritation.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **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.
- **STOT-single exposure** May cause drowsiness or dizziness.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** May be fatal if swallowed and enters airways.

11.2 Information on other hazards
· Endocrine disrupting properties

None of the ingredients is listed.

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.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
- **12.7 Other adverse effects**
- **Remark:** Very 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.
Danger to drinking water if even small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Very toxic for aquatic organisms

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

| | |
|------|---|
| HP3 | Flammable |
| HP4 | Irritant - skin irritation and eye damage |
| HP5 | Specific Target Organ Toxicity (STOT)/Aspiration Toxicity |
| HP14 | Ecotoxic |

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

14 Transport information

| | |
|---|--|
| <ul style="list-style-type: none"> · 14.1 UN number or ID number · ADR, IMDG, IATA | UN1262 |
| <ul style="list-style-type: none"> · 14.2 UN proper shipping name · ADR · IMDG · IATA | 1262 OCTANES mixture, ENVIRONMENTALLY HAZARDOUS OCTANES mixture, MARINE POLLUTANT OCTANES mixture |
| <ul style="list-style-type: none"> · 14.3 Transport hazard class(es) · ADR, IMDG | <div style="display: flex; align-items: center; gap: 10px;">   </div> <ul style="list-style-type: none"> · Class · Label |
| <ul style="list-style-type: none"> · IATA | <div style="display: flex; align-items: center; gap: 10px;">  </div> <ul style="list-style-type: none"> · Class · Label |
| <ul style="list-style-type: none"> · 14.4 Packing group · ADR, IMDG, IATA | II |
| <ul style="list-style-type: none"> · 14.5 Environmental hazards: · Marine pollutant: · Special marking (ADR): | Product contains environmentally hazardous substances: 2,2,4-trimethylpentane Symbol (fish and tree) Symbol (fish and tree) |
| <ul style="list-style-type: none"> · 14.6 Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Stowage Category | Warning: Flammable liquids. 33 F-E,S-E B |
| <ul style="list-style-type: none"> · 14.7 Maritime transport in bulk according to IMO instruments | Not applicable. |
| <ul style="list-style-type: none"> · Transport/Additional information: | <hr style="border-top: 1px dashed black;"/> <ul style="list-style-type: none"> · ADR · Limited quantities (LQ) |
| <ul style="list-style-type: none"> · Limited quantities (LQ) | IL |

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| | |
|---|---|
| · Excepted quantities (EQ) | Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml |
| · Transport category | 2 |
| · Tunnel restriction code | D/E |
| <hr style="border-top: 1px dashed black;"/> | |
| · IMDG | |
| · 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 1262 OCTANES MIXTURE, 3, II, ENVIRONMENTALLY HAZARDOUS |

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** None of the ingredients is listed.
- **Seveso category**
E1 Hazardous to the Aquatic Environment
P5c FLAMMABLE LIQUIDS
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

· **REGULATION (EU) 2019/1148**

· **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

None of the ingredients is listed.

· **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

None of the ingredients is listed.

· **Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.

· **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.

- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

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· Relevant phrases

- H225 Highly flammable liquid and vapour.
- H304 May be fatal if swallowed and enters airways.
- H315 Causes skin irritation.
- H336 May cause drowsiness or dizziness.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.

· Department issuing SDS: Document Control / Regulatory**· Contact:** pdl-acg-regulatory-cq@agilent.com**· Version number of previous version:** 3**· Abbreviations and acronyms:**

- ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- GHS: Globally Harmonised System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- 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
- Flam. Liq. 2: Flammable liquids – Category 2
- Skin Irrit. 2: Skin corrosion/irritation – Category 2
- STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
- Asp. Tox. 1: Aspiration hazard – Category 1
- Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
- Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

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