1 Identification

- Product identifier
- Trade name: 2,2',4,5,5'-Pentachlorobiphenyl Standard (BZ-101) (1X2 mL)
- Part number: RPC-039S
- Application of the substance / the mixture Reagents and Standards for Analytical Chemical Laboratory Use
- Details of the supplier of the safety data sheet
  - Manufacturer/Supplier:
    Agilent Technologies, Inc.
    5301 Stevens Creek Blvd.
    Santa Clara, CA 95051 USA
  - Information department:
    Telephone: 800-227-9770
e-mail: pdl-msds_author@agilent.com
  - Emergency telephone number: CHEMTREC®: 1-800-424-9300

2 Hazard(s) identification

- Classification of the substance or mixture
  - GHS02 Flame
    Flam. Liq. 2 H225 Highly flammable liquid and vapor.
  - GHS08 Health hazard
    Repr. 2 H361 Suspected of damaging fertility or the unborn child.
    STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.
    Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.
  - GHS07
    Skin Irrit. 2 H315 Causes skin irritation.
    STOT SE 3 H336 May cause drowsiness or dizziness.

- Label elements
  - GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
  - Hazard pictograms
    - GHS02
    - GHS07
    - GHS08

- Signal word Danger

- Hazard-determining components of labeling:
  - n-hexane
- Hazard statements
  - Highly flammable liquid and vapor.

(Contd. on page 2)
Causes skin irritation.
Suspected of damaging fertility or the unborn child.
May cause drowsiness or dizziness.
May cause damage to organs through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.

· **Precautionary statements**
  
  Obtain special instructions before use.
  
  Do not handle until all safety precautions have been read and understood.
  
  Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  
  Ground/bond container and receiving equipment.
  
  Use explosion-proof electrical/ventilating/lighting/equipment.
  
  Use only non-sparking tools.
  
  Take precautionary measures against static discharge.
  
  Do not breathe dust/fume/gas/mist/vapors/spray.
  
  Wash thoroughly after handling.
  
  Use only outdoors or in a well-ventilated area.
  
  Wear protective gloves/protective clothing/eye protection/face protection.
  
  If swallowed: Immediately call a poison center/doctor.
  
  Specific treatment (see on this label).
  
  Do NOT induce vomiting.
  
  If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  
  IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  
  IF exposed or concerned: Get medical advice/attention.
  
  Call a poison center/doctor if you feel unwell.
  
  Get medical advice/attention if you feel unwell.
  
  Take off contaminated clothing and wash it before reuse.
  
  If skin irritation occurs: Get medical advice/attention.
  
  In case of fire: Use for extinction: CO2, powder or water spray.
  
  Store in a well-ventilated place. Keep container tightly closed.
  
  Store in a well-ventilated place. Keep cool.
  
  Store locked up.
  
  Dispose of contents/container in accordance with local/regional/national/international regulations.
  
  **Classification system:**
  
  **NFPA ratings (scale 0 - 4)**
  
  ![Health: 1, Fire: 3, Reactivity: 0]
  
  **HMIS-ratings (scale 0 - 4)**
  
  ![Health: 1, Fire: 3, Reactivity: 0]
  
  **Other hazards**
  
  **Results of PBT and vPvB assessment**
  
  **PBT:** Not applicable.
  
  **vPvB:** Not applicable.
3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

3.2. Composition/impurities

3.2.1. Dangerous components:

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>110-54-3</td>
<td>n-hexane</td>
<td>99.985%</td>
</tr>
</tbody>
</table>

4 First-aid measures

- Description of first aid measures
- General information:
  Immediately remove any clothing soiled by the product.
  Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- After skin contact: Immediately wash with water and soap and rinse thoroughly.
- After eye contact: Rinse opened eye for several minutes under running water.
- After swallowing: If symptoms persist consult doctor.
- Information for doctor:
  Most important symptoms and effects, both acute and delayed: No further relevant information available.
  Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents:
  CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- For safety reasons unsuitable extinguishing agents: Water with full jet
- Special hazards arising from the substance or mixture
  During heating or in case of fire poisonous gases are produced.
- Advice for firefighters
  Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  Mount respiratory protective device.
  Wear protective equipment. Keep unprotected persons away.
- Environmental precautions: Do not allow to enter sewers/ surface or ground water.
- 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.
- Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.
Safety Data Sheet
acc. to OSHA HCS

贸易名称：2,2',4,5,5'-五氯联苯标准 (BZ-101) (1X2 mL)

7 Handling and storage

- Handling:
- Precautions for safe handling
  保证良好的通风/排风，确保工作场所的空气流通。
  打开和处理容器时应小心。
  防止形成气溶胶。
- Information about protection against explosions and fires:
  保持点火源远离-禁止吸烟。
  防护静电。
  保持呼吸防护设备可用。
- Conditions for safe storage, including any incompatibilities
- Storage:
  - Requirements to be met by storerooms and receptacles: 存储在凉爽的位置。
  - Information about storage in one common storage facility: 不必。
  - Further information about storage conditions:
    - 保持容器紧密密封。
    - 存放在干燥的环境中，密封容器。
  - Specific end use(s): 没有进一步的相关信息可用。

8 Exposure controls/personal protection

- Additional information about design of technical systems: 没有进一步的数据；见7项。
- Control parameters

  - Components with limit values that require monitoring at the workplace:
    - 110-54-3 n-hexane
      - PEL 长期值：1800 mg/m³，500 ppm
      - REL 长期值：180 mg/m³，50 ppm
      - TLV 长期值：176 mg/m³，50 ppm
      - Skin; BEI

  - Ingredients with biological limit values:
    - 110-54-3 n-hexane
      - BEI 0.4 mg/L
        - Medium: 脏器
        - Time: 工作日结束
        - Parameter: 2.5-Hexanediol 无水化
- Additional information: 列表在创建过程中使用的。

(Contd. on page 5)
Exposure controls
- Personal protective equipment:
- General protective and hygienic measures:
  Keep away from foodstuffs, beverages and feed.
  Immediately remove all soiled and contaminated clothing.
  Wash hands before breaks and at the end of work.
  Store protective clothing separately.
  Avoid contact with the skin.
  Avoid contact with the eyes and skin.
- Breathing equipment:
  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.
- Protection of hands:
  Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil
  thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is
  direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times
  exceeding 4 hrs. Supplier recommendations should be followed.
- 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 protection:
  Tightly sealed goggles

9 Physical and chemical properties

- Information on basic physical and chemical properties
- General Information
  - Appearance:
    - Form: Fluid
    - Color: Colorless
  - Odor: Characteristic
  - Odor threshold: Not determined.
- pH-value: Not determined.

- Change in condition
  - Melting point/Melting range: -95 °C (-139 °F)
  - Boiling point/Boiling range: 69 °C (156.2 °F)

- Flash point: -22 °C (-7.6 °F)
- Flammability (solid, gaseous): Not applicable.
### 48.1.26

- **Ignition temperature:** 240 °C (464 °F)
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
- **Explosion limits:**
  - Lower: 1.2 Vol %
  - Upper: 7.4 Vol %
- **Vapor pressure at 20 °C (68 °F):** 110 hPa (82.5 mm Hg)
- **Density at 20 °C (68 °F):** 0.7 g/cm³ (5.8415 lbs/gal)
  - Relative density: Not determined.
  - Vapor density: Not determined.
  - Evaporation rate: Not determined.
- **Solubility in / Miscibility with Water at 20 °C (68 °F):** 0.1 g/l
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - Dynamic: Not determined.
  - Kinematic: Not determined.
- **Solvent content:**
  - Organic solvents: 100.0 %
  - VOC content: 99.98 %
  - 999.8 g/l / 8.34 lb/gal
- **Other information**
  - No further relevant information available.

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products** No dangerous decomposition products known.

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity**:
  - **LD/LC50 values that are relevant for classification**:
    - **ATE (Acute Toxicity Estimate)**
      - Oral LD50 5,001 mg/kg (rat)
      - Dermal LD50 3,001 mg/kg (rabbit)
Primary irritant effect:
- on the skin: Irritant to skin and mucous membranes.
- on the eye: No irritating effect.
- Sensitization: No sensitizing effects known.

Additional toxicological information:
The product shows the following dangers according to internally approved calculation methods for preparations:
- Irritant

Carcinogenic categories

IARC (International Agency for Research on Cancer)
None of the ingredients is listed.

NTP (National Toxicology Program)
None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

Ecological information

Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability: No further relevant information available.

Behavior in environmental systems:
- Bioaccumulative potential: No further relevant information available.
- Mobility in soil: No further relevant information available.

Additional ecological information:

General notes:
Water hazard class 2 (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.

Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.

Other adverse effects: No further relevant information available.

Disposal considerations

Waste treatment methods

Recommendation:
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.
# 14 Transport information

- **UN-Number**
  - DOT, IMDG, IATA: UN1208

- **UN proper shipping name**
  - DOT: Hexanes solution
  - IMDG: HEXANES solution, MARINE POLLUTANT
  - IATA: HEXANES solution

- **Transport hazard class(es)**
  - DOT, IATA
    - **Class**: 3 Flammable liquids
    - **Label**: 3

- **IMDG**
  - **Class**: 3 Flammable liquids
  - **Label**: 3

- **Packing group**
  - DOT, IMDG, IATA: II

- **Environmental hazards:**
  - **Marine pollutant:** Product contains environmentally hazardous substances: n-hexane Symbol (fish and tree)

- **Special precautions for user**
  - **Warning**: Flammable liquids
  - **Danger code (Kemler)**: 33
  - **EMS Number**: F-E,S-D
  - **Stowage Category**: E

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
  - Not applicable.

- **Transport/Additional information:**
  - **DOT**
    - **Quantity limitations**
      - On passenger aircraft/rail: 5 L
      - On cargo aircraft only: 60 L

  - **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
15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Sara
    - Section 355 (extremely hazardous substances):
      None of the ingredients is listed.
    - Section 313 (Specific toxic chemical listings):
      110-54-3 n-hexane
  - TSCA (Toxic Substances Control Act):
    110-54-3 n-hexane
  - Proposition 65
    - Chemicals known to cause cancer:
      None of the ingredients is listed.
    - Chemicals known to cause reproductive toxicity for females:
      None of the ingredients is listed.
    - Chemicals known to cause reproductive toxicity for males:
      110-54-3 n-hexane
    - Chemicals known to cause developmental toxicity:
      None of the ingredients is listed.
  - Carcinogenic categories
    - EPA (Environmental Protection Agency)
      110-54-3 n-hexane II
    - TLV (Threshold Limit Value established by ACGIH)
      None of the ingredients is listed.
    - NIOSH-Ca (National Institute for Occupational Safety and Health)
      None of the ingredients is listed.
  - 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.

- Department issuing SDS: Document Control / Regulatory
- Contact: regulatory@ultrasci.com
- Date of preparation / last revision 03/30/2019 / 2
- Abbreviations and acronyms:
  ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  IMDG: International Maritime Code for Dangerous Goods
  DOT: US Department of Transportation
  IATA: International Air Transport Association
Trade name: 2,2',4,5,5'-Pentachlorobiphenyl Standard (BZ-101) (1X2 mL)

ACGIH: American Conference of Governmental Industrial Hygienists
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)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
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
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1

* Data compared to the previous version altered.