

## Safety data sheet

### SECTION 1. Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

|              |                                        |
|--------------|----------------------------------------|
| Code:        | RPC-096                                |
| Product name | 3,4,4',5-tetrachlorobiphenyl (BZ # 81) |
| INDEX number | 602-039-00-4                           |
| EC number    | 215-648-1                              |
| CAS number   | 70362-50-4                             |

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

#### 1.3. Details of the supplier of the safety data sheet

|                                                                              |                           |      |
|------------------------------------------------------------------------------|---------------------------|------|
| Name                                                                         | ULTRA Scientific, Inc.    |      |
| Full address                                                                 | 250 Smith Street          |      |
| District and Country                                                         | 02852 N. Kingstown<br>USA | (RI) |
|                                                                              | Tel. 401-294-9400         |      |
|                                                                              | Fax 401-295-2330          |      |
| e-mail address of the competent person responsible for the Safety Data Sheet | wleary@ultrasci.com       |      |
| Product distribution by                                                      | ULTRA Scientific, Inc.    |      |

#### 1.4. Emergency telephone number

|                               |                            |
|-------------------------------|----------------------------|
| For urgent inquiries refer to | US: (800) 424-9300         |
|                               | Outside US: (703) 527-3887 |

### SECTION 2. Hazards identification.

#### 2.1. Classification of the substance or mixture.

The product is classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of EC Regulation 1907/2006 and subsequent amendments.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

##### 2.1.1. Regulation 1272/2008 (CLP) and following amendments and adjustments.

Hazard classification and indication:

STOT RE 2 H373

Aquatic Acute 1 H400

Aquatic Chronic 1 H410

##### 2.1.2. 67/548/EEC and 1999/45/EC Directives and following amendments and adjustments.

Danger Symbols: N

R phrases: 33-50/53

The full wording of the Risk (R) and hazard (H) phrases is given in section 16 of the sheet.

#### 2.2. Label elements.

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:



### SECTION 2. Hazards identification. ... / >>

Signal words: Warning

Hazard statements:  
**H373** May cause damage to organs through prolonged or repeated exposure.  
**H410** Very toxic to aquatic life with long lasting effects.

Precautionary statements:  
**P273** Avoid release to the environment.  
**P314** Get medical advice / attention if you feel unwell.  
**P391** Collect spillage.  
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#### 2.3. Other hazards.

Information not available.

### SECTION 3. Composition/information on ingredients.

#### 3.1. Substances.

##### Contains:

| Identification.                     | Conc. %. | Classification 67/548/EEC. | Classification 1272/2008 (CLP).           |
|-------------------------------------|----------|----------------------------|-------------------------------------------|
| <b>3,4,4',5-tetrachlorobiphenyl</b> |          |                            |                                           |
| CAS. 70362-50-4                     | 100      | R33, N R50/53              | STOT RE 2 H373, Aquatic Acute 1 H400 M=1, |
| EC. 215-648-1                       |          |                            | Aquatic Chronic 1 H410                    |
| INDEX. 602-039-00-4                 |          |                            |                                           |

The full wording of the Risk (R) and hazard (H) phrases is given in section 16 of the sheet.

T+ = Very Toxic(T+), T = Toxic(T), Xn = Harmful(Xn), C = Corrosive(C), Xi = Irritant(Xi), O = Oxidizing(O), E = Explosive(E), F+ = Extremely Flammable(F+), F = Highly Flammable(F), N = Dangerous for the Environment(N)

#### 3.2. Mixtures.

Information not relevant.

### SECTION 4. First aid measures.

#### 4.1. Description of first aid measures.

EYES: Remove contact lenses, if present Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice

SKIN: Remove contaminated clothing. Wash immediately with plenty of water. If irritation persists, get medical advice/attention. Wash contaminated clothing before using it again.

INHALATION: Remove to open air. In the event of breathing difficulties, get medical advice/attention immediately.

INGESTION: Get medical advice/attention. Induce vomiting only if indicated by the doctor. Never give anything by mouth to an unconscious person, unless authorised by a doctor.

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

For symptoms and effects caused by the contained substances, see chap. 11.

#### 4.3. Indication of any immediate medical attention and special treatment needed.

Information not available.

### SECTION 5. Firefighting measures.

#### 5.1. Extinguishing media.

SUITABLE EXTINGUISHING EQUIPMENT  
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT  
None in particular.

#### 5.2. Special hazards arising from the substance or mixture.

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE  
Do not breathe combustion products.

### SECTION 5. Firefighting measures. ... / >>

#### 5.3. Advice for firefighters.

##### GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

##### SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

### SECTION 6. Accidental release measures.

#### 6.1. Personal precautions, protective equipment and emergency procedures.

If there are no contraindications, spray powder with water to prevent the formation of dust. Avoid breathing vapours/mists/gases.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

#### 6.2. Environmental precautions.

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

#### 6.3. Methods and material for containment and cleaning up.

Use spark-proof mechanical equipment to collect the leaked product and place it in containers for recovery or disposal. If there are no contraindications, use jets of water to eliminate product residues.

Make sure the leakage site is well aired. Check incompatibility for container material in section 7. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

#### 6.4. Reference to other sections.

Any information on personal protection and disposal is given in sections 8 and 13.

### SECTION 7. Handling and storage.

#### 7.1. Precautions for safe handling.

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

#### 7.2. Conditions for safe storage, including any incompatibilities.

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

#### 7.3. Specific end use(s).

Information not available.

### SECTION 8. Exposure controls/personal protection.

#### 8.1. Control parameters.

Information not available.

#### 8.2. Exposure controls.

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Exposure levels must be kept as low as possible to avoid significant build-up in the organism. Manage personal protective equipment so as to guarantee maximum protection (e.g. reduction in replacement times).

##### HAND PROTECTION

In the case of prolonged contact with the product, protect the hands with penetration-resistant work gloves (see standard EN 374).

Work glove material must be chosen according to the use process and the products that may form Latex gloves may cause sensitivity reactions.

##### SKIN PROTECTION

Wear category II professional long-sleeved overalls and safety footwear (see Directive 89/686/EEC and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

##### EYE PROTECTION

Wear airtight protective goggles (see standard EN 166).

##### RESPIRATORY PROTECTION

## SECTION 8. Exposure controls/personal protection. ... / >>

None required, unless indicated otherwise in the chemical risk assessment.

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

## SECTION 9. Physical and chemical properties.

### 9.1. Information on basic physical and chemical properties.

|                                        |                    |
|----------------------------------------|--------------------|
| Appearance                             | solid              |
| Colour                                 | Not available.     |
| Odour                                  | aromatic           |
| Odour threshold.                       | Not available.     |
| pH.                                    |                    |
| Melting point / freezing point.        | 157 °C.            |
| Initial boiling point.                 | Not applicable.    |
| Boiling range.                         | Not available.     |
| Flash point.                           | Not applicable.    |
| Evaporation Rate                       | Not available.     |
| Flammability of solids and gases       | Not available.     |
| Lower inflammability limit.            | Not available.     |
| Upper inflammability limit.            | Not available.     |
| Lower explosive limit.                 | Not available.     |
| Upper explosive limit.                 | Not available.     |
| Vapour pressure.                       | Not available.     |
| Vapour density                         | Not available.     |
| Relative density.                      | Not available.     |
| Solubility                             | insoluble in water |
| Partition coefficient: n-octanol/water | Not available.     |
| Auto-ignition temperature.             | Not available.     |
| Decomposition temperature.             | Not available.     |
| Viscosity                              | Not available.     |
| Explosive properties                   | Not available.     |
| Oxidising properties                   | Not available.     |

### 9.2. Other information.

|                              |   |
|------------------------------|---|
| VOC (Directive 1999/13/EC) : | 0 |
| VOC (volatile carbon) :      | 0 |

## SECTION 10. Stability and reactivity.

### 10.1. Reactivity.

There are no particular risks of reaction with other substances in normal conditions of use.

### 10.2. Chemical stability.

The product is stable in normal conditions of use and storage.

### 10.3. Possibility of hazardous reactions.

No hazardous reactions are foreseeable in normal conditions of use and storage.

### 10.4. Conditions to avoid.

None in particular. However the usual precautions used for chemical products should be respected.

### 10.5. Incompatible materials.

Information not available.

### 10.6. Hazardous decomposition products.

Information not available.

## SECTION 11. Toxicological information.

### 11.1. Information on toxicological effects.

This product may cause functional disorders or morphological mutations after repeated or prolonged exposure and/or may accumulate inside the human body and is thus graded as dangerous.

## SECTION 12. Ecological information.

This product is dangerous for the environment and highly toxic for aquatic organisms. In the long term, it have negative effects on aquatic environment.

### 12.1. Toxicity.

Information not available.

### 12.2. Persistence and degradability.

Information not available.

### 12.3. Bioaccumulative potential.

Information not available.

### 12.4. Mobility in soil.

Information not available.

### 12.5. Results of PBT and vPvB assessment.

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

### 12.6. Other adverse effects.

Information not available.

## SECTION 13. Disposal considerations.

### 13.1. Waste treatment methods.

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Avoid littering. Do not contaminate soil, sewers and waterways.

Waste transportation may be subject to ADR restrictions.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

## SECTION 14. Transport information.

These goods must be transported by vehicles authorized to the carriage of dangerous goods according to the provisions set out in the current edition of the Code of International Carriage of Dangerous Goods by Road (ADR) and in all the applicable national regulations.

These goods must be packed in their original packagings or in packagings made of materials resistant to their content and not reacting dangerously with it. People loading and unloading dangerous goods must be trained on all the risks deriving from these substances and on all actions that must be taken in case of emergency situations.

### Road and rail transport:

|                          |                                  |     |      |
|--------------------------|----------------------------------|-----|------|
| ADR/RID Class:           | 9                                | UN: | 3432 |
| Packing Group:           | II                               |     |      |
| Label:                   | 9                                |     |      |
| Nr. Kemler:              | 90                               |     |      |
| Limited Quantity:        | 1 kg                             |     |      |
| Tunnel restriction code: | (D/E)                            |     |      |
| Proper Shipping Name:    | POLYCHLORINATED BIPHENYLS, SOLID |     |      |



### Carriage by sea (shipping):

|                       |                                  |     |      |
|-----------------------|----------------------------------|-----|------|
| IMO Class:            | 9                                | UN: | 3432 |
| Packing Group:        | II                               |     |      |
| Label:                | 9                                |     |      |
| EMS:                  | F-A, S-A                         |     |      |
| Marine Pollutant:     | NO                               |     |      |
| Proper Shipping Name: | POLYCHLORINATED BIPHENYLS, SOLID |     |      |



### SECTION 14. Transport information. ... / >>

#### Transport by air:

|                         |                                  |                   |        |                                                                                    |
|-------------------------|----------------------------------|-------------------|--------|------------------------------------------------------------------------------------|
| IATA:                   | 9                                | UN:               | 3432   |                                                                                    |
| Packing Group:          | II                               |                   |        |                                                                                    |
| Label:                  | 9                                |                   |        |                                                                                    |
| Cargo:                  |                                  |                   |        |                                                                                    |
| Packaging instructions: | 956                              | Maximum quantity: | 200 Kg |  |
| Pass.:                  |                                  |                   |        |                                                                                    |
| Packaging instructions: | 956                              | Maximum quantity: | 100 Kg |                                                                                    |
| Special Instructions:   | A11                              |                   |        |                                                                                    |
| Proper Shipping Name:   | POLYCHLORINATED BIPHENYLS, SOLID |                   |        |                                                                                    |

### SECTION 15. Regulatory information.

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

Seveso category. 9i

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006.  
None.

Substances in Candidate List (Art. 59 REACH).

None.

Substances subject to authorisation (Annex XIV REACH).

None.

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None.

Substances subject to the Rotterdam Convention:

None.

Substances subject to the Stockholm Convention:

None.

Healthcare controls.

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

#### 15.2. Chemical safety assessment.

No chemical safety assessment has been processed for the mixture and the substances it contains.

### SECTION 16. Other information.

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

|                          |                                                                    |
|--------------------------|--------------------------------------------------------------------|
| <b>STOT RE 2</b>         | Specific target organ toxicity - repeated exposure, category 2     |
| <b>Aquatic Acute 1</b>   | Hazardous to the aquatic environment, acute toxicity, category 1   |
| <b>Aquatic Chronic 1</b> | Hazardous to the aquatic environment, chronic toxicity, category 1 |
| <b>H373</b>              | May cause damage to organs through prolonged or repeated exposure. |
| <b>H400</b>              | Very toxic to aquatic life.                                        |
| <b>H410</b>              | Very toxic to aquatic life with long lasting effects.              |

Text of risk (R) phrases mentioned in section 2-3 of the sheet:

|               |                                                                                                  |
|---------------|--------------------------------------------------------------------------------------------------|
| <b>R33</b>    | DANGER OF CUMULATIVE EFFECTS.                                                                    |
| <b>R50/53</b> | VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT. |

#### LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008

**SECTION 16. Other information. ... / >>**

- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation.

**GENERAL BIBLIOGRAPHY**

1. Directive 1999/45/EC and following amendments
2. Directive 67/548/EEC and following amendments and adjustments
3. Regulation (EC) 1907/2006 (REACH) of the European Parliament
4. Regulation (EC) 1272/2008 (CLP) of the European Parliament
5. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
6. Regulation (EC) 453/2010 of the European Parliament
7. Regulation (EC) 286/2011 (II Atp. CLP) of the European Parliament
8. Regulation (EC) 618/2012 (III Atp. CLP) of the European Parliament
9. The Merck Index. - 10th Edition
10. Handling Chemical Safety
11. Niosh - Registry of Toxic Effects of Chemical Substances
12. INRS - Fiche Toxicologique (toxicological sheet)
13. Patty - Industrial Hygiene and Toxicology
14. N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
15. ECHA website

**Note for users:**

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.