Not appropriate for regulatory submission. Please visit www.spectrumchemical.com or contact Tech Services for the most up-to-date information contained in this information package.
Dear Customer,

Thank you for your interest in Spectrum’s quality products and services.

Spectrum has been proudly serving the scientific community for over 45 years. It is our mission to manufacture and distribute fine chemicals and laboratory products with Quality and delivery you can count on every time.

To accomplish our mission, Spectrum utilizes our sourcing leverage and supplier qualification expertise in offering one of the industry’s most comprehensive line of fine chemical products under one brand, in packaging configurations designed to meet your research and production requirements. Our product grades include: USP, NF, BP, EP, JP, FCC, ACS, KSA, Reagent grade, as well as DEA controlled substances. We operate facilities in the United States on the East Coast, West Coast, as well as in Shanghai, China in order to provide the best logistical support for our customers.

At Spectrum, Quality is priority number one. Suppliers with the best qualifications are preferred and we employ full-functioning in-house analytical laboratories at each of our facilities. Our facilities and systems are USFDA registered and ISO certified. We frequently host customer audits and cherish opportunities for improvements. Quality is engrained into our culture. Quality is priority number one.

In the following pages, we have designed and prepared documented scientific information to aid you in your initial qualification or your continual use of our products. Please do not hesitate to contact us if further information or the most up-to-date documentation is desired from any of the covered areas.

We appreciate your business and we look forward to hearing from you.

Sincerely,

Alan Wang, MSQA, ASQ CQA
Director of Technical Services
techservices@spectrumchemical.com

21. September. 2017
Table of Contents

- Product Specification
- Safety Data Sheet (SDS)
- Manufacturer
- Certification of Quality Management System (QMS)
- Certification of current Good Manufacturing Practices (cGMP)
- Product BSE/TSE Statement
- Product Allergen Statement
- Product Aflatoxin Statement
- Product Certificate of Analysis Sample(s)
- General Label Information – Sample Label
- General Lot Numbering System Guidance
- Stability – Shelf Life Guidance
## Specification for Propylparaben, FCC (P1452)

<table>
<thead>
<tr>
<th>Item Number</th>
<th>P1452</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td>Propylparaben, FCC</td>
</tr>
<tr>
<td>CAS Number</td>
<td>94-13-3</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C&lt;sub&gt;10&lt;/sub&gt;H&lt;sub&gt;12&lt;/sub&gt;O&lt;sub&gt;3&lt;/sub&gt;</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>180.20</td>
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<tr>
<td>MDL Number</td>
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<tr>
<td>Synonyms</td>
<td>Propyl 4-Hydroxybenzoate ; Propyl p-Hydroxybenzoate ; Propyl Parahydroxybenzoate</td>
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</table>

<table>
<thead>
<tr>
<th>Test</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>ASSAY (C&lt;sub&gt;10&lt;/sub&gt;H&lt;sub&gt;12&lt;/sub&gt;O&lt;sub&gt;3&lt;/sub&gt;); DRIED BASIS</td>
<td>Min</td>
</tr>
<tr>
<td>ACIDITY</td>
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<tr>
<td>MELTING RANGE</td>
<td>95°</td>
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<tr>
<td>LEAD</td>
<td>2 mg/kg</td>
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<tr>
<td>LOSS ON DRYING</td>
<td>0.5 %</td>
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<tr>
<td>RESIDUE ON IGNITION</td>
<td>0.05 %</td>
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<tr>
<td>IDENTIFICATION</td>
<td>TO PASS TEST</td>
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<tr>
<td>RETEST DATE</td>
<td></td>
</tr>
<tr>
<td>DATE OF MANUFACTURE</td>
<td></td>
</tr>
<tr>
<td>APPEARANCE</td>
<td></td>
</tr>
</tbody>
</table>

---

*Spectrum Chemical Mfg Corp*

**Corporate Headquarters:**
769 Jersey Ave.
New Brunswick, NJ 08901
732.214.1300

**West Coast Facility:**
14422 S. San Pedro St.
Gardena, CA 90248
310.516.8000
SAFETY DATA SHEET

Preparation Date: 7/29/2014
Revision Date: 7/29/2014
Revision Number: G1

1. IDENTIFICATION

Product identifier
Product code: P1452
Product Name: PROPYLPARABEN, FCC

Other means of identification
Synonyms: Aseptoform P; Betacide P; Bonomold P; Nipasol; Parben; Parasept; Paseptol; Preserval P; Propyl aseptoform; Propyl chemosept; Propyl parasept; Protaben P; Tegosept P; Propyl-p-hydroxybenzoate; n-Propyl-p-hydroxybenzoate; Benzoic acid, 4-hydroxy-, propyl ester; p-Hydroxybenzoic acid propyl ester; p-Hydroxypropyl benzoate Benzoic Acid, p-hydroxy-, propyl ester

CAS #: 94-13-3
RTECS #: DH2800000
CI#: Not available

Recommended use of the chemical and restrictions on use
Recommended use: Antibacterial. Preservative.
Uses advised against: No information available

Supplier: Spectrum Chemicals and Laboratory Products, Inc.
14422 South San Pedro St.
Gardena, CA  90248
(310) 516-8000
Order Online At: https://www.spectrumchemical.com

Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Regina Wachenheim (East Coast)

2. HAZARDS IDENTIFICATION

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| Skin sensitization | Category 1B |

Label elements
Hazard statements
May cause an allergic skin reaction

Hazard statements
May cause an allergic skin reaction

Hazards not otherwise classified (HNOC)
Not Applicable

Other hazards
Not available

Precautionary Statements - Prevention
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves

Precautionary Statements - Response
Specific treatment (see ... on this label)
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylparaben</td>
<td>94-13-3</td>
<td>100</td>
<td>*</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First aid measures

General Advice: Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126)

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation develops. Consult a physician if necessary.

Eye Contact: Flush eye with water for 15 minutes. Get medical attention if irritation occurs. If symptoms persist, call a physician.

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.
5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Carbon dioxide (CO2). Dry chemical. Water spray mist or foam.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical

Hazardous Combustion Products: Carbon monoxide; Carbon dioxide

Specific hazards: May be combustible at high temperatures

Special Protective Actions for Firefighters

Specific Methods: No information available.

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Remove all sources of ignition.

Environmental precautions: Prevent further leakage or spillage. Prevent entry into waterways, sewers.

Methods and material for containment and cleaning up

Methods for containment: Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up: Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions: Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials.
Safe Handling Advice:
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Avoid dust formation. Do not ingest. Do not breathe vapours/dust. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:
Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

Incompatible Materials:
Strong oxidizing agents. Bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

U.S Occupational Exposure Limits: Not determined

United States

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
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</thead>
<tbody>
<tr>
<td>Propylparaben - 94-13-3</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
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</table>

Canada

Canada Occupational Exposure Limits: Not determined

<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
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<tbody>
<tr>
<td>Propylparaben - 94-13-3</td>
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<td>None</td>
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</table>

Australia and Mexico

Occupational Exposure Limits for Australia and Mexico: Not determined

<table>
<thead>
<tr>
<th>Components</th>
<th>Australia</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylparaben - 94-13-3</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering measures to reduce exposure: Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Safety glasses. Safety glasses with side-shields.

Skin and body protection: Long sleeved clothing. Chemical resistant apron. Gloves.

Respiratory protection: Effective dust mask. Wear respirator with dust filter.

Product code: P1452

Product name: PROPYLPARABEN, FCC
Hygiene measures: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Appearance:</th>
<th>Color:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Odor: Odorless.</th>
<th>Taste</th>
<th>Formula:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>No information available</td>
<td>C10-H12-O3</td>
</tr>
</tbody>
</table>

| Molecular/Formula weight: 180.20 | Flash point (°C): No data available | Flashpoint (°C/°F): No information available. |

| Flash Point Tested according to: Not available | Lower Explosion Limit (%): No information available | Upper Explosion Limit (%): No information available |

| Autoignition Temperature (°C/°F): No information available | pH: No information available | Melting point/range(°C/°F): 96-97 °C/204.8-206.6 °F |

| Boiling point/range(°C/°F): No information available | Decomposition temperature(°C/°F): No information available | Specific gravity: 1.0630 @ 102 °C |

| Density (g/cm3): No information available | Bulk density: No information available | Vapor pressure @ 20°C (kPa): No information available |

| Evaporation rate: No information available | Vapor density: No information available | VOC content (g/L): No information available |

| Odor threshold (ppm): No information available | Partition coefficient (n-octanol/water): 3.04 | Viscosity: No information available |

| Miscibility: No information available | Solubility: Very slightly soluble in water | |
|                                 | Soluble in Acetone | |
|                                 | Soluble in Ether | |
|                                 | Freely soluble in alcohol | |

### 10. STABILITY AND REACTIVITY

**Reactivity**
- Reactive with oxidizing agents
- Reacts with bases

**Chemical stability**

<table>
<thead>
<tr>
<th>Stability:</th>
<th>Stable at normal conditions</th>
</tr>
</thead>
</table>

**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur

**Conditions to avoid:** Heat. Avoid dust formation. Incompatible materials.

**Incompatible Materials:** Strong oxidizing agents. Bases.

**Hazardous decomposition products:** Carbon monoxide. Carbon dioxide.

**Other Information**

<table>
<thead>
<tr>
<th>Corrosivity:</th>
<th>No information available</th>
</tr>
</thead>
</table>

**Product code:** P1452  
**Product name:** PROPYPARABEN, FCC
Special Remarks on Corrosivity:  No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Inhalation. Skin.

Acute Toxicity

Component Information

Propylparaben - 94-13-3

- LD50/oral/rat = No information available
- LD50/oral/mouse = 6332 mg/kg Oral LD50 Mouse
- LD50/dermal/rabbit = No information available
- LD50/dermal/rat = No information available
- LC50/inhalation/rat = No information available
- LC50/inhalation/mouse = No information available
- Other LD50 or LC50 information = No information available

Product Information

- LD50/oral/rat = VALUE- Acute Tox Oral = No information available
- LD50/oral/mouse = Value - Acute Tox Oral = 6332mg/kg
- LD50/dermal/rabbit VALUE-Acute Tox Dermal = No information available
- LD50/dermal/rat VALUE -Acute Tox Dermal = No information available

- LC50/inhalation/rat VALUE-Vapor = No information available
- VALUE-Gas = No information available
- VALUE-Dust/Mist = No information available

- LC50/Inhalation/mouse VALUE-Vapor = No information available
- VALUE - Gas = No information available
- VALUE - Dust/Mist = No information available

Symptoms

Skin Contact:  May cause skin irritation. May cause sensitization by skin contact. May cause allergic skin reaction.

Eye Contact:  May cause eye irritation.

Inhalation  May cause irritation of respiratory tract.

Ingestion  May cause digestive (gastrointestinal) tract irritation. It may affect behavior/central nervous system/nervous system(CNS depression, ataxia, paralysis).

Product code: P1452  Product name: PROPYLPARABEN, FCC
Aspiration hazard: No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity: Skin: Prolonged or repeated skin contact may cause allergic contact dermatitis (allergic skin reaction).

Ingestion: Prolonged or repeated ingestion may cause weight loss, and may affect the kidneys, and endocrine system (adrenal gland, thyroid (thyroid hypofunction))

Sensitization: May cause sensitization by skin contact

Mutagenic Effects: May affect genetic material

Carcinogenic effects: Not considered carcinogenic.

<table>
<thead>
<tr>
<th>Components</th>
<th>ACGIH - Carcinogens</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA HCS - Carcinogens</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
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</thead>
<tbody>
<tr>
<td>Propylparaben</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
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</tr>
</tbody>
</table>

Reproductive toxicity: No data is available

Reproductive Effects: No information available
Developmental Effects: No information available
Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure: No information available
STOT - repeated exposure: No information available
Target Organs: No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products: Waste must be disposed of in accordance with Federal, State and Local regulation.
Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylparaben</td>
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<td>None</td>
<td>None</td>
<td>None</td>
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</tbody>
</table>

14. TRANSPORT INFORMATION

DOT
- UN-No: Not regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: Not applicable
- Packing Group: None
- Marine Pollutant: No data available
- ERG No: No information available
- DOT RQ (lbs): No information available

TDG (Canada)
- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available
- Description: No information available

ADR
- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Packing Group: No information available
- Subsidiary Risk: No information available
- Classification Code: No information available
- Description: No information available
- CEFIC Tremcard No: No information available

IMO / IMDG
- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available
- Description: No information available
- IMDG Page: No information available
- Marine Pollutant: No information available
- MFAG: No information available
- Maximum Quantity: No information available

RID
- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available
- Classification Code: No information available
14. TRANSPORT INFORMATION

**Description:** No information available

**ICAO**
- **UN-No:** Not Regulated
- **Proper Shipping Name:** No information available
- **Hazard Class:** No information available
- **Subsidiary Risk:** No information available
- **Packing Group:** No information available

**IATA**
- **UN-No:** Not Regulated
- **Proper Shipping Name:** No information available
- **Hazard Class:** No information available
- **Subsidiary Risk:** No information available
- **Packing Group:** No information available

15. REGULATORY INFORMATION

**International Inventories**

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<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>KOREA KECL</th>
<th>Philippines (PICCS)</th>
<th>Japan ENCS (3)-1585</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
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<tr>
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<td>Present KE-20396</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
<td>Present 202-307-7</td>
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</table>

**U.S. Regulations**

*Propylparaben*

**FDA - Food Additives Generally Recognized as Safe (GRAS):** 21 CFR 184.1670

**California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.**

**Chemicals Known to the State of California to Cause Cancer:**
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

**Chemicals Known to the State of California to Cause Reproductive Toxicity:**
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
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</thead>
<tbody>
<tr>
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<td>Not Listed</td>
<td>Not Listed</td>
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</table>

**CERCLA/SARA**

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylparaben</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

**U.S. TSCA**

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylparaben</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
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Product code: P1452  
Product name: PROPYLPARABEN, FCC
Canada

WHMIS hazard class:
D2B  Toxic materials

Canada Controlled Products Regulation:
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

<table>
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<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
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<tbody>
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<table>
<thead>
<tr>
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<th>CEPA Schedule I - Toxic Substances</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
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<tbody>
<tr>
<td>Propylparaben</td>
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EU Classification

R-phrase(s)
not determined
none

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<tr>
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<th>Classification</th>
<th>Concentration Limits:</th>
<th>Safety Phrases</th>
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<tbody>
<tr>
<td>Propylparaben</td>
<td></td>
<td>No information</td>
<td></td>
</tr>
</tbody>
</table>

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:
Not dangerous

16. OTHER INFORMATION
16. OTHER INFORMATION

Preparation Date: 7/29/2014
Revision Date: 7/29/2014
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

See Section 8.

End of Material Safety Data Sheet
Manufacturer

Product Covered: P1452, Propylparaben, FCC

Spectrum takes ownership as the manufacturer for the Spectrum product listed above and provides full quality assurance, customer service, and technical product support.

While information concerning the raw material manufacturer of our starting materials is considered proprietary, such information can be made available upon request contingent on demonstration of business volume justification and successful execution of confidential disclosure agreement (CDA).

Requests for disclosure of proprietary raw material manufacturer information may be submitted to the assigned account representative for consideration.

Sincerely,

Alan Wang, MSQA, ASQ CQA
Director of Technical Services
techservices@spectrumchemical.com

21. September. 2017
This is to certify that the quality management system of:

Spectrum Chemicals and Laboratory Products, Inc.

Main Site: 14422 South San Pedro Street, Gardena, California, 90248, USA,
Additional sites: 13915 South Main Street, Los Angeles, California, 90061, USA
769 Jersey Avenue, New Brunswick, New Jersey, 08901, USA
755 Jersey Avenue, New Brunswick, New Jersey, 08901, USA
777 Jersey Avenue, New Brunswick, New Jersey, 08901, USA
400 N. Oracle, Suite 221, Tucson, Arizona, 85704, USA, USA

has been assessed and registered by Intertek as conforming to the requirements of:

ISO 9001:2015

The quality management system is applicable to:

Main Site: The manufacture and distribution of specialty fine chemicals, solutions, equipment, supplies and products for the laboratory, pharmaceutical, food, healthcare, cosmetic, fragrance, biotechnology, environmental and process industries.

Certificate Number:
94-316m-03

Initial Certification Date:
27 December 1994

Certificate Issue Date:
31 July 2017

Certificate Expiry Date:
28 January 2019

Authorized Signature
Calin Moldovean
President Business Assurance

Intertek Testing Services NA, Inc. dba Intertek
900 Chelmsford Street, Lowell, MA, USA

In the issuance of this certificate, Intertek assumes no liability to any party other than to the Client, and then only in accordance with the agreed upon Certification Agreement. This certificate’s validity is subject to the organization maintaining their system in accordance with Intertek’s requirements for systems certification. Validity may be confirmed via email at certificate.validation@intertek.com or by scanning the code to the right with a smartphone. The certificate remains the property of Intertek, to whom it must be returned upon request.

CT-ISO 9001-2015-ANAB-EN-LT-P-01-Jul17
This appendix identifies the locations by the management system of

Spectrum Chemicals and Laboratory Products, Inc.

755 and 769 Jersey Avenue: The manufacture and distribution of specialty fine chemicals, solutions, equipment, supplies and products for the laboratory, pharmaceutical, food, healthcare, cosmetic, fragrance, biotechnology, environmental and process industries.

777 Jersey Avenue: The manufacture and distribution of specialty fine chemicals, solutions, equipment, supplies and products for Compounding Pharmacies.

7400 N. Oracle: The manufacture and distribution of specialty fine chemicals, solutions, equipment, supplies and products for the laboratory, pharmaceutical, food, healthcare, cosmetic, fragrance, biotechnology, environmental and process industries.
Certificate of Registration

This is to certify that the quality management system of

Spectrum China Ltd.

Building A20, No. 3802, Shengang Road, Songjiang District, Shanghai, China

has been assessed and registered by Intertek as conforming to the requirements of

ISO 9001: 2008

The quality management system is applicable to:

Provision of service of purchase, testing and sales for chemical products, repacking of non-hazardous chemical products.

Organization Code: 77762704-8
Certificate Number: 111310001-01
Certificate Issue Date: 17 November 2015
Certificate Expiry Date: 14 September 2018

Authorised Signature: Calin Moldovean – President, Business Assurance
Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8ZF, United Kingdom

In the issuance of this certificate, Intertek assumes no liability to any party other than to the client, and then only in accordance with the agreed upon Certification Agreement. This certificate's validity is subject to the organization maintaining their system in accordance with Intertek's requirements for systems certification. Validity may be confirmed via email at certificate.validation@intertek.com or by scanning the code to the right with a smartphone.
The annual validity of the certificate can also be checked through the website http://www.cnca.gov.cn of CNCA in China.

The certificate remains the property of Intertek, to whom it must be returned upon request.
July 13, 2017

**Certification of Compliance with current Good Manufacturing Practices**

Dear Valued Customer:

Spectrum Chemical Mfg Corp certifies that our USP, NF, FCC, EP, BP, JP and food grade products are produced, processed, packaged and held in compliance with current Good Manufacturing Practices (cGMP) in accordance with the applicable parts of 21 CFR, parts 210 and 211 of the Code of Federal Regulations.

Spectrum is an FDA registered and inspected Drug Establishment. Our United States Food and Drug Administration (USFDA) Registration numbers are as follows:

- Spectrum-Gardena, CA: 2020632
- Spectrum-New Brunswick, NJ: 2246824
- Spectrum-Shanghai, China: 3006174778

Thank you for your interest in Spectrum products. If we may be of further assistance, please feel free to contact the Quality Assurance department at 310-516-8000 or via email at qualityassurance@spectrumchemical.com

Sincerely,

Oralia Chavez
Quality Assurance Specialist
September 21, 2017

Certification of Compliance with current Good Manufacturing Practices

Dear Valued Customer:

Spectrum Chemical Mfg Corp certifies that the following product(s) is produced, processed, packaged and held in compliance with current Good Manufacturing Practices (cGMP) in accordance with the applicable parts of 21 CFR, parts 210 and 211 of the Code of Federal Regulations.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Product Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1452</td>
<td>Propylparaben, FCC</td>
</tr>
</tbody>
</table>

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Thank you for your interest in Spectrum products. If we may be of further assistance, please feel free to contact the Quality Assurance department at 310-516-8000 or via email at qualityassurance@spectrumchemical.com

Sincerely,

Oralia Chavez
Quality Assurance Specialist
Aug 17, 2017

Re: Propylparaben, FCC- P1452

To Whom It May Concern:

Thank you for your interest in Spectrum high quality chemicals.

We at Spectrum Chemical Mfr. Corp. understand the concern regarding Bovine Spongiform Encephalopathy (BSE). Please be assured that the chemical Propylparaben, FCC- P1452 is BSE/TSE free.

If you have any further questions, please contact Tech Services at (310) 516-8000 Extension 5471, or by email at techservices@spectrumchemical.com.

Sincerely,

Darlene Dagdag-Lyudmirskiy
Technical Services
Spectrum Chemical Mfg. Corp.

This document has been produced electronically and is valid without a signature
Aug 17, 2017

Re: Propylparaben, FCC- P1452

To Whom It May Concern:

Thank you for your interest in Spectrum high quality chemicals.

We at Spectrum Chemical Mfr. Corp. understand the concern regarding the presence of allergens in raw materials. Please be assured that the following chemical does not contain (Milk; Egg; Shellfish; Sulfur dioxide and sulfites at concentrations of more than 10 mg/kg or 10 mg/liter expressed as SO₂; Lupin; Tree nuts; Mollusks; Wheat; Peanuts; Soy; Cereals containing Gluten; Celery; Mustard; Sesame Seed).

Propylparaben, FCC- P1452

If you have any further questions, please contact Tech Services at (310) 516-8000 Extension 5471, or by email at techservices@spectrumchemical.com.

Sincerely,

Darlene Dagdag-Lyudmirskiy
Technical Services
Spectrum Chemical Mfg. Corp.

This document has been produced electronically and is valid without a signature
Aug 17, 2017

Re: Propylparaben, FCC- P1452

To Whom It May Concern:

Thank you for your interest in Spectrum high quality chemicals.

We at Spectrum Chemical Mfg. Corp. understand the concern regarding Aflatoxins in raw materials. To the best of our knowledge, the product listed below is not contaminated with Aflatoxins. Aflatoxins are not used in production. The following product does not come in contact with Aflatoxins at any stage of production.

Propylparaben, FCC- P1452

If you have any further questions, please contact Tech Services at (310) 516-8000 Extension 5471, or by email at techservices@spectrumchemical.com.

Sincerely,

Darlene Dagdag-Lyudmirski
Technical Services
Spectrum Chemical Mfg. Corp.

This document has been produced electronically and is valid without a signature
### Certificate Of Analysis

<table>
<thead>
<tr>
<th>Item Number</th>
<th>P1452</th>
<th>Lot Number</th>
<th>1GF0362</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td>Propylparaben, FCC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS Number</td>
<td>94-13-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C&lt;sub&gt;10&lt;/sub&gt;H&lt;sub&gt;12&lt;/sub&gt;O&lt;sub&gt;3&lt;/sub&gt;</td>
<td>Molecular Weight</td>
<td>180.20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test</th>
<th>Specification</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSAY (C&lt;sub&gt;10&lt;/sub&gt;H&lt;sub&gt;12&lt;/sub&gt;O&lt;sub&gt;3&lt;/sub&gt;; DRIED BASIS)</td>
<td>99.0 % 100.5 %</td>
<td>100.2 % 100.5 %</td>
</tr>
<tr>
<td>ACIDITY</td>
<td>TO PASS TEST</td>
<td>PASSES TEST</td>
</tr>
<tr>
<td>MELTING RANGE</td>
<td>95°C 98°C</td>
<td>98°C</td>
</tr>
<tr>
<td>LEAD</td>
<td>2 mg/kg</td>
<td>&lt;2 mg/kg</td>
</tr>
<tr>
<td>LOSS ON DRYING</td>
<td>0.5 %</td>
<td>0.01 %</td>
</tr>
<tr>
<td>RESIDUE ON IGNITION</td>
<td>0.05 %</td>
<td>0.01 %</td>
</tr>
<tr>
<td>IDENTIFICATION</td>
<td>TO PASS TEST</td>
<td>PASSES TEST</td>
</tr>
<tr>
<td>RETEST DATE</td>
<td></td>
<td>12-JUN-2020</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE</td>
<td></td>
<td>13-JUN-2015</td>
</tr>
<tr>
<td>APPEARANCE</td>
<td></td>
<td>WHITE POWDER</td>
</tr>
</tbody>
</table>

Spectrum Chemical Mfg Corp  
14422 South San Pedro Street  
Gardena 90248 CA

All pharmaceutical ingredients are tested using current edition of applicable pharmacopeia.

Read and understand label and MSDS/SDS before handling any chemicals. All Spectrum’s chemicals are for manufacturing, processing, repacking or research purposes by experienced personal only. The customer must ensure to provide its users adequate hazardous material training and appropriate protective gears before handling our chemicals.
Propylparaben (Propyl p-Hydroxybenzoate) F.C.C.

CAS 94-13-3

**CAUTION:** For manufacturing, processing or repacking. Read and understand the label and Safety Data Sheet (SDS) prior to use.

**WARNING:** May cause an allergic skin reaction. Wear protective gloves. Avoid breathing dust. Contaminated work clothing must not be allowed out of the workplace.

**FIRST AID:**
- IF ON SKIN: Wash with plenty of water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical attention.

**KEEP FROM CHILDREN**

**MAXIMUM LIMITS**
- Lead ........................................................2 mg/kg
- Loss on Drying ............................................0.5%
- Residue on Ignition ...................................0.05%

**WARNING:** LEDM: This product contains a chemical known to the State of California to cause cancer.

**WARNING:** This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

**Chemical Abstracts Service (CAS) Registry Number**

C_{10}H_{12}O_3 F.W. 180.20

- Assay (C_{10}H_{12}O_3; Dried Basis) ........ 99.0-100.5%
- Acidity .................................................. To pass test
- Melting Range ........................................ 95°-98°C

**Empirical Formula, Formula Weight**

C_{10}H_{12}O_3  F.W. 180.20

**Expiration Information**

Lot No. 062233

**GHS Hazard Pictograms**

- **YELLOW:** Oxidizer
- **RED:** Flammable
- **GREEN:** General Storage
- **BLUE:** Health Hazard
- **WHITE:** Corrosive

**Kosher Certified by Kosher Supervision of America (KSA).**

**Storage Color Band**

This color-coded band indicates the hazard most likely to be posed by that material under storage conditions. The criteria used to assign band colors have been established by the Storage Code working group of the Society for Chemical Hazard Communication (SCHC). It is recommended that like colors be stored together, unless otherwise stated, based on the color codes indicated to the right. However, it is the responsibility of the customer to check with their local fire department for possible conflicts with our recommendations when storing hazardous chemicals.
January 26, 2016

RE: Lot Numbering System

Dear Valued Customer:

This letter is to inform you of Spectrum Chemicals and Laboratory Products’ Lot Numbering System. The system is based on an alpha-numerical sequence which provides the month, year and location of production.

The lot numbering system utilized until 2010 is a sequence of six characters, two letters followed by four numbers. The first letter represents the year, for example, Y denotes 2009 and Z denotes 2010. The second letter represents the month and site, for example, A-L denotes January through December at Spectrum’s Gardena, CA facility, while M-X denotes January through December at the New Brunswick, NJ facility. The following four numbers are sequentially assigned.

Example: ZI0928 = The 928th material produced in California in September 2010

The lot numbering system utilized for 2011 and forward, is a sequence of seven characters. The first character, a number, represents the production facility:

1 = Gardena, CA Facility
2 = New Brunswick, NJ Facility
3 = China Facility

The second character, a letter, represents the year. For example, A denotes 2011 and B denotes 2012. The third character, a letter, represents the month, with A denoting January and L denoting December. The following four numbers are sequentially assigned.

Example: 2AA0706 = The 706th material produced in New Jersey in January 2011

Thank you for your interest with Spectrum products. Please feel free to contact us at 310-516-8000 or via email at qualityassurance@spectrumchemical.com if we may be of further assistance.

Sincerely,

Michael Dang
Manager, GMP Compliance
Stability — Shelf Life Guidance

Product Covered: P1452, Propylparaben, FCC

Spectrum Chemical’s manufacturing partner has assigned the following shelf life guidance for the product listed above.

The product, P1452, Propylparaben, FCC, is assigned a 60 months shelf life from date of manufacturing. The quality and integrity of the chemical depends on the handling and storage conditions. Please refer to the Safety Data Sheet for proper storage and handling procedures.

Adan R. Hernandez
Quality Control Manager

Corporate Headquarters
769 Jersey Avenue
New Brunswick, NJ 08901-3605