SAFETY DATA SHEET
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended.

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

1.1 Product identifier

<table>
<thead>
<tr>
<th>Trade name or designation of the mixture</th>
<th>CHO-THERM® 1642</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration number</td>
<td>Not available.</td>
</tr>
<tr>
<td>SDS number</td>
<td>PHC-054 EU</td>
</tr>
<tr>
<td>Product code</td>
<td>65-00-1642-0000; 65-00-1642-0000-SP/NP; 65-00-1642-0000NP; 69-11-30862-1642</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Identified uses</th>
<th>Sealant / Conductive adhesive. Use pattern: Electronics industry - professional use.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses advised against</td>
<td>None known.</td>
</tr>
</tbody>
</table>

Chemical family

Mixture of: Siloxanes; Pigment; Metal compounds

1.3. Details of the supplier of the safety data sheet

Supplier

<table>
<thead>
<tr>
<th>Company name</th>
<th>Parker Hannifin France</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>SAS-Etablissement de Saint Ouen l'Aumone-PA du vert Galant-6/8 avenue du Vert Galant-95310 Saint Ouen l'Aumone-France</td>
</tr>
</tbody>
</table>

Chomerics Europe

Parker Hannifin Ltd., Seal Group

Unit 6 Century Point

Halifax Road, High Wycombe

Bucks, HP12 3SL

United Kingdom

<table>
<thead>
<tr>
<th>Telephone</th>
<th>033 (01) 34 32 39 00 (France); 044 (0) 1494 455 400 (UK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website</td>
<td><a href="http://www.parkerfrance.fr">www.parkerfrance.fr</a></td>
</tr>
</tbody>
</table>

1.4 Emergency phone number

INFOTRAC - (800) 535-5053 (Within Continental US); (352) 323-3500 (Outside US)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

Classification: N;R51-53

For the full text of the R phrases mentioned in this Section, see Section 16.

Classification according to Regulation (EC) No 1272/2008 as amended

Supplemental Hazards

The product is not classified as hazardous according to Regulation (EC) No. 1272/2008.

Physical hazards

The product is not classified as hazardous according to Regulation (EC) No. 1272/2008.

Health hazards

The product is not classified as hazardous according to Regulation (EC) No. 1272/2008.

Environmental hazards

Hazardous to the aquatic environment, long-term aquatic hazard - Category 2. H411 - Toxic to aquatic life with long lasting effects.

Hazard summary

Physical hazards

Not classified for physical hazards.
SAFETY DATA SHEET
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended.

**Health hazards**
Occupational exposure to the substance or mixture may cause adverse effects.

**Environmental hazards**
Toxic to aquatic life with long lasting effects. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. See Section 12 for more environmental information.

**Specific hazards**
Burning produces obnoxious and toxic fumes. When heated above 150°C in air, may release formaldehyde gas.

**Main symptoms**
May cause mild respiratory irritation at higher temperatures. Symptoms may include upper respiratory irritation, coughing and breathing difficulties. Direct eye contact may cause slight or mild, transient irritation. Symptoms may include stinging and tearing.
Direct skin contact may cause slight or mild, transient irritation. May cause irritation, redness and pain.
If material is ingested, may cause irritation to mucous membranes. May cause nausea, stomach pain and vomiting.
When heated above 150°C in air, may release formaldehyde gas. Formaldehyde is an eye and throat irritant and acute toxicant. Formaldehyde may cause sensitisation by skin contact. Formaldehyde has shown limited evidence of a carcinogenic effect.

**2.2. Label elements**
Label according to Regulation (EC) No. 1272/2008 as amended

**Hazard pictograms**

**Signal Word**
WARNING!

**Hazard statement(s)**
H411 - Toxic to aquatic life with long lasting effects.
20 - 30% of the mixture consists of ingredient(s) of unknown toxicity

**Precautionary statement(s)**

**Prevention**
P273 - Avoid release to the environment.

**Response**
P391 - Collect spillage.

**Storage**
None required according to Regulation (EC) No. 1272/2008.

**Disposal**
P501 - Dispose of contents/container in accordance with local regulation.

**Supplemental Information**
None required according to Regulation (EC) No. 1272/2008.

**2.3. Other hazards**
Other hazards which do not result in classification: Toxic fumes, gases or vapours may evolve on burning. May cause mild respiratory irritation at higher temperatures. Direct eye contact may cause slight or mild, transient irritation. Direct skin contact may cause slight or mild, transient irritation. May cause gastrointestinal irritation. Contains cobalt compounds. Some cobalt compounds can cause allergic skin reactions, however, for olivine, cobalt silicate blue, allergic reactions are considered to be rare. When heated above 150°C in air, may release formaldehyde gas. Formaldehyde is an eye and throat irritant and acute toxicant. Formaldehyde may cause sensitisation by skin contact. Formaldehyde has shown limited evidence of a carcinogenic effect.

PBT assessment: This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
## SECTION 3: Composition/information on ingredients

### 3.2. Mixture

#### General information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>%</th>
<th>CAS-No/ EC No.</th>
<th>REACH Registration No.</th>
<th>INDEX No.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicic acid, sodium salt, hydrolysis products with chlorotrimethylsilane and dichloroethenylmethylsilane</td>
<td>20.0 - 30.0</td>
<td>68584-83-8/271-545-1</td>
<td>Not available.</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>Olivine, cobalt silicate blue</td>
<td>&lt; 20.0</td>
<td>68187-40-6/269-093-5</td>
<td>Not available.</td>
<td>None.</td>
<td>self classified</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>0.1 - 1.0</td>
<td>1314-13-2/215-222-5</td>
<td>Not available.</td>
<td>030-013-00-7</td>
<td>#</td>
</tr>
</tbody>
</table>

| Formaldehyde                                                                  | Not known. | 50-00-0/200-001-8 | Not available. | 605-001-00-5 | # |

#### Classification:
- **DSD**: No information available.
- **CLP**: No information available.
- **DSD**: Xn;R20/22
- **CLP**: Acute Tox. 4; H302 + H332
- **DSD**: N;R50-53
- **CLP**: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

The following ingredient may be released from the product only when heated above 150°C:
- Formaldehyde

<table>
<thead>
<tr>
<th>Classification:</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DSD</strong>: Carc. Cat.3;R40, T;R23/24/25, C;R34 - R43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CLP</strong>: Carc. 2; H351, Acute Tox. 3; H301, Acute Tox. 3; H311, Acute Tox. 3; H331, Skin Corr. 1B; H314, Skin Sens. 1; H317</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### List of abbreviations and symbols that may be used above

- **DSD**: Directive 67/548/EEC.
- **-**: Designates the substance is not classified according to the applicable regulations.
- **#**: This substance has been assigned Community Workplace exposure limit(s).

### Composition comments

For the full text of the H and R phrases not mentioned in this Section or in Section 2, see Section 16.

## SECTION 4: First aid measures

### General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

### 4.1. Description of first aid measures

#### Inhalation

If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing has stopped, give artificial respiration. When symptoms persist or in all cases of doubt seek medical advice.

#### Skin contact

For skin contact, wash with soap and water while removing contaminated clothing. When symptoms persist or in all cases of doubt seek medical advice.

#### Eye contact

Rinse thoroughly with plenty of water, also under the eyelids. Remove contact lenses, if present and easy to do. When symptoms persist or in all cases of doubt seek medical advice.

#### Ingestion

Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.
4.2. Most important symptoms and effects, both acute and delayed
May cause mild respiratory irritation at higher temperatures. Symptoms may include upper respiratory irritation, coughing and breathing difficulties.
Direct eye contact may cause slight or mild, transient irritation. Symptoms may include stinging and tearing.
Direct skin contact may cause slight or mild, transient irritation. May cause irritation, redness and pain.
If material is ingested, may cause irritation to mucous membranes. May cause nausea, stomach pain and vomiting.
When heated above 150°C in air, may release formaldehyde gas. Formaldehyde is an eye and throat irritant and acute toxicant. Formaldehyde may cause sensitisation by skin contact. Formaldehyde has shown limited evidence of a carcinogenic effect.

4.3. Indication of any immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically.

SECTION 5: Firefighting measures
General fire hazards
Not classified as flammable.

5.1 Extinguishing media
Suitable extinguishing media
Carbon dioxide (CO2); Dry chemical; Alcohol resistant foam

Unsuitable extinguishing media
Water may cause spattering of hot material and may spread burning.

5.2. Special hazards arising from the substance or mixture
May release Hydrogen gas on contact with incompatible materials. Burning produces obnoxious and toxic fumes. When heated above 150°C in air, may release formaldehyde gas. The pressure in sealed containers can increase under the influence of heat. In the event of fire the following can be released: Carbon oxides; Metal oxides; formaldehyde; silica; Silicon oxides.

5.3. Advice for firefighters
Special protective equipment and precautions for fire-fighters
Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.

Fire-fighting equipment/instructions
Move containers from fire area if safe to do so. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
For non-emergency personnel
Keep people away from and upwind of spill/leak. Wear appropriate protective equipment.

For emergency responders
Keep unnecessary personnel away. Wear appropriate protective equipment.

6.2 Environmental precautions
Prevent product from entering drains, sewers, waterways and soil. Avoid release to the environment.

6.3 Methods and materials for containment and cleaning up
Ventilate the area. Remove all sources of ignition. Prevent further leakage or spillage if safe to do so. For spilled liquids: absorb spill with inert, non-combustible material such as sand, then place into suitable containers. Pick up and transfer to properly labeled containers. Contact the proper local authorities.

6.4. Reference to other sections
Refer to protective measures listed in sections 7 and 8. Refer to Section 13 for disposal of contaminated material.

SECTION 7: Handling and storage
SAFETY DATA SHEET
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended.

7.1. Precautions for safe handling
Use with adequate ventilation. Wear suitable protective equipment during handling. Avoid breathing dust, fume or vapors. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and direct flame. Keep away from incompatibles. Keep containers closed when not in use. Wash thoroughly after handling. Avoid release to the environment.

7.2. Conditions for safe storage, including any incompatibilities
Store in cool/well-ventilated place. Inspect periodically for damage or leaks. Do not store near any incompatible materials (see Section 10).

7.3. Specific end use(s)
Adhesive / Sealant

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

UK. EH40 Workplace Exposure Limits (WELs)

<table>
<thead>
<tr>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde (CAS 50-00-0)</td>
<td></td>
</tr>
<tr>
<td>2 ppm (2.5 mg/m³) (TWA)</td>
<td></td>
</tr>
<tr>
<td>2 ppm (2.5 mg/m³) (STEL)</td>
<td>None.</td>
</tr>
</tbody>
</table>

France, Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

<table>
<thead>
<tr>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td></td>
</tr>
<tr>
<td>5 mg/m³ (fumes); 10 mg/m³ (dust) (TWA)</td>
<td>None.</td>
</tr>
<tr>
<td>Formaldehyde (CAS 50-00-0)</td>
<td></td>
</tr>
<tr>
<td>0.5 ppm (TWA)</td>
<td>None.</td>
</tr>
<tr>
<td>1 ppm (STEL)</td>
<td></td>
</tr>
</tbody>
</table>

Finland Workplace Exposure Limits

<table>
<thead>
<tr>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td></td>
</tr>
<tr>
<td>2 mg/m³ (TWA)</td>
<td>(fumes)</td>
</tr>
<tr>
<td>10 mg/m³ (STEL)</td>
<td></td>
</tr>
<tr>
<td>Formaldehyde (CAS 50-00-0)</td>
<td></td>
</tr>
<tr>
<td>0.3 ppm (0.37 mg/m³) (STEL)</td>
<td>None.</td>
</tr>
</tbody>
</table>

Spain, Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td></td>
</tr>
<tr>
<td>2 mg/m³ (TWA)</td>
<td>(respirable dust)</td>
</tr>
<tr>
<td>Formaldehyde (CAS 50-00-0)</td>
<td></td>
</tr>
<tr>
<td>0.3 ppm (0.37 mg/m³) (STEL)</td>
<td>None.</td>
</tr>
</tbody>
</table>

Hungary, OELs. Joint Decree on Chemical Safety of Workplaces

<table>
<thead>
<tr>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td></td>
</tr>
<tr>
<td>5 mg/m³ (TWA)</td>
<td>(respirable dust)</td>
</tr>
<tr>
<td>20 mg/m³ (STEL)</td>
<td></td>
</tr>
<tr>
<td>Formaldehyde (CAS 50-00-0)</td>
<td></td>
</tr>
<tr>
<td>0.6 mg/m³ (TWA)</td>
<td>Potential for cutaneous absorption</td>
</tr>
<tr>
<td>0.6 mg/m³ (STEL)</td>
<td></td>
</tr>
</tbody>
</table>

Poland, MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Skin notation

<table>
<thead>
<tr>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td></td>
</tr>
<tr>
<td>5 mg/m³ (TWA)</td>
<td>(fumes)</td>
</tr>
<tr>
<td>10 mg/m³ (STEL)</td>
<td></td>
</tr>
<tr>
<td>Formaldehyde (CAS 50-00-0)</td>
<td></td>
</tr>
<tr>
<td>0.5 mg/m³ (TWA)</td>
<td>Skin notation</td>
</tr>
<tr>
<td>1 mg/m³ (STEL)</td>
<td></td>
</tr>
</tbody>
</table>

Material name: CHO-THERM® 1642
CHO-THERM® 1642, Part B SDS No. PHC-054 EU Version #: 1 Issue date: 07-27-2015
Biological limit values

No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures

Follow standard monitoring procedures.

Derived no-effect level (DNEL) / Predicted no effect concentrations (PNECs)

Not available.

Exposure guidelines

8.2. Exposure controls

Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas. Apply technical measures to comply with the occupational exposure limits. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. In case of insufficient ventilation wear suitable respiratory equipment.

Individual protection measures, such as personal protective equipment

General information

Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye / face protection

Wear as appropriate: Tightly fitting safety goggles; Safety glasses with side shields See also EN 166.

Skin protection

Hand protection

For prolonged or repeated contact use protective gloves. The suitability for a specific workplace should be discussed with the producers of the protective gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC and the standard EN 374 derived from it. Wear sufficient clothing to prevent skin contact.

Other

Respiratory protection

In case of insufficient ventilation wear suitable respiratory equipment. The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used. Seek advice from respiratory protection specialists.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Avoid breathing dust, fume or vapors. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls

Environmental manager must be informed of all major releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state liquid
Form Pourable
Colour blue
Odour No odour
Odour threshold No information available
pH No information available
Melting point / freezing point No information available
Initial boiling point and boiling range

Flash point

No information available.

> 93.3°C
SAFETY DATA SHEET
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Evaporation rate
Flammability (solid, gas)
Lower flammability/explosive limit
Upper flammability/explosive limit
Vapour pressure
Vapour density
Relative density
Solubility(ies)
Other solubility(ies)
Solubility (water)
Partition coefficient (n-octanol/water)
Auto-ignition temperature
Decomposition temperature
Viscosity
Explosive properties
Oxidizing properties
9.2. Other information
Specific gravity
VOC
Volatilities %
Other physical/chemical data

SECTION 10: Stability and reactivity

10.1. Reactivity
Not normally reactive.

10.2. Chemical stability
Stable under normal conditions. When heated above 150°C in air, may release formaldehyde gas.

10.3. Possibility of hazardous reactions
Hazardous polymerization does not occur. No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid
Direct sources of heat. Do not use in areas without adequate ventilation. Avoid contact with incompatible materials.

10.5. Incompatible materials
Strong oxidizing agents; Strong acids; Strong bases; Metal salts

10.6. Hazardous decomposition products
Burning produces obnoxious and toxic fumes. In the event of fire the following can be released: Carbon oxides; Metal oxides; formaldehyde; silica; Silicon oxides.

SECTION 11: Toxicological information

General information
Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Routes of entry inhalation
May cause mild respiratory irritation at higher temperatures.

Routes of entry skin & eye
Causes little or no irritation.

Routes of entry ingestion
May cause gastrointestinal irritation.

Routes of exposure skin absorption
Not expected to be absorbed through the skin.
SAFETY DATA SHEET
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended.

Symptoms
May cause mild respiratory irritation at higher temperatures. Symptoms may include upper respiratory irritation, coughing and breathing difficulties.
Direct eye contact may cause slight or mild, transient irritation. Symptoms may include stinging and tearing.
Direct skin contact may cause slight or mild, transient irritation. May cause irritation, redness and pain.
If material is ingested, may cause irritation to mucous membranes. May cause nausea, stomach pain and vomiting.
When heated above 150°C in air, may release formaldehyde gas. Formaldehyde is an eye and throat irritant and acute toxicant. Formaldehyde may cause sensitisation by skin contact. Formaldehyde has shown limited evidence of a carcinogenic effect.

11.1. Information on toxicological effects
Acute toxicity
According to the classification criteria of the European Union, this product is not considered as being an acutely toxic chemical.
The calculated ATE values for this mixture are:
ATE oral = 6538 mg/kg
ATE inhalation (dust) = 22.1 mg/L/4H
See below for individual ingredient acute toxicity data.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicic acid, sodium salt, hydrolysis products with chlorotrimethylsilane and dichloroethenylmethylsilane</td>
<td>Acute Dermal</td>
<td>Rabbit</td>
</tr>
<tr>
<td></td>
<td>LC50</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td>Oral LD50</td>
<td>Rat</td>
</tr>
<tr>
<td>Olivine, cobalt silicate blue</td>
<td>Acute Dermal</td>
<td>Rabbit</td>
</tr>
<tr>
<td></td>
<td>LC50</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td>Oral LD50</td>
<td>Rat</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>Acute Dermal</td>
<td>Rabbit</td>
</tr>
<tr>
<td></td>
<td>LC50</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td>Oral LD50</td>
<td>Rat</td>
</tr>
<tr>
<td>The following ingredient may be released from the product only when heated above 150°C: Formaldehyde</td>
<td>Acute Dermal</td>
<td>Rabbit</td>
</tr>
<tr>
<td></td>
<td>LC50</td>
<td>Rat</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended.

<table>
<thead>
<tr>
<th>Oral LD50</th>
<th>Rat</th>
<th>800 mg/kg (rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>The estimated human lethal dose is: 317 - 475 mg/kg</td>
</tr>
</tbody>
</table>

### Skin Corrosion/Irritation
According to the classification criteria of the European Union, this product is not considered as being a skin corrosive or irritant.

### Serious eye damage/Irritation
According to the classification criteria of the European Union, the product is not considered as being an eye irritant.

### Respiratory or skin sensitization
Not expected to be a skin or respiratory sensitizer. Contains cobalt compounds. Some cobalt compounds can cause allergic skin reactions, however, for olivine, cobalt silicate blue, allergic reactions are considered to be rare. Avoid heating, which will result in the liberation of formaldehyde gas. Formaldehyde may cause sensitisation by skin contact.

### Germ cell mutagenicity
Contains no ingredient listed as a mutagen.

### Carcinogenicity
Contains no ingredient listed as a carcinogen. Avoid heating, which will result in the liberation of formaldehyde gas. Formaldehyde has shown limited evidence of a carcinogenic effect.

### Reproductive toxicity
Contains no ingredient listed as toxic to reproduction.

### Specific target organ toxicity - single exposure
According to the classification criteria of the European Union, this product is not expected to cause target organ toxicity through a single exposure.

### Specific target organ toxicity - repeated exposure
According to the classification criteria of the European Union, this product is not expected to cause target organ toxicity through repeated exposures.

### Aspiration hazard
According to the classification criteria of the European Union, this product is not considered as being an aspiration hazard to humans.

### Further information
Avoid heating, which will result in the liberation of formaldehyde gas. Formaldehyde is an eye and throat irritant and acute toxicant.

### SECTION 12: Ecological information

#### 12.1. Toxicity
Toxic to aquatic life with long lasting effects. The product contains the following substances which are hazardous for the environment: Zinc oxide. Should not be released into the environment.

See the following tables for individual ingredient ecotoxicity data.

### Ecotoxicity data:

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS No</th>
<th>Toxicity to Fish</th>
<th>M Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicic acid, sodium salt, hydrolysis products with chlorotrimethylsilane and dichloroethenylmethylsilane</td>
<td>68584-83-8</td>
<td>No information available.</td>
<td>No information available.</td>
</tr>
<tr>
<td>Oolivine, cobalt silicate blue</td>
<td>68187-40-6</td>
<td>No information available.</td>
<td>No information available.</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>6.7 mg/L (Striped bass) ≥ 48 mg/L/28-day (Japanese ricefish)</td>
<td>None.</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>1314-13-2</td>
<td>1.1 mg/L (Rainbow trout) No information available.</td>
<td>None.</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS No</th>
<th>Toxicity to Daphnia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EC50 / 48h</td>
<td>NOEC / 21 day</td>
</tr>
<tr>
<td>Silicic acid, sodium salt, hydrolysis products with chlorotrimethylsilane</td>
<td>68584-83-8</td>
<td>No information available.</td>
</tr>
<tr>
<td>and dichloroethenylmethylsilane</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Olivine, cobalt silicate blue</td>
<td>68187-40-6</td>
<td>&gt; 1000 mg/L (Daphnia magna)</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>5.8 mg/L (Daphnia magna)</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>1314-13-2</td>
<td>0.098 mg/L (Daphnia magna)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS No</th>
<th>Toxicity to Algae</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EC50 / 96h or 72h</td>
<td>NOEC / 96h or 72h</td>
</tr>
<tr>
<td>Silicic acid, sodium salt, hydrolysis products with chlorotrimethylsilane</td>
<td>68584-83-8</td>
<td>No information available.</td>
</tr>
<tr>
<td>and dichloroethenylmethylsilane</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Olivine, cobalt silicate blue</td>
<td>68187-40-6</td>
<td>89 mg/L/72hr (Green algae)</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>14.7 mg/L/24hr (Green algae)</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>1314-13-2</td>
<td>0.044 mg/L/72hr (Green algae)</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
No data is available on the product itself.
Contains the following chemicals which are not readily biodegradable: Aluminium oxide; Zinc oxide.

12.3. Bioaccumulation potential
The product itself has not been tested. See the following data for ingredient information.

<table>
<thead>
<tr>
<th>Components</th>
<th>Partition coefficient n-octanol/water (log Kow)</th>
<th>Bioconcentration factor (BCF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olivine, cobalt silicate blue (CAS 68187-40-6)</td>
<td>1.53 (estimated)</td>
<td>No information available.</td>
</tr>
<tr>
<td>Formaldehyde (CAS 50-00-0)</td>
<td>0.35</td>
<td>3</td>
</tr>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td>1.53 (estimated)</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
The product itself has not been tested.

12.5. Results of PBT and vPvB assessment
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

12.6. Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Residual waste
Dispose of contents/container in accordance with local regulation. This material and its container must be disposed of in a safe way.

Contaminated packaging
Empty containers should be taken for local recycling or waste disposal. Since empty containers may retain product residue, follow label warnings even after container is emptied.

EU waste code
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Material name: CHO-THERM® 1642
CHO-THERM® 1642, Part B   SDS No. PHC-054 EU   Version #: 1   Issue date: 07-27-2015
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Dispose of in accordance with the European Directives on waste and hazardous waste.

SECTION 14: Transport information

ADR/RID

14.1. UN Number UN3082
14.2. UN proper shipping n ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc oxide)
14.3. Transport hazard class(es)
   Class 9
   Subsidiary risk None.
   Hazard No. (ADR) 90
   Tunnel restriction code E
14.4. Packaging group III
14.5. Environmental hazards Yes
14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling. The environmentally hazardous substance mark must appear on packagings holding more than 5 litres of the material.

ICAO/IATA

14.1. UN Number UN3082
14.2. UN proper shipping n Environmentally hazardous substance, liquid, n.o.s. (Zinc oxide)
14.3. Transport hazard class(es)
   Class 9
   Subsidiary risk None.
14.4. Packaging group III
14.5. Environmental hazards Yes
14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling. Refer to the appropriate Packing Instruction, prior to shipping this material. Review all State and Operator Variations, prior to shipping this material. The environmentally hazardous substance mark must appear on packagings holding more than 5 litres of the material.

Other information
- Passenger and cargo aircraft: Allowed
- Cargo aircraft only: Allowed

IMDG

14.1. UN Number UN3082
14.2. UN proper shipping n ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc oxide)
14.3. Transport hazard class(es)
Class: 9
Subsidiary risk: None.

14.4. Packaging group
III

14.5. Environmental hazards
Yes

Marine pollutant
EmS: F-A; S-F

14.6. Special precautions for user
Read safety instructions, SDS and emergency procedures before handling.
The environmentally hazardous substance mark must appear on packagings holding more than 5 litres of the material.

General information
Appropriate advice on safety must accompany the package. Avoid release to the environment.
This product meets the criteria for an environmentally hazardous material according to the IMDG Code. See Section 12 for more environmental information.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable.

15. Regulatory information

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

EU regulations

Authorisations
Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended:
None of the components are specifically listed.

Restrictions on use
Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use, as amended
None of the components are specifically listed.

Other EU regulations

Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances:
None of the components are specifically listed.

Directive 98/24/EC on the protection of the health and safety of workers from risks related to chemical agents at work:
Olivine, cobalt silicate blue (CAS # 68187-40-6)
Zinc oxide (CAS # 1314-13-2)

Directive 94/33/EC on the protection of young people at work:
None of the components are specifically listed.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended [including Regulation (EU) No. 453/2010].

National regulations

Follow national regulation for work with chemical agents.

German legislation on water endangering substances VwVwS: Water contaminating class (Germany) - 2 (self classified)

15.2. Chemical safety assessment
A chemical safety assessment has not been carried out by the Manufacturer of this product.

SECTION 16: Other information

Issue date: 07/27/2015
Version #: 1

Material name: CHO-THERM® 1642, Part B
SDS No. PHC-054 EU
Version #: 1
Issue date: 07-27-2015
SAFETY DATA SHEET
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended.

CAS: Chemical Abstract Services
CLP: Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
EC: European Community
EC50: Effective Concentration 50%.
ECHA: European Chemicals Agency
EEC: European Economic Community
EN: European Standard
EU: European Union
HSDB: Hazardous Substances Data Bank
IATA: International Air Transport Association
IBC: Intermediate Bulk Container
IMDG: International Maritime Dangerous Goods
LC: Lethal Concentration
LD: Lethal Dose
NOEC: No observable effect concentration
OECD: Organisation for Economic Co-operation and Development
OEL: National occupational exposure limits
PEL: Permissible exposure limit
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail
RTECS: Registry of Toxic Effects of Chemical Substances
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit
TWA: Time Weighted Average
WEL: Workplace Exposure Limit

Information on evaluation method leading to the classification of mixture
The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Training information
Provide adequate information, instruction and training for operators.

Full text of any statements or R-phrases and H-statements under Sections 2 to 15
R20/22 - Harmful by inhalation and if swallowed.
R23/24/25 - Toxic by inhalation, in contact with skin and if swallowed.
R34 - Causes burns.
R40 - Limited evidence of a carcinogenic effect.
R43 - May cause sensitization by skin contact.
R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R53 - May cause long-term adverse effects in the aquatic environment.
R62 - Possible risk of impaired fertility.
H301 - Toxic if swallowed.
H302 + H332 - Harmful if swallowed or inhaled.
H311 - Toxic in contact with skin.
H314 - Causes severe skin burns and eye damage.
H317 - May cause an allergic skin reaction.
H331 - Toxic if inhaled.
H351 - Suspected of causing cancer <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.
H361f - Suspected of damaging fertility.
H400 - Very toxic to aquatic life.
H410 - Very toxic to aquatic life with long lasting effects.
H413 - May cause long lasting harmful effects to aquatic life.

References
1. Material Safety Data Sheet from manufacturer.
2. Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2015 (Chempendium, RTECs, HSDB, INCHEM).
SAFETY DATA SHEET
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended.

Prepared by: ICC The Compliance Center Inc.
http://www.thecompliancecenter.com

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