SAFETY DATA SHEET

1. Identification

Product identifier: Therolink 1000
Other means of identification
Product code: 5781-1801
Recommended use: Thermally conductive heat sink grease.
Recommended restrictions: No other uses are advised.

Manufacturer/Importer/Supplier/Distributor information
Manufacturer
Company name: Resin Designs
Address: 11 State Street
Woburn, MA 01801
United States
Telephone: +1 (781) 935-3133
E-mail: Not available.

Emergency phone number
+1 (800) 262-8200 Within the U.S.
+1 (703) 741-5500 Outside of U.S.

2. Hazard(s) identification

Physical hazards: Not classified.
Health hazards: Not classified.
Environmental hazards: Hazardous to the aquatic environment, acute hazard
Hazardous to the aquatic environment, long-term hazard

OSHA defined hazards: Not classified.

Label elements

Signal word: Warning
Hazard statement: Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.
Precautionary statement
Prevention: Avoid release to the environment.
Response: Collect spillage.
Storage: Store away from incompatible materials.
Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): None known.
Supplemental information 27.5% of the mixture consists of component(s) of unknown acute oral toxicity. 100% of the mixture consists of component(s) of unknown acute dermal toxicity. 27.5% of the mixture consists of component(s) of unknown acute inhalation toxicity.

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Mixtures</th>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Zinc oxide</td>
<td></td>
<td>1314-13-2</td>
<td>70 - &lt; 80</td>
</tr>
<tr>
<td></td>
<td>Polydimethylsiloxanes</td>
<td></td>
<td>63148-62-9</td>
<td>20 - &lt; 30</td>
</tr>
</tbody>
</table>

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

**Inhalation**
Move to fresh air. Call a physician if symptoms develop or persist.

**Skin contact**
Wash off with soap and water. Get medical attention if irritation develops and persists.

**Eye contact**
Rinse with water. Get medical attention if irritation develops and persists.

**Ingestion**
Rinse mouth. Get medical attention if symptoms occur.

**Most important symptoms/effects, acute and delayed**

**Indication of immediate medical attention and special treatment needed**
Treat symptomatically.

**General information**
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

**Suitable extinguishing media**
Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
Use water spray to cool unopened containers.

**Specific methods**
Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**
No unusual fire or explosion hazards noted.

6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up**
The product is immiscible with water and will spread on the water surface. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Stop the flow of material, if this is without risk. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.

**Environmental precautions**
Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

**Precautions for safe handling**
Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities**
Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).
8. Exposure controls/personal protection

Occupational exposure limits
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td>STEL</td>
<td>10 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>2 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
</tbody>
</table>

US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td>Ceiling</td>
<td>15 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td></td>
<td>STEL</td>
<td>10 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 mg/m³</td>
<td>Fume.</td>
</tr>
</tbody>
</table>

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

Exposure guidelines
Occupational Exposure Limits are not relevant to the current physical form of the product.

Appropriate engineering controls
Good general ventilation 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.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses with side shields (or goggles).

Skin protection
Hand protection
Wear appropriate chemical resistant gloves.

Other
Wear suitable protective clothing.

Respiratory protection
In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards
Not applicable.

General hygiene considerations
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance
Physical state
Solid.
Form
Paste.
Color
White.

Odor
Characteristic.
Odor threshold
Not available.
pH
Not available.

Melting point/freezing point
3587 °F (1975 °C) estimated

Initial boiling point and boiling range
Not available.

Flash point
Not available.
Evaporation rate
Not available.
Flammability (solid, gas)
Not available.

Material name: Therolink 1000
5781-1801    Version #: 02    Revision date: 09-25-2020    Issue date: 03-30-2017
Upper/lower flammability or explosive limits

- Flammability limit - lower (%): Not available.
- Flammability limit - upper (%): Not available.
- Explosive limit - lower (%): Not available.
- Explosive limit - upper (%): Not available.

Vapor pressure: Not available.
Vapor density: Not available.
Relative density: Not available.

Solubility(ies)
- Solubility (water): Insoluble.
- Partition coefficient (n-octanol/water): Not available.

Auto-ignition temperature: Not available.
Decomposition temperature: Not available.
Viscosity: Not available.

Other information
- Density: 2.39 g/cm³ estimated
- Explosive properties: Not explosive.
- Oxidizing properties: Not oxidizing.

10. Stability and reactivity

Reactivity: The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability: Material is stable under normal conditions.
Possibility of hazardous reactions: Hazardous polymerization does not occur.
Conditions to avoid: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.
Incompatible materials: Strong oxidizing agents.
Hazardous decomposition products: No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure
- Inhalation: No adverse effects due to inhalation are expected.
- Skin contact: No adverse effects due to skin contact are expected.
- Eye contact: Direct contact with eyes may cause temporary irritation.
- Ingestion: Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics: Headache. Nausea, vomiting. Coughing.

Information on toxicological effects
- Acute toxicity: Not known.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td>Mouse</td>
<td>&gt; 5.7 mg/l, 4 Hours</td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>&gt; 5 g/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Prolonged skin contact may cause temporary irritation.
Direct contact with eyes may cause temporary irritation.

Serious eye damage/eye irritation

Respiratory or skin sensitization

Respiratory sensitization
Not a respiratory sensitizer.

Skin sensitization
This product is not expected to cause skin sensitization.

Germ cell mutagenicity
No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

IARC Monographs. Overall Evaluation of Carcinogenicity
Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)
Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens
Not listed.

Reproductive toxicity
This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure
Not classified.

Specific target organ toxicity - repeated exposure
Not classified.

Aspiration hazard
Not an aspiration hazard.

12. Ecological information

Ecotoxicity
Very toxic to aquatic life with long lasting effects.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therolink 1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Fish 51.1943 mg/l, 96 hours estimated</td>
</tr>
<tr>
<td>Components</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polydimethylsiloxanes (CAS 63148-62-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Channel catfish (Ictalurus punctatus) 2.36 - 4.15 mg/l, 96 hours</td>
</tr>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Fathead minnow (Pimephales promelas) 2246 mg/l, 96 hours</td>
</tr>
</tbody>
</table>

Persistence and degradability
No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential
No data available.

Mobility in soil
No data available.

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.

13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
14. Transport information

DOT

- **UN number**: UN3077
- **UN proper shipping name**: Environmentally hazardous substances, solid, n.o.s. (Zinc oxide), MARINE POLLUTANT
- **Transport hazard class(es)**
  - **Class**: 9
  - **Subsidiary risk**: -
  - **Label(s)**: 9
- **Packing group**: III
- **Environmental hazards**: Yes
- **Marine pollutant**: Yes
- **Special precautions for user**: Read safety instructions, SDS and emergency procedures before handling.
- **Special provisions**: 8, 146, 335, A112, B54, IB8, IP3, N20, T1, TP33
- **Packaging exceptions**: 155
- **Packaging non bulk**: 213
- **Packaging bulk**: 240

IATA

- **UN number**: UN3077
- **UN proper shipping name**: Environmentally hazardous substance, solid, n.o.s. (Zinc oxide)
- **Transport hazard class(es)**
  - **Class**: 9
  - **Subsidiary risk**: -
  - **Packing group**: III
  - **Environmental hazards**: Yes
  - **ERG Code**: 9L
- **Special precautions for user**: Read safety instructions, SDS and emergency procedures before handling.
- **Other information**
  - **Passenger and cargo aircraft**: Allowed with restrictions.
  - **Cargo aircraft only**: Allowed with restrictions.

As per IATA S.P. A197: These substances when transported in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids, are not subject to any other provisions of these Regulations provided the packagings meet the general provisions 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.

IMDG

- **UN number**: UN3077
- **UN proper shipping name**: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide), MARINE POLLUTANT
- **Transport hazard class(es)**
  - **Class**: 9
  - **Subsidiary risk**: -
  - **Packing group**: III
  - **Environmental hazards**: Yes
  - **EmS**: F-A, S-F
- **Special precautions for user**: Read safety instructions, SDS and emergency procedures before handling.
- **As per section 2.10.2.7 of IMDG Code**: Marine pollutants packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 Kg or less for solids, are not subject to any other provisions of the IMDG Code relevant to marine pollutants provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. In case of marine pollutants also meeting the criteria for inclusion in another hazard class, all provisions of the IMDG Code relevant to any additional hazards continue to apply.
- **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**: Not applicable.
General information
IMDG Regulated Marine Pollutant. DOT Regulated Marine Pollutant.

15. Regulatory information

US federal regulations
This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA)
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)
Zinc oxide (CAS 1314-13-2) Listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)
Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)
SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
No

SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide</td>
<td>1314-13-2</td>
<td>70 - &lt; 80</td>
</tr>
</tbody>
</table>

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations

California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.
### International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Taiwan Chemical Substance Inventory (TCSI)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A “Yes” indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A “No” indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

### 16. Other information, including date of preparation or last revision

- **Issue date**: 03-30-2017
- **Revision date**: 09-25-2020
- **Version #**: 02

### HMIS® ratings
- **Health**: 0
- **Flammability**: 0
- **Physical hazard**: 0

### NFPA ratings
- **Health**: 0
- **Flammability**: 0
- **Instability**: 0

### Disclaimer

The information offered in this data sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication, however, no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. This material is intended for industrial use only. No warranty, expressed or implied is made.

### Revision information

This document has undergone significant changes and should be reviewed in its entirety.