SAFETY DATA SHEET
Thermochromic Dispersion BPA Free

1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>Thermochromic Dispersion BPA Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Names</td>
<td>None</td>
</tr>
<tr>
<td>Description</td>
<td>Aqueous temperature sensitive color change pigment dispersion.</td>
</tr>
<tr>
<td>Intended Use</td>
<td>Manufacture of color change inks and coatings.</td>
</tr>
<tr>
<td>Company</td>
<td>LCR Hallcrest</td>
</tr>
<tr>
<td>Address</td>
<td>1911 Pickwick Lane</td>
</tr>
<tr>
<td>Glencoe</td>
<td>Glenview IL 60026 USA</td>
</tr>
<tr>
<td>Web</td>
<td><a href="http://www.hallcrest.com">www.hallcrest.com</a></td>
</tr>
<tr>
<td>Telephone</td>
<td>+1 847 998 8580</td>
</tr>
<tr>
<td>Fax</td>
<td>+1 847 998 6866</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:sales@hallcrest.com">sales@hallcrest.com</a></td>
</tr>
<tr>
<td>Emergency telephone number</td>
<td>Chemtel Domestic: 800-255-3924</td>
</tr>
<tr>
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</tbody>
</table>

2. HAZARDS IDENTIFICATION.

GHS Classification - CLP: Skin Sens. 1, Carc.

GHS Label Elements
Pictograms

Signal Word   Danger

Hazard Statements
May cause cancer by inhalation
May cause an allergic skin reaction
Repeated exposure may cause skin dryness or cracking

Precautionary Statement
Avoid breathing dust / fume / gas / mist / vapors / spray.
Wear protective gloves / protective clothing / eye protection / face protection
If exposed or concerned: Get medical advice/attention
Use personal protective equipment as required
If skin irritation or rash occurs: Get medical advice/attention
3. COMPOSITION / INFORMATION ON INGREDIENTS.

<table>
<thead>
<tr>
<th>Hazardous ingredients</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td></td>
</tr>
<tr>
<td>CAS Number: 50-00-0</td>
<td></td>
</tr>
<tr>
<td>EC Number: 200-001-8</td>
<td></td>
</tr>
<tr>
<td>Concentration: 0.2-0.5%</td>
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</tr>
<tr>
<td>Categories: Acute Tox. 3, Acute Tox. 3, Acute Tox. 3, Skin Corr. 1B, Skin Sens. 1, Muta. 2, Carc. 1B</td>
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</tr>
<tr>
<td>Symbols: GHS08;GHS06;GHS05</td>
<td></td>
</tr>
<tr>
<td>H Statements: H350;H341;H331;H311;H301;H314;H317</td>
<td></td>
</tr>
</tbody>
</table>

| Color Developer        |                |
| CAS Number: Proprietary|                |
| EC Number: Proprietary |                |
| Concentration: 4-8%    |                |
| Categories: Skin Irrit. 2; Eye Irrit. 2; STOT SE 3 |
| Symbols: WARNING |
| H Statements: H319, H315, H335 |

4. FIRST AID MEASURES

**Description of first aid measures**

**Skin contact**
- IF ON SKIN: Wash with plenty of soap and water.
- If skin irritation or rash occurs: Get medical advice/attention.
- If exposed or concerned: Get medical advice/attention.

**Eye contact**
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- If exposed or concerned: Get medical advice/attention.

**Inhalation**
- If exposed or concerned: Get medical advice/attention.

**Ingestion**
- If exposed or concerned: Get medical advice/attention.

**Most important symptoms and effect, both acute or delayed.**

**Skin contact**
- May cause an allergic skin reaction

**Eye contact**
- Causes redness and irritation

**Inhalation**
- May cause cancer by inhalation

**Ingestion**
- May cause irritation

**Indication of any immediate medical attention and special treatment needed.**
- If exposed or if you feel unwell: Call a Poison Center or doctor/physician
- Treat symptomatically

5. FIRE FIGHTING MEASURES

**Extinguishing Media**
- Not flammable. In case of fire use extinguishing media appropriate to surrounding conditions.

**Specific hazards arising from the chemical**
- May give off noxious and toxic fumes in a fire.

**Special protective actions for fire-fighters**
- Wear suitable respiratory protection

6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions, protective equipment and emergency procedures**
- Ensure adequate ventilation

**Environmental Precautions**
- Avoid release to the environment.

**Methods and material for containment and cleaning up**
- Absorb with inert, absorbent material. Transfer to suitable, labelled containers for disposal.
- Clean spillage area thoroughly with plenty of water.
7. HANDLING AND STORAGE

Precautions for safe handling:
- Contaminated work clothing should not be allowed out of the workplace.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Use personal protective equipment as required.
- Wash contaminated clothing before reuse.
- Dispose of contents/container to hazardous waste.

Conditions for safe storage, including incompatibilities:
- Store at ambient temperature.
- Keep container tightly closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters
- Formaldehyde
  - %WEL: 8 hr limit: 2 ppm WEL: 8 hr
  - min limit 2 ppm WEL: 15
  - limit: 2.5 mg/m3 WEL: 15

Indirect Protection Measures
- Use personal protective equipment as required.
- Wear protective gloves/protective clothing/eye protection/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Liquid
Colors: Various according to type
Odor: Formaldehyde odor
pH: 5.0 – 5.5
Melting Point: No information available
Boiling Point: No information available
Flash Point: No information available
Evaporation rate: No information available
Solubility: Miscible with water
Specific Gravity: 0.8 – 1.1 g/cm3
Other Information: Volatile organic compound content 0.4%

10. STABILITY AND REACTIVITY

Reactivity: No hazardous reactions known if used for its intended purpose
Chemical Stability: Stable
Possibility of hazardous reactions: No hazardous reactions known if used for its intended purpose
Conditions to avoid: No information available
Incompatible materials: Contact with strong acids may generate formaldehyde
Hazardous Decomposition: Burning products obnoxious and irritating fumes
Products: Formaldehyde may be generated and other harmful fumes

11. TOXICOLOGICAL INFORMATION

Formaldehyde
- Inhalation Rat LC50: 250ppm
- Oral Rat LD50: 500mg/kg
- Oral Mouse LD50: 500mg/kg
- Skin Rabbit LD50: 270 mg/kg
- Inhalation Mouse LC50: 505 mg/kg

Color Developer
- Oral Rat LD50: 3400 mg/kg

Acute Toxicity: Exposure above the recommended occupational exposure limit (OEL) may cause adverse health effects
Skin corrosion/irritation: May cause irritation to skin
Serious eye damage/irritation: No data available
Respiratory or skin sensitization: No data available
Germ cell mutagenicity: No data is available on this product
Carcinogenicity: Contains formaldehyde which is classified as Carcinogen 1B
Reproductive Effects: No information available
STOT-single exposure: No data is available on this product
STOT-repeat exposure: No data is available on this product
Aspiration hazard: No data is available on this product
Repeated or prolonged exposure: No data is available on this product
12. ECOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Category</th>
<th>Information available</th>
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<tbody>
<tr>
<td>Toxicity</td>
<td>No information available</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>No information available</td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>No information available</td>
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<tr>
<td>Mobility in soil</td>
<td>Miscible in water</td>
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<tr>
<td>Results of PBT and vPvB assessment</td>
<td>No information available</td>
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<tr>
<td>Other adverse effects</td>
<td>No data available on this product.</td>
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13. DISPOSAL CONSIDERATIONS

| General information | Dispose of contents/container to hazardous waste |

14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>UN Number</th>
<th>UN Proper Shipping Name</th>
<th>Transport Hazard class(es)</th>
<th>Packing Group (if applicable)</th>
<th>Environmental Hazards</th>
<th>Special Precautions for the User</th>
<th>Transport in bulk according to ANNEX II of Marpol and IBC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>This product is not classified as dangerous for carriage.</td>
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Further information

This product is not classified as dangerous for carriage.

15. REGULATORY INFORMATION

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>TSCA</th>
<th>SARA313</th>
<th>CALPROP65</th>
<th>CERCLA 40</th>
<th>CAA112</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>Compliant</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

Further Information

- H301: Toxic if swallowed.
- H311: Toxic in contact with skin.
- H314: Causes severe skin burns and eye damage.
- H315: Causes skin irritation.
- H317: May cause an allergic skin reaction.
- H319: Causes serious eye irritation.
- H331: Toxic if inhaled.
- H335: May cause respiratory irritation.
- H341: Suspected of causing genetic defects.
- H350: May cause cancer.

This information supplied in this Safety Data Sheet is designed only as guidance for the safe use and storage 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 only relates 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.