1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>Photochromic Powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Names</td>
<td>None</td>
</tr>
<tr>
<td>Description</td>
<td>Microencapsulated Photochromic Dye</td>
</tr>
<tr>
<td>Intended Use</td>
<td>Manufacture of photochromic inks and coatings.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Company</th>
<th>LCR Hallcrest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>1911 Pickwick Lane</td>
</tr>
<tr>
<td></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>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. HAZARDS IDENTIFICATION

GHS Classification:
- Skin Sens. 1: H317 - May cause an allergic skin reaction.
- Eye Dam. 1: H318 - Causes serious eye damage.
- Carcinogen 1B: H350 – May cause cancer.
- Repro. Tox.: H361 – Suspected of damaging fertility or the unborn child

GHS Label Elements:
- Pictograms

Signal Word
- Danger

Hazard Statements:
- Skin Sens. 1: H317 - May cause an allergic skin reaction.
- Eye Dam. 1: H318 - Causes serious eye damage.
- Carcinogen 1B: H350 – May cause cancer.
- Repro. Tox.: H361 – Suspected of damaging fertility or the unborn child
Precautionary Statement

P201 – Obtain special instructions before use
P202: Do not handle until all safety precautions have been read and understood.
P281: Avoid breathing dust/fumes/gas/mist/vapours/spray.
P272: Contaminated work clothing should not be allowed out of the workplace.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P281: Use personal protective equipment as required.
P302+P352: IF ON SKIN: Wash with plenty of water
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. continue rinsing.
P308 + P313: IF exposed or concerned: Get medical advice/attention.
P310: Immediately call a POISON CENTER/doctor
P321: Specific treatment (see … on this label)
P333+P313 - If skin irritation or a rash occurs: Get medical advice/attention.
P363 - Wash contaminated clothing before reuse.
P405 - Store locked up.
P501 – Dispose of contents/container according to appropriate regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS.

<table>
<thead>
<tr>
<th>Hazardous ingredients</th>
<th>Classification</th>
<th>Conc.</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>Flam. Liq. 4; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Skin Sens. 1; Muta. 2; Carc. 1A; Qualic Acute 3; H227, H301+H311_H331, H314, H317, H318, H341, H350, H402</td>
<td>&lt;0.5%</td>
<td>50-0-0</td>
</tr>
<tr>
<td>4,4'-Isopropylidenediphenol</td>
<td>Repr. 2: H361f; STOT SE 3: H335; Eye Dam. 1: H318; Skin Sens. 1: H317;</td>
<td>1-5%</td>
<td>80-05-7</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Description of first aid measures
- Skin contact: Wash exposed areas with soap and water. Consult a physician if irritation persists.
- Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. continue rinsing.
- Inhalation: Move the exposed person to fresh air. Seek medical attention.
- Ingestion: If victim is conscious, give liquids and induce vomiting.

Most important symptoms and effect, both acute or delayed.
- Skin contact: Irritating to the skin.
- Eye contact: Irritating to the eyes. Excess blinking and tear production marked excess redness and swelling of the conjunctiva.
- Inhalation: Irritating to respiratory system. Inhalation may cause coughing, tightness of the chest and irritation of the respiratory system.
- Ingestion: Ingestion may cause nausea, abdominal discomfort, and vomiting.

5. FIRE FIGHTING MEASURES

Extinguishing Media
Use as appropriate: carbon dioxide (CO2), dry chemical, foam, water spray.

Specific hazards arising from the chemical
Burning produces irritating, toxic and obnoxious fumes.

Special protective actions for firefighters
Use self-contained breathing apparatus and protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, protective equipment and emergency procedures
Ensure adequate ventilation of the working area. Wear eye and skin protection.

Environmental Precautions
Do not allow product to enter drains. Avoid discharge to natural waters.

Methods and material for containment and cleaning up
Absorb with inert, absorbent material. Transfer to suitable, labeled containers for disposal.
7. HANDLING AND STORAGE

Individual protection measures
Avoid contact with eyes and skin. Ensure adequate ventilation of the working area. Adopt best Manual Handling considerations when handling, carrying and dispensing.

Conditions for safe storage, including incompatibilities:
Keep in a cool, dry, well ventilated area. Keep containers tightly closed. Store in correctly labelled containers.

Specific end uses:
Keep away from sources of ignition – No smoking

Suitable Packaging:
Plastic Containers

Further Information:
On processing FF powders for masterbatch heating may result in generation of formaldehyde. Ensure adequate ventilation of all fumes.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits
Formaldehyde
ACGIH TLV TWA: -
ACGIH TLV STEL: C 0.3 ppm
OSHA PEL 8hr TWA Mg M3: -
Skin Designator: -

4,4'-Isopropylidenediphenol
WEL 8-hr limit ppm: -
WEL 15 min limit ppm: -
WEL 8-hr limit mg/m3 total
inhalable dust:-
WEL 8-hr limit mg/m3 total
respirable dust:-
WEL 15 min limit mg/m3 total
inhalable dust:-
WEL 15 min limit mg/m3 total
respirable dust:-

Control Parameters
Appropriate Engineering Controls
Ensure adequate ventilation of the working area.

Individual Protection Measures
Individual protection measures
Wear chemical protective clothing.

Eye/face protection
Approved safety goggles

Skin protection – Hand protection
Impervious (Neoprene) Gloves

Respiratory protection
Wear a MSHA/NIOSH approved (or equivalent) half-mask air purifying respirator.

Environmental Exposure Controls
Appropriate local exhaust ventilation is required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Powder
Colors
Various
Odor
No characteristic odor
Odor threshold
N/A
pH
N/A

Melting Point/Freezing Point
Starts at 250°C

Initial Boiling Point and Boiling Range
No testing available.

Flash Point
No testing available.

Evaporation rate
No testing available.

Flammability
No testing available.

Upper/Lower Flammability or Explosive Limits
No testing available.

Vapor Pressure
No testing available.

Solubility
Immiscible

% Volatiles (by volume)
N/M – tested according to EPA test method 24.

10. STABILITY AND REACTIVITY

Reactivity
Avoid sparks, flames, heat and sources of ignition.

Chemical Stability
Stable under normal conditions.
Possibility of hazardous reactions
Burning can product the following combustion products: N/M

Conditions to avoid
No Significant Hazard.

Incompatible materials
Strong oxidizing agents.

Hazardous Decomposition Products
Cannot Occur

11. TOXICOLOGICAL INFORMATION

Toxicological Information

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Oral Mouse LD50: 42mg/kg</th>
<th>Inhalation Rat LD50: 250ppm</th>
<th>Skin Rabbit LD50: 270 mg/kg</th>
<th>Oral Rat LD50: 4240 mg/kg</th>
<th>Dermal Rabbit LD50: 3 mL/kg</th>
<th>Oral Mouse LD50: 2500 mg/kg</th>
</tr>
</thead>
</table>

Skin corrosion/irritation
No test data available

Serious eye damage/irritation
No test data available

Respiratory or skin sensitization
No test data available

Germ cell mutagenicity
No test data available

Carcinogenicity
No test data available

Reproductive toxicity
No test data available

STOT-single exposure
No test data available

STOT-repeat exposure
No test data available

Aspiration hazard
No test data available

Likely routes to exposure

12. ECOLOGICAL INFORMATION

Toxicity

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Formaldehyde</th>
<th>Daphnia 1 EC50 – 54mg/l</th>
</tr>
</thead>
</table>

| 4,4'-Isopropylidenediphenol  | Green algae EC50/96h: 3.1 |
|                              | Fathead minnows LC50/96h: 4.6 |
|                              | Daphnia LC50/48h: 10.2 |

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil
No data available

Other adverse effects
Harmful to aquatic organisms

13. DISPOSAL CONSIDERATIONS

General information
Dispose of in compliance with all local and national regulations.

14. TRANSPORT INFORMATION

UN Number
This product is not classified as dangerous for carriage.

UN Proper Shipping Name
This product is not classified as dangerous for carriage.

Transport Hazard class(es)
This product is not classified as dangerous for carriage.

Packing Group (if applicable)
This product is not classified as dangerous for carriage.

Environmental Hazards
This product is not classified as dangerous for carriage.

Special Precautions for the User
This product is not classified as dangerous for carriage.

DOT
This product is not classified as dangerous for carriage.

IMDG
This product is not classified as dangerous for carriage.

IATA
This product is not classified as dangerous for carriage.

Further Information
The product is not classified as dangerous for carriage.

15. REGULATORY INFORMATION

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>TSCA</th>
<th>MA</th>
<th>SARA313</th>
<th>CALPROP65</th>
<th>CWA307</th>
<th>CAA112</th>
<th>CWA311</th>
<th>SARA302</th>
<th>SARA304</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>Y</td>
<td>Y</td>
<td>Y0.1</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y 500</td>
<td>Y 100</td>
</tr>
<tr>
<td>4,4'-Isopropylidenediphenol</td>
<td>Y</td>
<td>Y</td>
<td>Y1.0</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
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</table>
16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>Revision</th>
<th>Revision 3: Major revision to include the requirements of the HCS/HazCom 2012 Final Rule.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further information</td>
<td>The information supplied in this Safety 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.</td>
</tr>
</tbody>
</table>

| HMIS LABELLING     | HEALTH 1, FLAMMABILITY 1, PHYSICAL HAZARD 0, PERSONAL PROTECTION: A. |