

SAFETY DATA SHEET Thermochromic Water Based Screen Ink

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MSDS011 Revision 3
Revision Date 06/15/2015

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	Thermochromic Water Based Screen Ink		
Additional Names	None		
Description	Temperature Sensitive color change ink.		
Intended Use	Manufacture of temperature indicating devices		
Company	LCR Hallcrest 1911 Pickwick Lane Glenview IL 60026 USA		
Web	www.hallcrest.com		
Telephone	+1 847 998 8580		
Fax	+1 847 998 6866		
Email	sales@hallcrest.com		
Emergency telephone number	Chemtel	Domestic: 800-255-3924	Intl: +01-813-248-0585

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. 2: H361 – Suspected of damaging fertility or the unborn child
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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. 2: 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.
 P261: 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.			
Hazardous ingredients	Classification	Conc.	CAS
Formaldehyde	Flam. Liq. 4; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Skin Sens. 1; Muta. 2; Carc. 1A; Quatic Acute 3; H227, H301+H311_H331, H314, H317, H318, H341, H350, H402	<0.5%	50-0-0
4,4'-Isopropylidenediphenol	Repr. 2: H361f; STOT SE 3: H335; Eye Dam. 1: H318; Skin Sens. 1: H317;	1-5%	80-05-7

4. FIRST AID MEASURES

Description of first aid measures

Skin contact Irritating to skin. Wash off immediately with plenty of soap and water. Remove contaminated clothing. Seek medical attention if irritation or symptoms persist.

Eye contact Irritating to eyes. Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Seek medical attention if irritation or symptoms persist.

Inhalation Irritating to respiratory system. Inhalation may cause coughing, tightness of the chest and irritation of the respiratory system. Move the exposed person to fresh air. Seek medical attention.

Ingestion Ingestion may cause nausea and vomiting. Seek medical attention if irritation or symptoms persist. DO NOT INDUCE VOMITING.

Most important symptoms and effect, both acute or delayed.

Skin contact Avoid contact with skin. Irritating to skin.

Eye contact Irritating to eyes.

Inhalation Irritant, moderate respiratory.

Ingestion Ingestion may cause nausea and vomiting.

Indication of any immediate medical attention and special treatment needed

Skin contact May cause sensitization by skin contact. Wash off immediately with plenty of soap and water.

Eye contact Seek medical attention if irritation or symptoms persist.

Inhalation Coughing, difficulty in breathing. If breathing is difficult give oxygen.

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 fire-fighters 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 suitable protective equipment.
- Environmental Precautions** Do not allow product to enter drains. Prevent further spillage if safe.
- Methods and material for containment and cleaning up** Absorb with inert, absorbent material. Sweep up. Transfer to suitable, labelled containers for disposal. Clean spillage area thoroughly with plenty of water.

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
- Further Information:** Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits

Formaldehyde	WEL 15 min limit ppm: 2 WEL 8-hr limit mg/m3 total - inhalable dust: WEL 8-hr limit mg/m3 total - respirable dust:	WEL 15 min limit mg/m3: 2.5 WEL 15 min limit mg/m3 total - inhalable dust: WEL 15 min limit mg/m3 total - respirable dust:
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 8-hr limit mg/m3: 10 WEL 15 min limit mg/m3: - WEL 15 min limit mg/m3 total inhalable dust:- WEL 15 min limit mg/m3 total respirable dust:-

Control Parameters

Individual Protection Measures

- Individual protection measures** Wear chemical protective clothing.
- Eye/face protection** Approved safety goggles
- Skin protection – Hand protection** Chemical resistant gloves (PVC).
- Respiratory protection** Wear:. Suitable respiratory equipment.
- Environmental Exposure Controls** Appropriate local exhaust ventilation is required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Liquid
Colors	Various colors according to type
Odor	Characteristic
Odor threshold	N/A
pH	5-5.5
Melting Point/Freezing Point	Starts at 100°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	Miscible in water.
% Volatiles (by volume)	N/M – tested according to EPA test method 24.
Viscosity	300-1500 cps

10. STABILITY AND REACTIVITY

Reactivity	No data available
Chemical Stability	Stable under normal conditions.
Possibility of hazardous reactions	No significant hazard
Conditions to avoid	Protect from frost.
Incompatible materials	Alkalis
Hazardous Decomposition Products	Formaldehyde may be generated and other harmful fumes.

11. TOXICOLOGICAL INFORMATION

Toxilogical Information		
Formaldehyde	Inhalation Rat LC50/2H h: 250 ppm Oral Mouse LD50: 500 mg/kg Dermal Rabbit LD50: 270 mg/kg	Oral Rat LD50: 500 mg/kg Inhalation Mouse LC50/2H h: 505 mg/m3
4,4'-Isopropylidenediphenol	Oral Rat LD50: 4240 mg/kg Dermal Rabbit LD50: 3 mL/kg	Oral Mouse LD50: 2500 mg/kg

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	Formaldehyde	Daphnia 1 EC50 – 54mg/l
	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	No data available	

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods	Absorb with inert, absorbent material.
General Information	Dispose of in compliance with all local and national regulations.
Disposal Methods	Do not empty into drains; dispose of this material and its container in a safe way.

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

Further information

The product is not classified as dangerous for carriage.

15. REGULATORY INFORMATION									
Ingredient	TSCA	MA	SARA313	CALPROP65	CWA307	CAA112	CWA311	SARA302	SARA304
Formaldehyde	Y	Y	Y0.1	Y	N	Y	Y	Y 500	Y 100
4,4'-Isopropylidenediphenol	Y	Y	Y1.0	N	N	N	N	N	N

16. OTHER INFORMATION

Revision Revision 3: Major revision to include the requirements of the HCS/HazCom 2012 Final Rule.
Further information 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.
HMIS LABELLING HEALTH 1, FLAMMABILITY 0, PHYSICAL HAZARD 0,