

SAFETY DATA SHEET Thermochromic Solvent Screen Ink

1. PRODUCT AND COMPANY IDENTIFICATION	
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Product name	Thermochromic Solvent Screen Ink	
Additional Names	None	
Description	Thermochromic pigment dispersed in solvent based ink.	
Intended Use	Manufacture of temperature-indicating products and temperature-sensitive decorative effects.	
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.	
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GHS Classification	Skin Sens. 1: H317 - May cause an allergic skin reaction. Eye Irrit 2: H319 - Causes serious eye irritation. Carcinogen 1B: H350 – May cause cancer. Reproductive toxicity 2: H361 - Suspected of damaging fertility of the unborn child. Acute Toxicity Oral 4: H302 - Harmful if swallowed Acute Toxicity Dermal 4: H312 - Harmful in contact with skin Acute Toxicity Inhalation (Vapors & Dust Mites) 4: H332 - Harmful if inhaled Skin Corrosion/irritation 2: H315 - Causes skin irritation
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**GHS Label Elements
Pictograms**



Signal Word Danger

Hazard Statements	Skin Sens. 1: H317 - May cause an allergic skin reaction. Eye Irrit 2: H319 – Causes serious eye irritation. Carcinogen 1B: H350 – May cause cancer. Reproductive toxicity 2: H361 - Suspected of damaging fertility of the unborn child. Acute Toxicity Oral 4: H302 - Harmful if swallowed Acute Toxicity Dermal 4: H312 - Harmful in contact with skin Acute Toxicity Inhalation (Vapors & Dust Mites) 4: H332 - Harmful if inhaled Skin Corrosion/irritation 2: H315 - Causes skin irritation
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Precautionary Statement	<p>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. P264- Wash thoroughly after handling. P270- Do not eat, drink or smoke when using this product. P271- Use only outdoors or in a well-ventilated area. 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. P301+P312: IF SWALLOWED: Call a POISON CENTER/doctor/.../if you feel unwell. P302+P352: IF ON SKIN: Wash with plenty of water P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. [As modified by IV ATP] 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. P312: Call a POISON CENTER/ doctor/.../if you feel unwell. P321: Specific treatment (see ... on this label) P322: Specific Measures (see... on this label) P330: Rinse mouth. P332+P313: If skin irritation occurs: Get medical advice/attention. P333+P313 - If skin irritation or a rash occurs: Get medical advice/attention. P337+P313 - If eye irritation persists: Get medical advice/attention. P362 - Take off contaminated clothing. P363 - Wash contaminated clothing before reuse. P405 - Store locked up. P501 – Dispose of contents/container according to appropriate regulations.</p>
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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. 1B; Aquatic 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
2-Butoxyethanol	Flammable liquids (Category 4), H227 - Acute toxicity, Oral (Category 4), H302 - Acute toxicity, Inhalation (Category 4), H332 - Acute toxicity, Dermal (Category 4), H312 - Skin irritation (Category 2), H315 - Eye irritation (Category 2A), H319	30% - 80%	111-76-2
Citric Acid	Eye irritation (Category 2A), H319	1 - 5%	77-92-9

4. FIRST AID MEASURES

Description of first aid measures

Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. If irritation (redness, rash, blistering) develops, get medical attention.
Eye contact	Irritating to eyes. Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention if irritation develops and persists.
Inhalation	Remove person to fresh air and keep comfortable for breathing. If breathing is irregular or stopped, administer artificial respiration. Get medical attention immediately.
Ingestion	Ingestion may cause nausea and vomiting. Seek medical attention if irritation or symptoms persist. DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Most important symptoms and effect, both acute or delayed.

None. Under normal use conditions

Indication of any immediate medical attention and special treatment needed.

Notes to Physician – Treat Symptomatically.

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 As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Cool containers / tanks with water spray. Sealed containers may rupture when heated.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, protective equipment and emergency procedures Remove all sources of ignition. Ventilate the area. Avoid contact with eyes, skin and clothing. Avoid breathing dust or vapor. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental Precautions Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. Keep out of drains, sewers, ditches and waterways. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Use clean non-sparking tools to collect absorbed material.

7. HANDLING AND STORAGE

Individual protection measures Use personal protective equipment as required. Do not eat, drink or smoke when using this product. Ensure adequate ventilation.

Conditions for safe storage, including incompatibilities: Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep container closed when not in use. Keep out of the reach of children.

Clean Up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Use clean non-sparking tools to collect absorbed material.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits

Formaldehyde	ACGIH TLV TWA: - Notations: SEN; A2	ACGIH TLV STEL: C 0.3ppm
2-Butoxyethanol	OSHA PEL 8hr TWA Mg M3: - ACGIH TLV TWA – 20ppm ACGIH Biological Indices – Butoxyacetic acid 200 mg/g	OSHA PEL 8hr TWA ppm: - Skin Designator: - NIOSH TWA 5ppm 24mg/m3
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

Appropriate Engineering Controls Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Users are advised to consider national Occupational Exposure Limits or other equivalent values. In case of insufficient ventilation, wear suitable respiratory equipment.

Individual Protection Measures

- Individual protection measures** Wear chemical protective clothing.
- Eye/face protection** Wear safety glasses with side shields (or goggles). If splashes are likely to occur. Wear suitable face shield. Ensure that eyewash stations and safety showers are close to the workstation location.
- Skin protection – Hand protection** Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
- Respiratory Protection** If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Viscous Liquid
Colors	Various according to type
Odor	Aromatic
Odor threshold	No testing available.
pH	No testing available
Melting Point/Freezing Point	No testing available
Initial Boiling Point and Boiling Range	>140°C
Flash Point	62°C
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)	No testing available
Specific Gravity	No testing available
Viscosity	No testing available

10. STABILITY AND REACTIVITY

Reactivity	No data available
Chemical Stability	Stable under normal conditions.
Possibility of hazardous reactions	Burning can product the following combustion products: N/M
Conditions to avoid	Protect from frost.
Incompatible materials	Strong acids. Strong bases. Strong oxidizing agents. Reducing agent.
Hazardous Decomposition Products	Formaldehyde may be generated and other harmful fumes.

11. TOXICOLOGICAL INFORMATION

Toxicological Information		
Formaldehyde	Oral Mouse LD50: 42mg/kg Inhalation Rat LD50: 250ppm	Skin Rabbit LD50: 270 mg/kg
4,4'-Isopropylidenediphenol	Oral Rat LD50: 4240 mg/kg Dermal Rabbit LD50: 3 mL/kg	Oral Mouse LD50: 2500 mg/kg
Citric Acid	LD50 Oral - Rat - 5,400 mg/k LD50 Oral - Rat - 5,400 mg/k	Skin - Rabbit Result: Mild skin irritation (OECD Test Guideline 404) Eyes - Rabbit Result: Irritating to eyes. (OECD Test Guideline 405)
2-Butoxyethanol	LD50 Oral – Rat – 470 mg/kg LD50 Intraperitoneal - Rat - 220 mg/kg Skin corrosion/irritation - Rabbit - Open irritation test	LC50 Inhalation – Rat – 4h – 450ppm LD50 Intravenous - Rat - 307 mg/kg Eyes - Rabbit - Moderate eye irritation - 24 h

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
Acute Toxicity No test data available
Likely routes to exposure skin

12. ECOLOGICAL INFORMATION

Toxicity

Citric Acid 96h LC50 Lepomis macrochirus: 1516 mg/L
 [static] 72h EC50 Daphnia magna: 120 mg/L

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

Formaldehyde Daphnia 1 EC50 – 54mg/l

2-Butoxyethanol 96h LC50 Lepomis macrochirus: 1490 mg/L
 [static] 96h LC50 Lepomis macrochirus: 2950 mg/L
 24h EC50 Daphnia magna: 1698 - 1940 mg/L
 48h EC50 Daphnia magna: >1000 mg/L

Persistence and degradability No data available
Bioaccumulative potential No data available
Mobility in soil No data available
Other adverse effects No data available on this product.

13. DISPOSAL CONSIDERATIONS

General information Dispose of in compliance with all local and national regulations. 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
2-Butoxyethanol	Y	Y	Y	N	N	N	N	N	N

16. OTHER INFORMATION

Revision Revision 2: 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.
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