

SAFETY DATA SHEET Thermochromic Epoxy Screen Ink

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MSDS149 Revision 1
Revision Date 9/30/2015

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	Thermochromic Epoxy Screen Ink		
Additional Names	None		
Description	Epoxy based screen 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.

GHS Classification	Skin Sens. 1: H317 - May cause an allergic skin reaction. Eye Dam. 1: H318 - Causes serious eye damage. Flammable Liquids 3: H226 – Flammable Liquid and vapor. Reproductive toxicity 2: H361 - Suspected of damaging fertility of 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. Flammable Liquids 3: H226 – Flammable Liquid and vapor. Reproductive toxicity 2: H361 - Suspected of damaging fertility of the unborn child.
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Precautionary Statement	P201 - Obtain special instructions before use P202 - Do not handle until all safety precautions have been read and understood P210 - Keep away from heat/sparks/open flames/hot surfaces – No smoking P261 - Avoid breathing dust/fume/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 P310 - Immediately call a POISON CENTER or doctor/physician P321 - Specific treatment (see ... on this label) P302+P352 - IF ON SKIN: Wash with soap and water P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower P305+P351+P338 - IF IN EYES: Rinse continuously 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 P405 -Store locked up P501 - Dispose of contents/container according to local regulations.
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3. COMPOSITION / INFORMATION ON INGREDIENTS.			
Hazardous ingredients	Classification	Conc.	CAS
4,4'-Isopropylidenediphenol	Repr. 2: H361f; STOT SE 3: H335; Eye Dam. 1: H318; Skin Sens. 1: H317;	1- 10%	80-05-7
Dipropylene Glycol Monomethyl Ether	Flammable liquids (Category 4), H227	5 – 20%	34590-94-8
Diacetone alcohol	Flammable liquids (Category 3), H226 Eye irritation (Category 2A), H319	1 – 10%	123-42-2
Propylene glycol monomethyl ether	Flammable liquids (Category 3), H226 Reproductive toxicity (Category 1B), H360 Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336	1 – 10%	107-98-2
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	1 – 5%	111-76-2

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 Foam. Carbon dioxide (CO2). Dry chemical. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizing agents. Reducing agent.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits

4,4'-Isopropylidenediphenol	WEL 8-hr limit ppm: - WEL 15 min limit ppm: - WEL 8-hr limit mg/m ³ total inhalable dust:- WEL 8-hr limit mg/m ³ total respirable dust:-	WEL 8-hr limit mg/m ³ : 10 WEL 15 min limit mg/m ³ : - WEL 15 min limit mg/m ³ total inhalable dust:- WEL 15 min limit mg/m ³ total respirable dust:-
Dipropylene Glycol Monomethyl Ether 34590-94-8	ACGIH TLV – TWA: 100ppm ACGIH TLV – STEL: 150ppm Skin	OSHA PEL - TWA: 100 ppm OSHA PEL - TWA: 600mg/m ³ OSHA PEL - STEL: 150 ppm OSHA PEL - STEL: 900 mg/m ³ Skin
Diacetone alcohol 123-42-2	ACGIH TLV – TWA: 50ppm	OSHA PEL - TWA: 50 ppm OSHA PEL - TWA: 240 mg/m ³
Propylene glycol monomethyl ether 107-98-2	ACGIH TLV TWA: 100 ppm ACGIH TLV STEL: 150 ppm	OSHA PEL - TWA: 100 ppm OSHA PEL - TWA: 360 mg/m ³ OSHA PEL - STEL: 150 ppm OSHA PEL - STEL: 540 mg/m ³
2-Butoxyethanol 111-76-2	ACGIH TLV TWA: 20ppm	OSHA PEL - TWA: 25 ppm OSHA PEL - TWA: 120 mg/m ³ OSHA PEL - TWA: 50 ppm OSHA PEL - TWA: 240 mg/m ³ Skin

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	Characteristic
Odor threshold	No testing available.
pH	No testing available
Melting Point/Freezing Point	No testing available
Initial Boiling Point and Boiling Range	>149°C
Flash Point	52°C Setaflash closed cup
Evaporation rate	No testing available.
Flammability	No testing available.
Upper/Lower Flammability or Explosive Limits	No testing available.
Vapor Pressure	No testing available.
Solubility	No testing available.
% Volatiles (by volume)	38.49
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	None under normal processing
Conditions to avoid	Protect from frost. Keep away from open flames, hot surfaces and sources of ignition
Incompatible materials	Strong acids. Strong bases. Strong oxidizing agents. Reducing agent.
Hazardous Decomposition Products	Thermal decomposition can lead to release of irritating gases and vapors. Carbon dioxide (CO2). Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Toxicological Information		
4,4'-Isopropylidenediphenol	Oral Rat LD50: 4240 mg/kg Oral Mouse LD50: 2500 mg/kg	Dermal Rabbit LD50: 3 mL/kg
Dipropylene Glycol Monomethyl Ether 34590-94-8	Oral Rat LD50: 5230 mg/kg Dermal Rabbit LD50: 9500 mg/kg	
Diacetone alcohol 123-42-2	Oral Rat LD50: 4g/kg Dermal Rabbit LD50: 13500mg/kg	
Propylene glycol monomethyl ether 107-98-2	Oral Rat LD50: 5200mg/kg Dermal Rabbit LD50: 1300 mg/kg	Inhalation Rat LD50: 54.6 mg/L (4h) Inhalation Rat LD50: >24 mg/L (1h)
2-Butoxyethanol 111-76-2	Oral Rat LD50: 470mg/kg Dermal Rabbit LD50: 2270 mg/kg	Inhalation Rat LD50: 2.21mg/L (4h) Inhalation Rat LD50: 450 ppm (4h)

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

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
Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH
2-Butoxyethanol 111-76-2	A3

12. ECOLOGICAL INFORMATION	
4,4'-Isopropylidenediphenol	Green algae EC50/96h: 3.1 Fathead minnows LC50/96h: 4.6 Daphnia LC50/48h: 10.2
Dipropylene Glycol Monomethyl Ether	96h LC50 Pimephales promelas: > 10000mg/L 48h LC50 Daphnia Magna: 1919 mg/L
Diacetone alcohol	96h LC50 Lepomis macrochirus: 420 mg/L 96h LC50 Lepomis macrochirus: 420 mg/L [static] 24h EC50 Daphnia magna: 8750 mg/L
Propylene glycol monomethyl ether	96h LC50 Leuciscus idus: 4600 – 10000 mg/L [static] 96h LC50 Pimephales promelas: 20.8 g/L [static] 48h EV50 Daphnia magna: 23300 mg/L
2-Butoxyethanol	96h LC50 Lepomis macrochirus: 1490 mg/L [statis] 96h LC50 Lepomis macrochirus: 2950 mg/L 24h EC50 Daphnia magna 1698 – 1940 mg/L 48h EC50 Daphnia magna: >1000mg/L

Persistence and degradability No data available

Component	Partition Function
Dipropylene Glycol Monomethyl Ether	-0.064
Diacetone alcohol	1.03
Propylene glycol monomethyl ether	-0.437
2-Butoxyethanol	0.81

Bioaccumulative potential

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. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

UN Number UN1210
UN Proper Shipping Name Printing Ink
Transport Hazard class(es) 3
Packing Group (if applicable) III
DOT In the U.S. and Canada, this material may be reclassified as a combustible liquid and is not regulated, via surface transportation, in containers less than 119 gallons or 450 liters [per 49 CFR 173.150 (f)] [per Transportation of Dangerous Goods Regulations/Clear Language Part 1.33].

ICAO / IATA / IMDG / IMO

UN/ID no. UN1210
Proper Shipping Name Printing Ink
Hazard Class 3

15. Regulatory Information

International Inventories

All components are listed on the TSCA Inventory. For further information, please contact: Supplier (manufacturer/importer/downstream user/distributor).

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Component	CAS-No	Weight %	SARA 313 - Threshold Values
2-Butoxyethanol	111-76-2	1 - 5	1.0
4,4'-Isopropylidenediphenol	80-05-7	1-10	1.0

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

U.S. State Regulations

Component	Massachusetts Right To Know
Dipropylene Glycol Monomethyl Ether 34590-94-8	X
Diacetone alcohol 123-42-2	X
Propylene glycol monomethyl ether 107-98-2	X
2-Butoxyethanol 111-76-2	X
4,4'-Isopropylidenediphenol	X
Component	Minnesota Right To Know
Dipropylene Glycol Monomethyl Ether 34590-94-8	X
Diacetone alcohol 123-42-2	X
Propylene glycol monomethyl ether 107-98-2	X
2-Butoxyethanol 111-76-2	X
4,4'-Isopropylidenediphenol	X
Component	New Jersey Right To Know
Dipropylene Glycol Monomethyl Ether 34590-94-8	X
Diacetone alcohol 123-42-2	X
Propylene glycol monomethyl ether 107-98-2	X
2-Butoxyethanol 111-76-2	X
Component	Pennsylvania Right To Know
Dipropylene Glycol Monomethyl Ether 34590-94-8	X

Diacetone alcohol 123-42-2	X
Propylene glycol monomethyl ether 107-98-2	X
2-Butoxyethanol 111-76-2	X
4,4'-Isopropylidenediphenol	X

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects

16. OTHER INFORMATION

Revision Revision 1: Major revision to include the requirements of the HCS/HazCom 2012 Final Rule.
Further information The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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 process, unless specified in the text

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