Thermomelt® HEAT-STIK Markers 206 °F (97 °C), 550 °F (288 °C), 213 °F (100, 101 °C)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product form : Mixture
Trade name : Thermomelt® HEAT-STIK Markers 206 °F (97 °C), 550 °F (288 °C), 213 °F (100, 101 °C)

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture : Temperature indicator

1.3. Details of the supplier of the safety data sheet
LA-CO Industries, Inc.
1201 Pratt Boulevard
Elk Grove Village, IL. 60007-5746
Phone: (847) 956-7600
Fax: (847) 956-9885
E-mail: customer_service@laco.com

1.4. Emergency telephone number

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification in accordance with the Globally Harmonized Standard
Skin Irrit. 2 : H315
Eye Irrit. 2A : H319
Full text of H-phrases: see section 16

2.2. Label elements
GHS-US labelling
Hazard pictograms (GHS-US) :

GHS07

Signal word (GHS-US) : Warning
Hazard statements (GHS-US) : H315 - Causes skin irritation
                                      H319 - Causes serious eye irritation
Precautionary statements (GHS-US) : P264 - Wash hands thoroughly after handling
                                      P280 - Wear eye protection, protective gloves
                                      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
                                      P321 - Specific treatment (see First aid measures on this label)
                                      P332+P313 - If skin irritation occurs: Get medical advice/attention
                                      P337+P313 - If eye irritation persists: Get medical advice/attention
                                      P362 - Take off contaminated clothing and wash before reuse

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance
Not applicable
Thermomelt® HEAT-STIK Markers 206 °F (97 °C), 550 °F (288 °C), 213 °F (100, 101 °C)

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according to Canadian Hazardous Products Regulations (HPR)

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>% (w/w)</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>azelaic acid</td>
<td>(CAS No) 123-99-9</td>
<td>74.89 – 85.11 : 206 °F</td>
<td>Skin Irrit. 2, H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td>79.23 – 90.03 : 213 °F</td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td>5-nitroisophthalic acid</td>
<td>(CAS No) 618-88-2</td>
<td>11.09 : 550 °F</td>
<td>Eye Irrit. 2, H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3, H335</td>
</tr>
<tr>
<td>undecanedioic acid</td>
<td>(CAS No) 1852-04-6</td>
<td>4.85 – 5.11 : 206 °F</td>
<td>Skin Irrit. 2, H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.13 – 5.4 : 213 °F</td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>suberic acid</td>
<td>(CAS No) 505-48-6</td>
<td>0.77 – 1.11 : 206 °F</td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.81 – 1.17 : 213 °F</td>
<td></td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing.

First-aid measures after skin contact : Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Causes serious eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

All treatments should be based on observed signs and symptoms of distress in the patient.

SECTION 5: Firefighting measures

5.1. Extinguishing media


Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No specific fire or explosion hazard.

Reactivity : No dangerous reactions known.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Do not allow run-off from fire fighting to enter drains or water courses.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Wear fire/flame resistant/retardant clothing. Wear a self contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with skin and eyes. Avoid creating or spreading dust.

6.1.1. For non-emergency personnel

Protective equipment : Chemical goggles or safety glasses. Wear suitable gloves. rubber.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Chemical goggles or safety glasses. Wear suitable gloves. rubber.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Avoid release to the environment.
6.3. Methods and material for containment and cleaning up
For containment: Contain and collect as any solid. Avoid generating dust.
Methods for cleaning up: Take up in non-combustible absorbent material and shove into container for disposal. Minimize generation of dust.

6.4. Reference to other sections
Section 13: disposal information. Section 7: safe handling. Section 8: personal protective equipment.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Avoid breathing dust, fume.
Hygiene measures: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store in a dry, cool and well-ventilated place.

7.3. Specific end use(s)
Temperature indicator.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Thermomelt® HEAT-STIK Markers 206 °F (97 °C), 550 °F (288 °C), 213 °F (100, 101 °C)</th>
<th>ACGIH</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OSHA</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

5-nitroisophthalic acid (618-88-2)

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OSHA</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

azelaic acid (123-99-9)

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OSHA</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

undecanedioic acid (1852-04-6)

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OSHA</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

suberic acid (505-48-6)

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OSHA</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

8.2. Exposure controls
Appropriate engineering controls: Avoid dispersal of dust in the air (ie, clearing dust surfaces with compressed air). Either local exhaust or general room ventilation is usually required.
Personal protective equipment: Avoid all unnecessary exposure.
Hand protection: Wear suitable gloves. rubber. Wear thermal protective gloves when working around hot surfaces.
Eye protection: Chemical goggles or safety glasses.
Respiratory protection: In case of inadequate ventilation wear respiratory protection. Use air-purifying respirator equipped with particulate filtering cartridges.
Thermal hazard protection: Flame retardant clothing should be used when handling in molten state.
Other information: Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state: Solid
Thermomelt® HEAT-STIK Markers 206 °F (97 °C), 550 °F (288 °C), 213 °F (100, 101 °C)

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Appearance : A solid crayon-like marker.
Colour : white.
Odour threshold : No data available
pH : No data available
Relative evaporation rate (butyl acetate=1) : No data available
Melting point : Varies per product
Freezing point : No data available
Boiling point : No data available
Flash point : 215 °C (206 °F Marker)
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : No data available
Solubility : No data available
Log Pow : < 1
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : No data available

9.2. Other information
VOC content : 0 %

SECTION 10: Stability and reactivity

10.1. Reactivity
No dangerous reactions known.

10.2. Chemical stability
Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Avoid creating or spreading dust. Contact with incompatible materials.

10.5. Incompatible materials

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Not classified

5-nitroisophthalic acid (618-88-2)
LD50 oral rat : 5000 mg/kg 14 d
LC50 inhalation rat (mg/l) : > 11370 mg/m³ 3 h
ATE CLP (oral) : 5000.000 mg/kg bodyweight

Azelaic acid (123-99-9)
LD50 oral rat : > 2000 mg/kg read-across Octanoic Acid (mixed isomers)
LD50 dermal rabbit : > 2000 mg/kg read-across stearic acid
LC50 inhalation rat (mg/l) : > 0.1621 mg/l/4h read-across Octanoic Acid (mixed isomers)
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<table>
<thead>
<tr>
<th>Substance</th>
<th>LD50 oral rat</th>
<th>LD50 dermal rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>undecanedioic acid (1852-04-6)</td>
<td>&gt; 5000 mg/kg</td>
<td>&gt; 6000 mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Causes skin irritation.
Serious eye damage/irritation: Causes serious eye irritation.
Respiratory or skin sensitisation: Not classified.
Germ cell mutagenicity: Not classified.
Reproductive toxicity: Not classified.
Specific target organ toxicity (single exposure): Not classified.
Specific target organ toxicity (repeated exposure): Not classified.
Aspiration hazard: Not classified.

Potential adverse human health effects and symptoms

Symptoms/injuries after skin contact: Causes skin irritation.
Symptoms/injuries after eye contact: Causes serious eye irritation.
Likely routes of exposure: Skin and eye contact; Inhalation.

**SECTION 12: Ecological information**

12.1 Toxicity

<table>
<thead>
<tr>
<th>Substance</th>
<th>LC50 fish 1</th>
<th>EC50 Daphnia 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-nitroisophthalic acid (618-88-2)</td>
<td>3861.279 mg/l 96 h</td>
<td>2044.325 mg/l 48 h</td>
</tr>
<tr>
<td>azelaic acid (123-99-9)</td>
<td>&gt; 16 mg/l 96 h; read-across decanoic acid</td>
<td>&gt; 20 mg/l 48 h; read-across decanoic acid</td>
</tr>
<tr>
<td>NOEC chronic fish</td>
<td>6.4 mg/l danio rerio 28 days; read-across sodium laurate</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
<th>LC50 fish 1</th>
<th>EC50 Daphnia 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>undecanedioic acid (1852-04-6)</td>
<td>&gt; 100 mg/l 96 h</td>
<td>&gt; 100 mg/l 48 h</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

<table>
<thead>
<tr>
<th>Substance</th>
<th>Biodegradation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-nitroisophthalic acid (618-88-2)</td>
<td>50 % 38 d</td>
</tr>
<tr>
<td>azelaic acid (123-99-9)</td>
<td>Readily biodegradable.</td>
</tr>
<tr>
<td>undecanedioic acid (1852-04-6)</td>
<td>Readily biodegradable.</td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Substance</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermomelt® HEAT-STIK Markers</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>5-nitroisophthalic acid (618-88-2)</td>
<td>3.2</td>
</tr>
<tr>
<td>azelaic acid (123-99-9)</td>
<td>1.5735</td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>Not expected to bioaccumulate.</td>
</tr>
<tr>
<td>azelaic acid (123-99-9)</td>
<td>1.7</td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>May bioaccumulate.</td>
</tr>
<tr>
<td>undecanedioic acid (1852-04-6)</td>
<td>2.8</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

No additional information available.
12.5. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Sewage disposal recommendations: Do not dispose of waste into sewer.
Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations.
Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT and TDG
Not considered a dangerous good for transport regulations
Proper Shipping Name (ADR): Not applicable

Transport by sea
No additional information available

Air transport
No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

- 5-nitroisophthalic acid (618-88-2)
  Listed on the United States TSCA (Toxic Substances Control Act) inventory

- azelaic acid (123-99-9)
  Listed on the United States TSCA (Toxic Substances Control Act) inventory

- undecanediolic acid (1852-04-6)
  Listed on the United States TSCA (Toxic Substances Control Act) inventory

- suberic acid (505-48-6)
  Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

- 5-nitroisophthalic acid (618-88-2)
  Listed on the Canadian NDSL (Non-Domestic Substances List)

- azelaic acid (123-99-9)
  Listed on the Canadian DSL (Domestic Substances List) inventory.

- undecanediolic acid (1852-04-6)
  Listed on the Canadian DSL (Domestic Substances List) inventory.

- suberic acid (505-48-6)
  Listed on the Canadian DSL (Domestic Substances List) inventory.

EU-Regulations

- 5-nitroisophthalic acid (618-88-2)
  Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

- azelaic acid (123-99-9)
  Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

- undecanediolic acid (1852-04-6)
  Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

- suberic acid (505-48-6)
  Listed on ELINCS (European List of Notified Chemical Substances)
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National regulations

| Thermomelt® HEAT-STIK Markers 206 °F (97 °C), 550 °F (288 °C), 213 °F (100, 101 °C) |
| All components are listed on the EEC inventory European Inventory of Existing Commercial Chemical Substances (EINECS). |
| All ingredients are listed in the Toxic Substances Control Act (TSCA). |
| All ingredients are listed on the Canadian Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL). |

15.3. US State regulations

No additional information available

SECTION 16: Other information

| Indication of changes | : Revision : Added. 213 °F. |

| Abbreviations and acronyms | : ACGIH (American Conference of Government Industrial Hygienists). |
| | ATE: Acute Toxicity Estimate. |
| | CAS (Chemical Abstracts Service) number. |
| | CLP: Classification, Labelling, Packaging. |
| | EC50: Environmental Concentration associated with a response by 50% of the test population. |
| | GHS: Globally Harmonized System (of Classification and Labelling of Chemicals). |
| | LD50: Lethal Dose for 50% of the test population. |
| | OSHA: Occupational Safety & Health Administration. |
| | PBT: Persistent, Bioaccumulative, Toxic. |
| | STEL: Short Term Exposure Limits. |
| | TSCA: Toxic Substances Control Act. |
| | TWA: Time Weight Average. |
| Other information | : None. |
| NFPA health hazard | : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given. |
| NFPA fire hazard | : 1 - Must be preheated before ignition can occur. |
| NFPA reactivity | : 0 - Normally stable, even under fire exposure conditions, and not reactive with water. |

Full text of H-phrases:

| Eye Irrit. 2A | Serious eye damage/eye irritation, Category 2A |
| Skin Irrit. 2 | Skin corrosion/irritation, Category 2 |
| STOT SE 3 | Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation |
| H315 | Causes skin irritation |
| H319 | Causes serious eye irritation |
| H335 | May cause respiratory irritation |
Thermomelt® HEAT-STIK Markers 206 °F (97 °C), 550 °F (288 °C), 213 °F (100, 101 °C)

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Suite 200
Dublin, OH USA 43016
T 614-923-7472
www.redstonegrp.com

LACO NA GHS SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.