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

1.1. Product identifier
Product name: Epoxy Curing Agent ECA 100
Product form: Mixture
Product code: ECA 100

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture: Industrial use as a monomer in the manufacture of resins.
Industrial use as an intermediate in chemical synthesis or process.
Industrial use as a hardener for epoxy resins.
Manufacture of substance (liquid and flakes).

1.3. Details of the supplier of the safety data sheet
Dixie Chemical Company, Inc.
10601 Bay Area Blvd
Pasadena TX 77507
Phone: 281-474-3271
Email: msds@dixiechemical.com

1.4. Emergency telephone number
Emergency number: CHEMTREC® (800) 424-9300 Domestic, (703) 527-3887 International

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
GHS-US classification
Eye Dam. 1 H318
Resp. Sens. 1 H334
Skin Sens. 1 H317

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

Signal word (GHS-US): Danger
Hazard statements (GHS-US):
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statements (GHS-US):
P261 - Avoid breathing vapours, dust
P272 - Contaminated work clothing must not be allowed out of the workplace
P280 - Wear eye protection, face protection, protective clothing, protective gloves
P284 - [In case of inadequate ventilation] wear respiratory protection
P302+P352 - If on skin: Wash with plenty of soap and water
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a doctor, a poison center
P321 - Specific treatment (see first aid instructions on this label)
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention
P342+P311 - If experiencing respiratory symptoms: Call a doctor, a poison center
P362+P364 - Take off contaminated clothing and wash it before reuse
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards
No additional information available

2.4. Unknown acute toxicity (GHS-US)
No data available

SECTION 3: Composition/information on ingredients

3.1. Substance
Not applicable
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3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Isobenzofurandione, tetrahydro-5-methyl-</td>
<td>(CAS No) 34090-76-1</td>
<td>80 - 100</td>
</tr>
<tr>
<td>1,2,3,6-Tetrahydrophthalic anhydride</td>
<td>(CAS No) 85-43-8</td>
<td>0 - 20</td>
</tr>
</tbody>
</table>

Chemical components disclosed above are those requiring disclosure in accordance with the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200)

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: If exposed or concerned, get medical attention/advice. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.

First-aid measures after inhalation: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention. If breathing is difficult, supply oxygen. If breathing has stopped, give artificial respiration.

First-aid measures after skin contact: IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin with water for at least 15 minutes. Get medical attention immediately.

First-aid measures after eye contact: IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do so. Get medical attention immediately. Continue rinsing.

First-aid measures after ingestion: IF SWALLOWED: rinse mouth thoroughly. Do not induce vomiting without advice from poison control center or medical professional. Get medical attention immediately.

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

Symptoms/injuries after inhalation: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Symptoms/injuries after skin contact: May cause an allergic skin reaction.

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

Symptoms/injuries after ingestion: May cause gastrointestinal irritation.

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

No additional information available

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: Must be preheated before ignition can occur.

Explosion hazard: Product is not explosive.

Reactivity: This material reacts with water or steam to form phthalic acids. This reaction is slightly exothermic.

5.3. Advice for firefighters

Firefighting instructions: Use cold water spray to cool fire-exposed containers to minimize risk of rupture. Do not dispose of fire-fighting water in the environment. Dispose of in accordance with relevant local regulations. Prevent human exposure to fire, fumes, smoke and products of combustion.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Evacuate area. Keep upwind. Ventilate area. Spill should be handled by trained clean-up crews properly equipped with respiratory equipment and full chemical protective gear (see Section 8).

6.1.1. For non-emergency personnel

Protective equipment: Wear Protective equipment as described in Section 8.

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Notify authorities if product enters sewers or public waters. Prevent entry to sewers and public waters. Avoid release to the environment.
6.3. Methods and material for containment and cleaning up
For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up : Eliminate ignition sources. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Place in a suitable container for disposal in accordance with the waste regulations (see Section 13).

6.4. Reference to other sections
See Sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling : Wear personal protective equipment. Do not handle until all safety precautions have been read and understood. Ensure good ventilation of the work station. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions : Store in a well-ventilated place. Keep cool. Protect from sunlight. Keep away from ignition sources. Store away from incompatible materials. Protect from moisture. Store away from food.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Substance</th>
<th>Remark (ACGIH)</th>
<th>Remark (OSHA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Isobenzofurandione, tetrahydro-5-methyl- (34090-76-1)</td>
<td>OELs not established</td>
<td>OELs not established</td>
</tr>
<tr>
<td>1,2,3,6-Tetrahydrophthalic anhydride (85-43-8)</td>
<td>OELs not established</td>
<td>OELs not established</td>
</tr>
<tr>
<td>4-Cyclohexene-1,2-dicarboxylic acid (88-98-2)</td>
<td>OELs not established</td>
<td>OELs not established</td>
</tr>
</tbody>
</table>

8.2. Exposure controls
Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment with flammable materials. Ensure adequate ventilation, especially in confined areas.


Hand protection : Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Suggested glove materials are: Neoprene, Nitrile/butadiene rubber, Polyethylene. Ethyl vinyl alcohol laminate, PVC or vinyl. Be aware that the chemical may penetrate the gloves. Frequent changes are advisable. Suitable gloves for this specific application can be recommended by the glove supplier.

Eye protection : Wear eye protection, including chemical splash goggles and a face shield when possibility exists for eye contact due to spraying liquid or airborne particles.

Skin and body protection : Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.

Respiratory protection : Use NIOSH-approved dust/particulate respirator. Where vapor, mist, or dust exceed PELs or other applicable OELs, use NIOSH-approved respiratory protective equipment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state : Liquid
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<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Clear to yellow.</td>
</tr>
<tr>
<td>Odor</td>
<td>Faint characteristic to Characteristic.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Melting point</td>
<td>~15 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>-23 °C (-9 F) ASTM D 2386</td>
</tr>
<tr>
<td>Boiling point</td>
<td>266 - 284 °C (510.8 - 543.2 °F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>157 °C (315 °F), PMCC, ASTM D 93</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>0.002 - 0.003 @ 25 °C (calculated)</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>&gt; 1 (AIR = 1)</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.166 - 1.22 @ 25 °C (WATER = 1)</td>
</tr>
<tr>
<td>Solubility</td>
<td>Reacts slowly with water.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>40 – 100 cPs @ 25 °C</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
This material reacts with water or steam to form phthalic acids. This reaction is slightly exothermic.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Hazardous polymerization does not occur. Heating above 220 °C (428 °F) may result in product decomposition.

10.4. Conditions to avoid
Moisture. High temperatures, incompatible materials.

10.5. Incompatible materials

10.6. Hazardous decomposition products
Carbon monoxide (CO), carbon dioxide (CO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Not classified

LD₅₀ oral rat : 5410 mg/kg

1,2,3,6-Tetrahydrophthalic anhydride (85-43-8)

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
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| Specific target organ toxicity (single exposure) | Not classified |
| Specific target organ toxicity (repeated exposure) | Not classified |
| Aspiration hazard | Not classified |
| Symptoms/injuries after inhalation | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| Symptoms/injuries after skin contact | May cause an allergic skin reaction. |
| Symptoms/injuries after eye contact | Causes serious eye damage. |
| Symptoms/injuries after ingestion | May cause gastrointestinal irritation. |

### SECTION 12: Ecological information

#### 12.1. Toxicity
Ecology - general | No information available.

#### 12.2. Persistence and degradability
| Epoxy Curing Agent ECA 100 | Persistence and degradability | No data available. |

#### 12.3. Bioaccumulative potential
| Epoxy Curing Agent ECA 100 | Bioaccumulative potential | No information available. |

#### 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
Waste treatment methods | Do not discharge to public wastewater systems without permit of pollution control authorities.  
| | No discharge to surface waters is allowed without an NPDES permit. |
Waste disposal recommendations | Dispose in a safe manner in accordance with local/national regulations. Do not allow the product to be released into the environment. |

### SECTION 14: Transport information
In accordance with DOT
Not hazardous for transport

#### Additional information
Other information | No supplementary information available. |

#### Transport by sea
No additional information available

#### Air transport
No additional information available

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations
| Epoxy Curing Agent ECA 100 | All chemical substances in this product are listed in the EPA (Environment Protection Agency) TSCA (Toxic Substances Control Act) Inventory or are exempt |
| | SARA Section 311/312 Hazard Classes | Immediate (acute) health hazard |

#### 15.2. International regulations
All chemical substances in this product are listed on the Canadian Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL) or are exempt
All chemical substances in this product are listed on the Chinese Chemical Inventory of Existing Chemical Substances (IECSC) or are exempt
All chemical substances in this product are listed on the European EINECS Inventory or the ELINCS list or are exempt
All chemical substances in this product are listed on the Japanese Existing and New Chemical Substances Inventory (ENCS) or are exempt
All chemical substances in this product are listed on the Korean Existing Chemicals Inventory (KECI) or are exempt
All chemical substances in this product are listed on the Philippines Inventory of Chemicals and Chemical Substances (PICCS) or are exempt
All chemical substances in this product are listed on the Taiwan Chemical Substance Inventory (TSCI) or are exempt
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One or more of the chemical substances in this product is not listed on the Australian Inventory of Chemical Substances (AICS)
One or more of the chemical substances in this product is not listed on the New Zealand Inventory of Chemicals (NZIoC)

15.3. US State regulations
California Proposition 65
This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm

<table>
<thead>
<tr>
<th>1,2,3,6-Tetrahydrophthalic anhydride (85-43-8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - New Jersey - Right to Know Hazardous Substance List</td>
</tr>
</tbody>
</table>

### SECTION 16: Other information

<table>
<thead>
<tr>
<th>Indication of changes</th>
<th>: Revision 1.0: New SDS Created.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other information</td>
<td>: Author: ANF.</td>
</tr>
</tbody>
</table>

**NFPA health hazard**: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

**NFPA fire hazard**: 1 - Must be preheated before ignition can occur.

**NFPA reactivity**: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

### HMIS III Rating

- **Health**: 2
- **Flammability**: 1
- **Physical**: 1
- **Personal Protection**: :

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.