1. Identification of the Substance/Preparation and of the Company/Undertaking

Product identifier
Description MJHRPH/BLK-5

Other means of identification
Part Number MJHRPH/BLK-5
Synonyms No information available

Recommended use of the chemical and restrictions on use
Recommended Use ink.
Uses advised against No information available

Details of the supplier of the safety data sheet
Supplier Address
LOVESHAW
2206 Easton Turnpike
South Canaan, PA 18459
PH: 570-937-4921
Fax: 570-937-4370

Company Name
Kao Collins Inc.
1201 Edison Drive
Cincinnati, OH 45216
PH: 513-948-9000
Info@kaocollins.com

Emergency telephone number Chemtrec 1-800-424-9300
Emergency Telephone International Chemtrec: +1 703-527-3887

2. Hazards Identification

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Reproductive toxicity Category 1B

Label Elements

EMERGENCY OVERVIEW

Danger

Hazard statements
May damage fertility or the unborn child

Appearance Black
Physical state liquid
Odor Acrylic
Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Other Information
• Causes mild skin irritation
Unknown acute toxicity
3.07525 % of the mixture consists of ingredient(s) of unknown toxicity

3. Composition/information on Ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>Trade secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>102-71-6</td>
<td>1 - 5</td>
<td>*</td>
</tr>
<tr>
<td>Lactam</td>
<td>Proprietary</td>
<td>0.1 - 3</td>
<td>*</td>
</tr>
<tr>
<td>Ethyl alcohol</td>
<td>64-17-5</td>
<td>0.1 - &lt;1</td>
<td>*</td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret.

NOTE
Remaining components are either not hazardous or below threshold limits.

4. First aid measures

Description of first aid measures

General advice
In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Immediate medical attention is not required.

Eye contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. Wash off immediately with soap and plenty of water.

Inhalation
Remove to fresh air. If symptoms persist, call a physician.

Ingestion
Do NOT induce vomiting. Drink plenty of water. Immediate medical attention is not required. Rinse mouth.

Self-protection of the first aider
Use personal protective equipment as required.

Most important symptoms and effects, both acute and delayed

Symptoms
Hives.

Indication of any immediate medical attention and special treatment needed

Notes to Physician
May cause sensitization of susceptible persons. Use of epinephrine may be indicated.

5. Fire-fighting measures
Suitable extinguishing media
Use Carbon dioxide (CO2) Dry chemical Alcohol resistant foam

Unsuitable extinguishing media None.

Specific hazards arising from the chemical
Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Thermal decomposition can lead to release of irritating and toxic gases and vapors. In the event of fire and/or explosion do not breathe fumes. May cause sensitization in susceptible persons.

Explosion data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters
Wear self-contained breathing apparatus and protective suit.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Use personal protective equipment as required. Avoid contact with skin and eyes.

Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up After cleaning, flush away traces with water. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Prevent product from entering drains.

7. Handling and Storage

Precautions for safe handling

Handling Use personal protective equipment as required. Ensure adequate ventilation.

Conditions for safe storage, including any incompatibilities

Storage Keep out of the reach of children. Keep container tightly closed. Keep containers tightly closed in a cool, well-ventilated place.

Incompatible materials Strong oxidizing agents.

8. Exposure Controls/Personal Protection

Control parameters

Exposure guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>TWA: 5 mg/m³</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>102-71-6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NIOSH IDLH: Immediately Dangerous to Life or Health

Appropriate engineering controls
Engineering Measures
Ensure adequate ventilation, especially in confined areas. Showers. Eyewash stations.

Individual protection measures, such as personal protective equipment

Eye/Face Protection
Tight sealing safety goggles.

Skin and body protection
For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn.

Respiratory protection
None under normal use conditions.

Hygiene Measures
Wash contaminated clothing before reuse. When using do not eat or drink.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Black</td>
<td>Odor Acrylic</td>
</tr>
<tr>
<td>Color</td>
<td>No information available</td>
<td>Odor Threshold No information available</td>
</tr>
<tr>
<td>pH</td>
<td>8 - 10</td>
<td></td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 100 °C</td>
<td>Seta Closed Cup</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit:</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.0 - 1.1</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Water solubility</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>&gt;200 °C</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

Other Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softening point</td>
<td>No information available</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No information available</td>
</tr>
<tr>
<td>VOC content</td>
<td>No information available</td>
</tr>
<tr>
<td>Liquid Density</td>
<td>No information available</td>
</tr>
<tr>
<td>Bulk density</td>
<td>No information available</td>
</tr>
</tbody>
</table>

10. Stability and Reactivity

Reactivity
no data available

Chemical stability
Stable under normal conditions.
Possibility of Hazardous Reactions
None under normal processing.

Hazardous polymerization
Hazardous polymerization does not occur.

Conditions to avoid
Extremes of temperature and direct sunlight.

Incompatible materials
Strong oxidizing agents.

Hazardous Decomposition Products
Carbon oxides.

11. Toxicological Information

Information on likely routes of exposure

Product Information
The product has not been tested

Inhalation
May cause irritation of respiratory tract. Avoid breathing vapors or mists.

Eye contact
Contact with eyes may cause irritation. Avoid contact with eyes. May cause irreversible damage to eyes.

IF ON SKIN
May cause sensitization by skin contact. May cause irritation. Avoid contact with skin.

Ingestion
May be harmful if swallowed. May cause gastrointestinal discomfort if consumed in large amounts. Do NOT taste or swallow.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>4190 mg/kg (Rat)</td>
<td>&gt;20000 mg/kg (Rabbit) &gt;16 mL/kg (Rat)</td>
<td>-</td>
</tr>
<tr>
<td>102-71-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lactam</td>
<td>3914 mg/kg (Rat)</td>
<td>8 g/kg (Rabbit)</td>
<td>&gt;5.1 mg/L (Rat) 4h</td>
</tr>
<tr>
<td>Ethyl alcohol</td>
<td>7060 mg/kg (Rat)</td>
<td>-</td>
<td>124.7 mg/L (Rat) 4h</td>
</tr>
<tr>
<td>64-17-5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Information on toxicological effects

Symptoms
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

irritation
May cause irritation of respiratory tract. May cause skin and eye irritation.

Sensitization
No information available.

Mutagenic effects
No information available.

Carcinogenicity
The list below indicates any ingredient listed as a carcinogen:
This product contains Ethanol which is classified as a possible carcinogen when ingested in the form of an alcoholic beverage. This is irrelevant as this product is used for ink jet ink applications not an alcoholic beverage.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>-</td>
<td>Group 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-71-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethyl alcohol</td>
<td>A3</td>
<td>Group 1</td>
<td>Known</td>
<td>X</td>
</tr>
<tr>
<td>64-17-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans

NTP: (National Toxicity Program)
Known - Known Carcinogen

Reproductive toxicity
No information available.

STOT - single exposure
No information available.

STOT - repeated exposure
No information available.
Chronic toxicity
Repeated contact may cause allergic reactions in very susceptible persons. Avoid repeated exposure.

Target organ effects
blood, Eyes, Skin, Gastrointestinal tract (GI).

Aspiration hazard
No information available.

Numerical measures of toxicity - Product Information

Unknown acute toxicity
3.07525 % of the mixture consists of ingredient(s) of unknown toxicity

The following values are calculated based on chapter 3.1 of the GHS document.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Algae/aquatic plants</th>
<th>Toxicity to Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>216: 72 h Desmodesmus subspicatus mg/L EC50</td>
<td>1000: 96 h Pimephales promelas mg/L LC50 static 10600 - 13000: 96 h Pimephales promelas mg/L LC50 flow-through 450 - 1000: 96 h Lepomis macrochirus mg/L LC50 static</td>
<td>1386: 24 h Daphnia magna mg/L EC50</td>
</tr>
<tr>
<td>102-71-6</td>
<td>Desmodesmus subspicatus mg/L EC50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lactam</td>
<td>500: 72 h Desmodesmus subspicatus mg/L EC50</td>
<td>832: 96 h Lepomis macrochirus mg/L LC50 static 1072: 96 h Pimephales promelas mg/L LC50 static 1400: 96 h Poecilia reticulata mg/L LC50 static 4000: 96 h Leuciscus idus mg/L LC50 static</td>
<td>4897: 48 h Daphnia magna mg/L EC50</td>
</tr>
<tr>
<td>Ethyl alcohol</td>
<td>-</td>
<td>13400 - 15100: 96 h Pimephales promelas mg/L LC50 flow-through 12.0 - 16.0: 96 h Oncorhynchus mykiss mL/L LC50 static 100: 96 h Pimephales promelas mg/L LC50 static</td>
<td>2: 48 h Daphnia magna mg/L EC50 Static 9268 - 14221: 48 h Daphnia magna mg/L LC50 10800: 24 h Daphnia magna mg/L EC50</td>
</tr>
<tr>
<td>64-17-5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and degradability
No information available.

Bioaccumulation/Accumulation
No information available.

Other adverse effects
No information available

12. Ecological Information

Ecotoxicity
3.376036 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Algae/aquatic plants</th>
<th>Fish LC50</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>216: 72 h Desmodesmus subspicatus mg/L EC50</td>
<td>1000: 96 h Pimephales promelas mg/L LC50 static</td>
<td>1386: 24 h Daphnia magna mg/L EC50</td>
</tr>
<tr>
<td>Lactam</td>
<td>500: 72 h Desmodesmus subspicatus mg/L EC50</td>
<td>832: 96 h Lepomis macrochirus mg/L LC50 static</td>
<td>4897: 48 h Daphnia magna mg/L EC50</td>
</tr>
<tr>
<td>Ethyl alcohol</td>
<td>-</td>
<td>13400 - 15100: 96 h Pimephales promelas mg/L LC50 flow-through</td>
<td>2: 48 h Daphnia magna mg/L EC50 Static 9268 - 14221: 48 h Daphnia magna mg/L LC50 10800: 24 h Daphnia magna mg/L EC50</td>
</tr>
</tbody>
</table>

13. Disposal Considerations

Waste treatment methods
Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging
Do not re-use empty containers.
This product contains one or more substances that are listed with the State of California as a hazardous waste.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>California Hazardous Waste Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl alcohol 64-17-5</td>
<td>Toxic; Ignitable</td>
</tr>
</tbody>
</table>

### 14. Transport Information

**DOT**

Not regulated

**IATA**

Not regulated

### 15. Regulatory Information

#### International Inventories

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>TSCA</th>
<th>DSL/NDSL</th>
<th>EINECS/ELINCS</th>
<th>ENCS</th>
<th>IECSC</th>
<th>KECL</th>
<th>PICCS</th>
<th>AICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine 102-71-6</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Lactam</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ethyl alcohol 64-17-5</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**Legend**

- TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS - Japan Existing and New Chemical Substances
- IECSC - China Inventory of Existing Chemical Substances
- KECL - Korean Existing and Evaluated Chemical Substances
- PICCS - Philippines Inventory of Chemicals and Chemical Substances
- AICS - Australian Inventory of Chemical Substances

#### 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

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lactam</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**SARA 311/312 Hazard Categories**

- Acute health hazard: Yes
- Chronic Health Hazard: Yes
- Fire hazard: No
- Sudden release of pressure hazard: No
- Reactive Hazard: No

**Clean Water Act**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)
### CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

### U.S. State Regulations

#### California Proposition 65
This product does not contain any Proposition 65 chemicals.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>California Prop. 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lactam</td>
<td>Developmental</td>
</tr>
<tr>
<td>Ethyl alcohol</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>64-17-5</td>
<td>Developmental</td>
</tr>
</tbody>
</table>

#### U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>102-71-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lactam</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ethyl alcohol</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>64-17-5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### U.S. EPA Label Information

**EPA Pesticide registration number** Not applicable

### 16. Other Information

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazard</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health hazard</th>
<th>Flammability</th>
<th>Physical hazards</th>
<th>Personal precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Prepared by** Kao Collins Inc.
1201 Edison Drive
Cincinnati, OH 45216

**Issuing Date** 21-Nov-2014
**Revision date** 04-Feb-2020

**Revision note** No information available

**Disclaimer**
The information provided on this SDS 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of Safety Data Sheet