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

Product identifier
Description
Other means of identification
Part Number
Synonyms
Recommended use of the chemical and restrictions on use
Recommended Use
Uses advised against

Details of the supplier of the safety data sheet
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 yellow
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 23.3 % 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>Alcohol</td>
<td>Proprietary</td>
<td>1 - 5</td>
<td>*</td>
</tr>
<tr>
<td>Lactam</td>
<td>Proprietary</td>
<td>0.1 - &lt;1</td>
<td>*</td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>0.01 - &lt;0.1</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).

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 soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.

Inhalation
None under normal use conditions. Move to fresh air in case of accidental inhalation of vapors. If breathing is irregular or stopped, administer artificial respiration. If symptoms persist, call a physician.

Ingestion
Do NOT induce vomiting. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Most important symptoms and effects, both acute and delayed

Symptoms
Hives.

Indication of any immediate medical attention and special treatment needed

Notes to Physician
Treat symptomatically.

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

Page 2 / 8
Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

### 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 protection recommended in Section 8.

**Environmental precautions**

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. 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**
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up**
After cleaning, flush away traces with water.

#### 7. Handling and Storage

**Precautions for safe handling**

**Handling**
Use personal protective equipment as required. Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists. Ensure adequate ventilation.

**Conditions for safe storage, including any incompatibilities**

**Storage**
Keep containers tightly closed in a dry, cool and well-ventilated place.

**Incompatible materials**
Strong oxidizing agents.

#### 8. Exposure Controls/Personal Protection

**Control parameters**

**Exposure guidelines**
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. Wear safety glasses with side shields (or goggles). If splashes are likely to occur:

**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. Handle in accordance with good industrial hygiene and safety practice.

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>yellow</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Acrylic</td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>8.5 - 10.5</td>
<td></td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>&gt; 90 °C</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>&gt; 100 °C</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
<td></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></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.

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

Ingestion
May be harmful if swallowed. 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>Lactam</td>
<td>1350 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ethanol 64-17-5</td>
<td>7060 mg/kg (Rat)</td>
<td>-</td>
<td>124.7 mg/L (Rat) 4 h</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 table below indicates whether each agency has listed any ingredient 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>Ethanol 64-17-5</td>
<td>A3</td>
<td>Group 1</td>
<td>Known</td>
<td>X</td>
</tr>
</tbody>
</table>

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
NTP: (National Toxicity Program)
Known - Known Carcinogen

Reproductive toxicity
Possible risk of impaired fertility. May impair fertility. May cause harm to the unborn child.
Possible risk of harm to the unborn child.

STOT - single exposure
No information available.

STOT - repeated exposure
No information available.

Aspiration hazard
No information available.

Numerical measures of toxicity - Product Information

Unknown acute toxicity
23.3 % of the mixture consists of ingredient(s) of unknown toxicity

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

ATEmix (oral)
49941 mg/kg

ATEmix (dermal)
149883 mg/kg

ATEmix (inhalation-dust/mist)
26 mg/l

ATEmix (inhalation-vapor)
709.8 mg/l

12. Ecological Information

Ecotoxicity
0 % 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>Toxicity to Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lactam</td>
<td>-</td>
<td>464 - 999: 96 h Danio rerio mg/L LC50 static</td>
<td>-</td>
</tr>
<tr>
<td>Ethanol 64-17-5</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>
</tbody>
</table>

**Persistence and degradability**
No information available.

**Bioaccumulation/Accumulation**
No information available.

**Mobility**
No information available.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol 64-17-5</td>
<td>-0.32</td>
</tr>
</tbody>
</table>

**Other adverse effects**
No information available

### 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>Ethanol 64-17-5</td>
<td>Toxic; Ignitable</td>
</tr>
</tbody>
</table>

### 14. Transport Information

**DOT**
Not regulated

**TDG**
Not regulated

**MEX**
Not regulated

**ICAO**
Not regulated

**IATA**
Not regulated

**IMDG/IMO**
Not regulated

**RID**
Not regulated

**ADR**
Not regulated

**ADN**
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>Alcohol</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>-</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Ethanol 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  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 does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

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

Clean Water Act
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

U.S. State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>California Prop 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol 64-17-5</td>
<td>Carcinogen</td>
</tr>
<tr>
<td></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>Ethanol 64-17-5</td>
<td>X</td>
<td>X</td>
<td>X</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></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></td>
<td>1</td>
<td>0</td>
<td>X</td>
</tr>
</tbody>
</table>

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

Issuing Date: 02-Apr-2020
Revision date: 24-Feb-2023
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