SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Identification

Product Name: Acridine Orange (AO) Stain
Product Number: F23002

Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Manufacture of substances

Manufacturer

Logos Biosystems, Inc.
FL 2 & 3 28 Simindaero 327 beon-gil
Dongan-gu, Anyang-si
Gyeonggi-do 14055
South Korea
Telephone: +82-31-478-4185
Fax: +82-31-360-4277
E-mail: sales@logosbio.com

Supplier

Logos Biosystems, Inc.
FL 2 & 3 28 Simindaero 327 beon-gil
Dongan-gu, Anyang-si
Gyeonggi-do 14055
South Korea
Telephone: +82-31-478-4185
Fax: +82-31-360-4277
E-mail: sales@logosbio.com

Emergency telephone number

+82 31 478 4185

For research use only. Not intended for human or animal diagnostic or therapeutic use.

2. HAZARDS IDENTIFICATION

[GHS classification]

Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
Not hazardous

Label elements
Labelling according Regulation (EC) No 1272/2008

Hazard pictograms
None

Signal word
Not hazardous

Hazard statements
Not hazardous

Precautionary statements
Not hazardous

Other hazards
None

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixtures

<table>
<thead>
<tr>
<th>Component</th>
<th>Synonyms</th>
<th>Formula</th>
<th>CAS No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acridine Orange</td>
<td>N,N,N',N'-Tetramethylacridine-3,6-diamine</td>
<td>C_{17}H_{19}N_{3}</td>
<td>10127-02-3</td>
<td>&lt; 0.002%</td>
</tr>
<tr>
<td></td>
<td>monohydrochloride, compound with zinc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>dichloride</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Description of first aid measures

<table>
<thead>
<tr>
<th>General advice</th>
<th>Consult a physician. Show this safety data sheet to the doctor in attendance.</th>
</tr>
</thead>
<tbody>
<tr>
<td>If inhaled</td>
<td>Move person into fresh air. If not breathing, give artificial respiration. Consult a physician.</td>
</tr>
<tr>
<td>In case of skin contact</td>
<td>Wash off with soap and plenty of water. Consult a physician.</td>
</tr>
<tr>
<td>In case of eye contact</td>
<td>Flush eyes with water. Consult a physician.</td>
</tr>
<tr>
<td>If swallowed</td>
<td>Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.</td>
</tr>
</tbody>
</table>

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substances or mixture
Carbon oxides, nitrogen oxides (NOx), Hydrogen chloride gas.

Advice of fire-fighters

Protective equipment

Wear self-contained breathing apparatus and protective suit.

Further information
6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. For personal protection see section 8.

**Environmental precautions**
Prevent further leakage of spillage if safe to do so.

**Methods and materials for containment and cleaning up**
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

**Reference to other sections**
For disposal see section 13.

7. HANDLING AND STORAGE

**Precautions for safe handling**
Avoid contact with skin and eyes and clothing.

**Conditions for safe storage, including any incompatibilities**
Keep containers tightly closed in a dry, cool and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature: 2 – 8°C

**Specific end use(s)**
Apart from the uses mentioned in section 1 no other specific uses are stipulated

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Control parameters**
Components with workplace control parameters

**Exposure controls**

**Appropriate engineering controls**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Personal protective equipment**

<table>
<thead>
<tr>
<th>Eye/face protection</th>
<th>Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin protection</td>
<td>Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.</td>
</tr>
</tbody>
</table>
Body protection | Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substances at the specific workplace.

Respiratory protection | Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of Environmental exposure | Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Form: liquid</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>100°C</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Specific Gravity/Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Soluble</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol / water</td>
<td>No data available</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>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Other safety information
No data available
10. STABILITY AND REACTIVITY

Stability

<table>
<thead>
<tr>
<th>Stability</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable under recommended storage conditions.</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Possibility of hazardous reactions
No data available

Conditions to avoid
No data available

Incompatible materials
Strong oxidizing agents

Hazardous decomposition products
Other decomposition products – No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

Acute toxicity
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available.

Carcinogenicity

<table>
<thead>
<tr>
<th>IARC</th>
<th>No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC</th>
</tr>
</thead>
</table>

Reproductive toxicity
No data available

Specific target organ toxicity – single exposure
No data available

Specific target organ toxicity – repeated exposure
No data available

Aspiration hazard
No data available
Potential health effects

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>May be harmful by inhalation</td>
</tr>
<tr>
<td>Ingestion</td>
<td>May be harmful if swallowed</td>
</tr>
<tr>
<td>Skin</td>
<td>May cause skin irritation in susceptible persons</td>
</tr>
<tr>
<td>Eyes</td>
<td>May cause eye irritation with susceptible persons</td>
</tr>
<tr>
<td>Mutagenic effects</td>
<td>Substances which cause concern for man owing to possible mutagenic effects but for which the available information is not adequate for making a satisfactory assessment</td>
</tr>
</tbody>
</table>

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity
No data available

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil
No data available

Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>UN number</th>
<th>ADR/RID: -</th>
<th>IMDG: -</th>
<th>IATA: -</th>
</tr>
</thead>
</table>

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### UN proper shipping name
ADR/RID: Not dangerous goods | IMDG: Not dangerous goods | IATA: Not dangerous goods

### Transport hazard class(es)
ADR/RID: - | IMDG: - | IATA: -

### Packaging group
ADR/RID: - | IMDG: - | IATA: -

### Environmental hazards
ADR/RID: no | IMDG Marine pollutant: no | IATA: no

### Special precautions for user
No data available

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#### 15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

**Safety, health and environmental regulations/legislation specific for the substance or mixture**
No data available

**Chemical safety assessment**
For this product a chemical safety assessment was not carried out

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#### 16. OTHER INFORMATION

**Further information**
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Logos Biosystems, Inc. and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See the reverse side of invoice or packing slip for additional terms and conditions of sale.

End of Safety Data Sheet