1. PRODUCT AND COMPANY IDENTIFICATION

**Identification**

- **Product Name**: Acridine Orange/Propidium Iodide (AO/PI) Stain
- **Product Number**: F23001

**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
  - 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 monohydrochloride, compound with zinc dichloride</td>
<td>C_{17}H_{19}N_{3}</td>
<td>10127-02-3</td>
<td>&lt; 0.002%</td>
</tr>
<tr>
<td>Propidium Iodide</td>
<td>3,8-diamino-5-[3-(diethylmethylammonio)propyl]-6-phenylphenanthridinium diiodide</td>
<td>C_{27}H_{34}I_{2}N_{4}</td>
<td>25535-16-4</td>
<td>&lt; 0.02%</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>If breathed in, 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>Rinse thoroughly with plenty of water for at least 15 minutes and 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 iodide, Hydrogen chloride gas.

Advice of fire-fighters

Protective equipment
Wear self-contained breathing apparatus for firefighting if necessary.

Further information
No data available

6. ACCIDENTAL RELEASE MEASURES
Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personal to safe areas. For personal protection see section 8.

Environmental precautions
Prevent further leakage of spillage if safe to do so. Do not let product enter drains.

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
Protect against light. 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>
<tr>
<td>Body protection</td>
<td>Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substances at the specific workplace.</td>
</tr>
</tbody>
</table>
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
Stability
Stable under recommended storage conditions.

Reactivity
No data available

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

| IARC | 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 |

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>| Inhalation | May be harmful by inhalation |</p>
<table>
<thead>
<tr>
<th>Ingestion</th>
<th>May be harmful if swallowed</th>
</tr>
</thead>
<tbody>
<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>Infection</td>
<td>May be harmful if injected</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**

<table>
<thead>
<tr>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offer surplus and non-recyclable solutions to a licensed disposal company.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contaminated packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispose of as unused product.</td>
</tr>
</tbody>
</table>

**14. TRANSPORT INFORMATION**

<table>
<thead>
<tr>
<th>UN number</th>
<th>ADR/RID:</th>
<th>IMDG:</th>
<th>IATA:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not dangerous goods</td>
<td>Not dangerous goods</td>
<td>Not dangerous goods</td>
</tr>
</tbody>
</table>

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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

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