Material Safety Data Sheet (MSDS)

Revision Number: 1.0

Last updated Aug 19, 2014

1. Product and Company Identification

| Product Name: | 2',7' - Dichlorodihydrofluorescein diacetate; H2DCFDA, H2DCF DA |
| Manufacturer/Supplier: | AnaSpec, Inc. |
| | www.anaspec.com |
| | 34801 Campus Drive |
| | Fremont, CA 94555 |
| | Tel: 510-791-9560 |
| | Fax: 510-791-9572 |
| | Email: service@anaspec.com |
| Catalog Number | 85706 |
| Unit Size | 100mg |

2. Hazards Identification

Emergency Overview: We do recommend handling all chemicals with caution. Use proper protective equipment when handling chemicals. The toxicological properties of this material have not been thoroughly investigated.

GHS Hazard Classification:
- GHS Physical Hazards
- GHS Health and Environmental Hazards

GHS Signal Words: WARNING

GHS Hazard Symbol/Pictogram:

GHS Hazard Statements:

- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H335 May cause respiratory irritation
GHS Precautionary Statements:

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 Wash skin thoroughly after handling
- P271 Use only outdoors or in a well ventilated area
- P280 Wear protective gloves/eye protection/face protection.
- P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- P264 Wash hands thoroughly after handling
- P280 Wear protective gloves/protective clothing/eye protection/face protection
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P332+P313 If skin irritation occurs: Get medical advice/attention
- P362 Take off contaminated clothing and wash before reuse.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.

Potential Health Effects for:

Inhalation: Good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

Ingestion: If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Skin: In case of contact, immediately wash skin with soap and copious amount of water.

Eyes: In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Chronic Exposures: No information available. We recommend limiting prolonged exposure.

Target Organs: No information available
3. Composition

Ingredients/Components:

Chemical Name: 2',7' - Dichlorodihydrofluorescein diacetate; \textit{H}_2\textit{DCFDA, H}_2\textit{DCF DA}

Molecular formula: C$_{24}$H$_{16}$Cl$_2$O$_7$

Molecular weight: 487.29

CAS-No 4091-99-0

EC-No N/A

4. First Aid Measures

\textit{Inhalation:} If dust is inhaled, remove from contaminated area.
Encourage patient to blow nose to ensure clear passage of breathing.
If irritation or discomfort persists seek medical attention.

\textit{Ingestion:} If swallowed do NOT induce vomiting.
If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
Observe the patient carefully.
Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
Seek medical advice.

\textit{Skin:} If skin or hair contact occurs:
Flush skin and hair with running water (and soap if available).
Seek medical attention in event of irritation.

\textit{Eyes:} If this product comes in contact with the eyes:
Wash out immediately with fresh running water.
Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
If pain persists or recurs seek medical attention.
5. Fire Fighting Measures

**Extinguishing media:**
- Water spray or fog.
- Alcohol resistant foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide

**Special firefighting procedures:**
- Alert Emergency Responders and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- **DO NOT** approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

**Unusual fire and explosions hazards:**
- Emits toxic fumes under fire conditions

6. Accidental Release Measures

**Spill response**
- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.
- Place in a suitable, labeled container for waste disposal.

**Containment**
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- **DO NOT** enter confined spaces until atmosphere has been checked.
- **DO NOT** allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, **DO NOT** eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Use good occupational work practice.
- Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.
- **DO NOT** cut, drill, grind or weld such containers.

**PPE**
- Use personal protective equipment

7. Handling and Storage

Store at -20°C desiccated and protected from light. Store away from oxidizing agent.
8. Exposure Controls / Personal Protection

**Engineering controls**
Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
Exhaust ventilation should be designed to prevent accumulation and re-circulation of particulates in the workplace.
If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:
(a): particle dust respirators, if necessary, combined with an absorption cartridge;
(b): filter respirators with absorption cartridge or canister of the right type;
(c): fresh-air hoods or masks
Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.
Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.
Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.

**PPE**
Use personal protective equipment

9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odour</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>N/A</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not available</td>
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<tr>
<td>Melting Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapor Density:</td>
<td>N/A</td>
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10. Stability and Reactivity

<table>
<thead>
<tr>
<th>Thermal Decomposition</th>
<th>No data available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dangerous Products of Decomposition</td>
<td>No data available</td>
</tr>
<tr>
<td>Dangerous Reactions</td>
<td>COx, NOx when burned</td>
</tr>
</tbody>
</table>

Keep container tightly closed in a dry well-ventilated place. Containers which are opened must be carefully resealed and kept upright. Store in -20°C refrigerator.

11. Toxicological Information

<table>
<thead>
<tr>
<th>RTECS Number</th>
<th>N/A</th>
</tr>
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<tbody>
<tr>
<td>Toxicity</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Hazards</th>
<th>N/A</th>
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| Potential Hazards | Skin Contact: May cause skin irritation. |

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<tbody>
<tr>
<td>Carcinogenicity:</td>
<td>N/A</td>
</tr>
<tr>
<td>OSHA Permissible Exposure Limit (PEL) Data</td>
<td>N/A</td>
</tr>
<tr>
<td>ACGIH Threshold Limit Values (TLV)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Reproductive Toxicity:
N/A

### Ecological Information
N/A

### Disposal Considerations
All waste must be handled in accordance with local, state and federal regulations. Legislation addressing waste disposal requirements may differ by country, state and/or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

### Transport Information

| Hazard Class | N/A |
| Identification Number | N/A |
| Packing Group | N/A |
| Proper Shipping Name (DOT) | N/A |

### Regulatory Information

- California Proposition 65: N/A
- US TSCA (Toxic Substance Control Act): N/A
- US CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act): N/A
- US SARA Title III (Superfund Amendments and Reauthorization Act): N/A
- US Other: N/A
- EC EINICS (European Inventory of Existing Commercial Chemical Substances) Number: N/A
- EC Risk Statements: N/A
- Other Country Regulations: N/A

### Other Information

It is not intended for food, drug, household, agricultural or cosmetic use. A technically qualified individual experienced in handling potentially hazardous chemicals must supervise its use. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Users should make independent decisions regarding completeness of the information based on all sources available. AnaSpec shall not be held liable for any damage resulting from handling or from contact with the above product.