Safety Data Sheet

1. IDENTIFICATION

Product Identifier
Product Name

Defy Amine 4

Other means of identification
SDS # ADAMA-016
Registration Number(s)
EPA Reg. No. 66222-221
UN/ID No UN3082

Recommended use of the chemical and restrictions on use
Recommended Use EPA registered pesticide.

Details of the supplier of the safety data sheet
Manufacturer Address
Makhteshim Agan of North America, Inc. (d/b/a ADAMA)
3120 Highwoods Blvd., Suite 100
Raleigh, NC 27604
1-919-256-9300

Emergency Telephone Number
Emergency Telephone (24 hr)
For fire, spill and/or leak contact INFOTRAC:
1-800-535-5053 (North America) 1-352-323-3500 (International)
For medical emergencies and health/safety inquiries, contact PROSAR:
1-877-250-9291

2. HAZARDS IDENTIFICATION

This chemical is a product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-EPA registered chemicals. Please see Section 15 for additional EPA information.

Appearance Transparent amber liquid
Physical State Liquid
Odor Amine

Classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Oral</td>
<td>Category 4</td>
</tr>
<tr>
<td>Acute toxicity – Inhalation (Dusts/Mists)</td>
<td>Category 4</td>
</tr>
<tr>
<td>Acute toxicity – Dermal</td>
<td>Category 4</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

Signal Word
Danger
Hazard Statements
Harmful if swallowed
Harmful if inhaled
Harmful in contact with skin
Causes serious eye damage

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area

Precautionary Statements - Response
IF INHALED: Remove person to fresh air and keep comfortable for breathing
Call a poison center/doctor if you feel unwell
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a poison center or doctor/physician
IF ON SKIN: Wash with plenty of soap and water
Call a poison center/ doctor if you feel unwell
Take off contaminated clothing and wash it before reuse
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth

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

Other Hazards
Toxic to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D Amine</td>
<td>2008-39-1</td>
<td>46 - 48</td>
</tr>
</tbody>
</table>

**If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.**

4. FIRST-AID MEASURES

First Aid Measures

General Advice
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.

Skin Contact
IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. Call a poison center/ doctor if you feel unwell.
5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Foam. Dry chemical. Carbon dioxide (CO2). Water spray (fog). Foam or dry chemical systems are preferred to prevent environmental damage from excessive water runoff.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical
Product is not flammable.

Hazardous Combustion Products During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Evacuate area of unprotected personnel. Remain upwind of fire to avoid hazardous vapors and decomposition products. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Wear protective clothing as described in Section 8 of this safety data sheet. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Before responding to a spill or leak of this product, review each section of this SDS and follow the recommendations of each section.

Environmental Precautions Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. See Section 13: DISPOSAL CONSIDERATIONS.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so. Stop spill at source, dike area of spill to prevent spreading.

Methods for Clean-Up For small spills, absorb with sand, clay, or other inert absorbent. Place in appropriate containers for disposal. For large spills: recover free product. Dike for later disposal. Absorb with inert material, and then place in suitable container for chemical waste. Wash spill area with a strong detergent and water solution; rinse with water, but minimize water use during clean-up. Do not flush to sewer. Pick up and transfer to properly labeled containers.
7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Use personal protection recommended in Section 8. Do not contaminate water, food or feed by storage, disposal or by cleaning equipment. Keep containers closed when not in use. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Observe precautions found on the label. Do not breathe dust/fume/gas/mist/vapors/spray. Contaminated work clothing should not be allowed out of the workplace. Use only in well-ventilated areas.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep container tightly closed and store in a cool, dry and well-ventilated place. Keep out of the reach of children. Store away from incompatible materials. Keep/store only in original container. Store at ambient conditions.

Incompatible Materials
Oxidizing agents. Acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering Controls
Please refer to the product label. Use only with adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures, such as personal protective equipment

Eye/Face Protection
Use splash goggles or face shield when contact may occur.

Skin and Body Protection
Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Viton or other impervious gloves are required. Long sleeve shirt, trousers, and safety shoes.

Respiratory Protection
Ensure adequate ventilation, especially in confined areas. Wear an appropriate NIOSH/MSHA approved respirator if ventilation is inadequate.

General Hygiene Considerations
Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product’s concentrate. Do not reuse them. Follow manufacturer’s instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Wash at the end of each work shift and before eating, smoking or using the toilet. Promptly remove clothing that becomes contaminated. Discard contaminated leather articles. Launder or discard contaminated clothing. Contaminated work clothing should not be allowed out of the workplace.

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>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Transparent amber liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Amber</td>
</tr>
<tr>
<td>Odor</td>
<td>Amine</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not determined</td>
</tr>
<tr>
<td>Property</td>
<td>Values</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>pH</td>
<td>9.05</td>
</tr>
<tr>
<td>Melting Point/Freezing Point</td>
<td>Not determined</td>
</tr>
<tr>
<td>Boiling Point/Boiling Range</td>
<td>Not determined</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not determined</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not determined</td>
</tr>
<tr>
<td>Flammability (Solid, Gas)</td>
<td>Liquid-not applicable</td>
</tr>
<tr>
<td>Upper Flammability Limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Lower Flammability Limit</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not determined</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not determined</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>Not determined</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Miscible in water</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>Not determined</td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>Not determined</td>
</tr>
<tr>
<td>Auto-ignition Temperature</td>
<td>Not determined</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Not determined</td>
</tr>
<tr>
<td>Kinematic Viscosity</td>
<td>Not determined</td>
</tr>
<tr>
<td>Dynamic Viscosity</td>
<td>9.99 @ 25°C; 5.80 @ 40°C cps</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>Not determined</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>Not determined</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>1.160 gm/cm3 @ 25°C; 1.150 gm/cm3 @ 40°C (9.18 lb/gal)</td>
</tr>
</tbody>
</table>

## 10. STABILITY AND REACTIVITY

**Reactivity**  
Not reactive under normal conditions.

**Chemical Stability**  
Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**  
None under normal processing.

**Hazardous Polymerization**  
Hazardous polymerization does not occur.

**Conditions to Avoid**  
Contact with incompatible materials. Keep out of reach of children. Excessive heat. See Sec. 7 Handling & Storage.

**Incompatible Materials**  
Oxidizing agents. Acids.

**Hazardous Decomposition Products**  
Thermal decomposition can lead to release of irritating and toxic gases and vapors.

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Product Information**

**Eye Contact**  
Causes serious eye damage.

**Skin Contact**  
Harmful in contact with skin.

**Inhalation**  
Harmful if inhaled.

**Ingestion**  
Harmful if swallowed.
Component Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D Amine</td>
<td>= 625 mg/kg (Rat)</td>
<td>= 2115 mg/kg (Rabbit)</td>
<td>-</td>
</tr>
<tr>
<td>2008-39-1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Information on physical, chemical and toxicological effects

Symptoms

Please see section 4 of this SDS for symptoms.

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

Carcinogenicity

Not classifiable as a human carcinogen.

Product Information (Numerical measures of toxicity)

Acute Oral LD50 (Rat): >1,000 mg/kg
Acute Dermal LD50 (Rabbit): >1,500 mg/kg
Acute Inhalation LC50 (Rat): >3.0 mg/L (4-hr)
Eye Irritation: Severely irritating.
Dermal Irritation: Slightly irritating.
Dermal Sensitization: Non-sensitizer.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects. This product is toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present, or to intertidal area below the mean high water mark. Drift or runoff may be hazardous to aquatic organisms in water adjacent to treated areas and nontarget plants. Do not contaminate water when disposing of equipment washwaters or rinsate.

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Not determined.

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes

Do not contaminate water, food, or feed by storage or disposal. END USERS MUST DISPOSE OF ANY UNUSED PRODUCT AS PER THE LABEL RECOMMENDATIONS. PRODUCT DISPOSAL: Pesticide spray mixture or rinsate that cannot be used should be disposed of in a landfill approved for pesticides. Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by the use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Contaminated Packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.
US EPA Waste Number

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>RCRA</th>
<th>RCRA - Basis for Listing</th>
<th>RCRA - D Series Wastes</th>
<th>RCRA - U Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D Amine</td>
<td>U240</td>
<td>U240</td>
<td>U240</td>
<td>U240</td>
</tr>
<tr>
<td>2008-39-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

**DOT**

Pack size less than 26 gallons:
Not Regulated

Pack size over 26 gallons:

- **UN/ID No**: UN3082
- **Proper Shipping Name**: Environmentally Hazardous Substance, Liquid, N.O.S. (2,4-dichlorophenoxyacetic acid)
- **Hazard Class**: 9
- **Packing Group**: III
- **Reportable Quantity (RQ)**: Yes

**IATA**

- **UN/ID No**: UN3082
- **Proper Shipping Name**: Environmentally Hazardous Substance, Liquid, N.O.S. (2,4-dichlorophenoxyacetic acid)
- **Hazard Class**: 9
- **Packing Group**: III
- **Marine Pollutant**: Yes
- **RQ**: Yes

**IMDG**

- **UN/ID No**: UN3082
- **Proper Shipping Name**: Environmentally Hazardous Substance, Liquid, N.O.S. (2,4-dichlorophenoxyacetic acid)
- **Hazard Class**: 9
- **Packing Group**: III
- **Marine Pollutant**: Yes
- **RQ**: Yes

15. REGULATORY INFORMATION

**International Inventories**

- **TSCA**: Listed

**Legend:**

- **TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**US Federal Regulations**

**CERCLA**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D Amine</td>
<td>100 lb</td>
<td></td>
<td>RQ 100 lb final RQ</td>
</tr>
<tr>
<td>2008-39-1</td>
<td></td>
<td></td>
<td>RQ 45.4 kg final RQ</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
**SARA 313**
Not determined

**US State Regulations**

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

**U.S. State Right-to-Know Regulations**
Not determined

**EPA Pesticide Registration Number** 66222-221

**EPA Statement**
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**EPA Pesticide Label**
Signal Word: Danger

Corrosive. Causes irreversible eye damage. Harmful if swallowed, inhaled or absorbed through the skin. Do not get in eyes, on skin or on clothing. Wear goggles, face shield, or safety glasses. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco. Remove and wash contaminated clothing before reuse.

**Difference between SDS and EPA pesticide label**

<table>
<thead>
<tr>
<th>Signal Word</th>
<th>Danger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Oral</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>Acute toxicity - Dermal</td>
<td>Harmful if absorbed through the skin</td>
</tr>
<tr>
<td>Acute toxicity - Inhalation</td>
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</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Causes irreversible eye damage</td>
</tr>
</tbody>
</table>

**16. OTHER INFORMATION**

<table>
<thead>
<tr>
<th>NFPA Health Hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Special Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS Health Hazards</th>
<th>Flammability</th>
<th>Physical Hazards</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>See section 8</td>
</tr>
</tbody>
</table>

**Issue Date:** 30-Apr-2010
**Revision Date:** 04-Sept-2015
**Revision Note:** Updated format from 02-Jun-2014

**Disclaimer**
The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet