



Safety Data Sheet

Issue Date: 30-Apr-2010

Revision Date: 04-Sept-2015

Version 2

1. IDENTIFICATION

Product Identifier

Product Name Defy LV-4

Other means of identification

SDS # ADAMA-017

Registration Number(s) EPA Reg. No. 66222-219
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 yellow liquid

Physical State Liquid

Odor Pungent

Classification

Acute toxicity - Oral	Category 4
Acute toxicity – Inhalation (Dusts/Mists)	Category 4
Carcinogenicity	Category 2
Flammable Liquids	Category 4

Signal Word

Warning

Hazard Statements

Harmful if swallowed
Harmful if inhaled
Suspected of causing cancer
Combustible liquid



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
 Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product
 Avoid breathing dust/fume/gas/mist/vapors/spray
 Use only outdoors or in a well-ventilated area
 Wear protective gloves
 Keep away from heat/sparks/open flames/hot surfaces. — No smoking

Precautionary Statements - Response

If exposed or concerned: Get medical advice/attention
 IF INHALED: Remove person to fresh air and keep comfortable for breathing
 Call a poison center/doctor if you feel unwell
 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
 Rinse mouth
 IN CASE OF FIRE: Use CO₂, dry chemical, or foam for extinction

Precautionary Statements - Storage

Store locked up
 Store in a well-ventilated place. Keep cool

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
2,4-D Ester	1928-43-4	65 - 70
Proprietary Petroleum Distillates	Proprietary	Balance

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. Seek medical advice.
Skin Contact	IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse.
Inhalation	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Give oxygen if breathing is difficult. If breathing has stopped, call 911, give artificial respiration. Seek medical advice.

Ingestion	Immediately call a poison center or doctor/physician. DO NOT induce vomiting. If conscious, drink 8-10 oz. of water promptly. Never give anything by mouth to an unconscious person. Obtain medical attention. Do not induce vomiting unless directed by medical personnel.
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Most important symptoms and effects

Symptoms	May cause irritation to the mucous membranes and upper respiratory tract. May cause eye irritation. The petroleum distillate, if aspirated into the respiratory system during ingestion or vomiting, may cause mild or severe pulmonary injury, which could be fatal.
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Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically.
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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

Combustible liquid.

Hazardous Combustion Products During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Hydrogen chloride. Nitrogen oxides (NO_x). Carbon oxides.

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.
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Environmental Precautions	Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. See Section 13: DISPOSAL CONSIDERATIONS.
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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.
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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.
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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. Use only in well-ventilated areas. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

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. Store locked up.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid	Odor	Pungent
Appearance	Transparent yellow liquid	Odor Threshold	Not determined
Color	Yellow		
<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>	
pH	3.24	(1% solution in water)	
Melting Point/Freezing Point	Not determined		
Boiling Point/Boiling Range	Not determined		
Flash Point	65.6 °C / 150 °F	(Seta Closed Cup)	
Evaporation Rate	Not determined		
Flammability (Solid, Gas)	Liquid-not applicable		
Upper Flammability Limits	Not determined		
Lower Flammability Limit	Not determined		
Vapor Pressure	Not determined		
Vapor Density	Not determined		
Specific Gravity	Not determined		
Water Solubility	Emulsifies		
Solubility in other solvents	Not determined		
Partition Coefficient	Not determined		
Auto-ignition Temperature	Not determined		
Decomposition Temperature	Not determined		
Kinematic Viscosity	Not determined		
Dynamic Viscosity	12.76 @ 25°C; 7.00 @ 40°C cps		
Explosive Properties	Not determined		
Oxidizing Properties	Not determined		
Bulk Density	1.015 gm/cm ³ @ 25°C; 1.005 gm/cm ³ @ 40°C (9.18 lb/gal)		

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. Nitrogen oxides (NO_x). Hydrogen chloride. Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Eye Contact	Avoid contact with eyes.
Skin Contact	Avoid contact with skin.
Inhalation	Harmful if inhaled.
Ingestion	Harmful if swallowed.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
2,4-D Ester 1928-43-4	= 300 mg/kg (Rat)	-	-

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 The table below indicates whether each agency has listed any ingredient as a carcinogen. However, the product as a whole has not been tested.

Chemical Name	ACGIH	IARC	NTP	OSHA
2,4-D Ester 1928-43-4		Group 2B		X

Legend

IARC (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Product Information (Numerical measures of toxicity)

Acute Oral LD50 (Rat): >1,000 mg/kg

Acute Dermal LD50 (Rabbit): >2,000 mg/kg

Acute Inhalation LC50 (Rat): >3.0 mg/L (4-hr)

Eye Irritation: Slightly irritating.

Dermal Irritation: Slightly irritating.

Dermal Sensitization: Non-sensitizer.

12. ECOLOGICAL INFORMATION

Ecotoxicity

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and nontarget plants. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

Component Information

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
2,4-D Ester 1928-43-4		6 - 8.7: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 7.8: 96 h Oncorhynchus mykiss mg/L LC50 static 11.5: 96 h Lepomis macrochirus mg/L LC50 static		

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Chemical Name	Partition Coefficient
2,4-D Ester 1928-43-4	5.78

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

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
2,4-D Ester 1928-43-4	U240			U240

14. TRANSPORT INFORMATION**DOT**

Pack size less than 26 gallons:
Not Regulated

UN/ID No

Pack size over 26 gallons:
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
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Legend:

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

US Federal Regulations**CERCLA**

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
2,4-D Ester 1928-43-4	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ

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

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
2,4-D Ester - 1928-43-4	1928-43-4	65 - 70	0.1

CWA (Clean Water Act)

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
2,4-D Ester 1928-43-4 (65 - 70)	100 lb			

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
2,4-D Ester 1928-43-4	X		

EPA Pesticide Registration Number 66222-219**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: Caution

Harmful if swallowed or absorbed through skin. Prolonged or frequently repeated skin contact may cause allergic skin reactions in some individuals. Avoid breathing vapors or mists. Avoid contact with skin, eyes or clothing.

Difference between SDS and EPA pesticide label

Signal Word	Caution	Warning
Acute toxicity - Oral	Harmful if swallowed	Harmful if swallowed
Acute toxicity - Dermal	Harmful if absorbed through the skin	N/A
Acute toxicity - Inhalation	N/A	Harmful if inhaled
Skin sensitization	Prolonged or frequently repeated skin contact may cause allergic skin reactions in some individuals.	N/A
Prolonged or frequently repeated skin contact may cause allergic skin reactions in some individuals.	Prolonged or frequently repeated skin contact may cause allergic skin reactions in some individuals.	Prolonged or frequently repeated skin contact may cause allergic skin reactions in some individuals.
Carcinogenicity	N/A	Suspected of causing cancer

16. OTHER INFORMATION**NFPA****Health Hazards**

2

Flammability

2

Instability

0

Special Hazards

None

HMIS**Health Hazards**

2

Flammability

2

Physical Hazards

0

Personal Protection

See section 8

Issue Date:

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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