



SAFETY DATA SHEET

DUET[®] HD Dual-Action Adulticide

Effective Date: 31 July 2017

v.02

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SECTION 1. Identification of the Substance/Mixture and of the Company

Product Identifier

Formulation Identifier: **DUET[®] HD Dual-Action Adulticide**

EPA Registration Number: 8329-105

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Relevant identified uses: An Insecticide for Ultra-Low Volume Application for Adult Mosquito Control

Uses advised against: See product label for Use Restrictions

Details of the Supplier

Clarke Mosquito Control Products, Inc.
675 Sidwell Court
St. Charles, IL 60174 U.S.A.
+1 (630) 894-2000
Email: Clarke@clarke.com

Emergency Telephone Number

24 Hour MEDICAL Emergency: SafetyCall@: (800) 714-7753 or (952) 852-9509

24 Hour TRANSPORTATION Emergency: CHEMTREC@: 1-800-553-5053

SECTION 2. Hazards identification

United States (US)
According to OSHA 29 CFR 1910.1200 HCS (2012)

Classification of the Substance or Mixture

Not Classified

Other Hazards Not Classifiable Under OSHA 29 CFR 1910.1200 HCS (2012)

Comments: None

SECTION 3. Composition/Information on Ingredients

Components

Substance Name	Concentration % w/w	OSHA Hazard Classification
Prallethrin	1.00	Acute Tox –Inhalation Cat 1; Dermal Cat. 4 Serious eye damage/irritation Cat. 2B Skin corrosion/irritation Cat. 3
Sumithrin	5.00	Combustible Liquid, Category 4
Piperonyl Butoxide (PBO)	5.00	Acute Tox - Inhalation Cat. 4 Skin corrosion/irritation Cat. 4
Inert Ingredient*	25.00%	Serious eye damage/irritation Cat. 2B

*The chemical identity of this ingredient has been withheld as trade secret in accordance with paragraph (i) of §1910.1200.

SECTION 4. First Aid Measures

Description of First Aid Measures

Eye contact: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes then continue rinsing. Call a poison control center or doctor for treatment advice or get medical attention.



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- Skin Contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Get medical attention if symptoms occur. Wash clothing before reuse.
- Ingestion:** If swallowed, IMMEDIATELY call a poison control center or doctor for treatment advice. DO NOT give any liquid to the person. Do not induce vomiting unless told to do so by a poison control center or doctor. Never give anything by mouth to an unconscious person.
- Inhalation:** Remove affected person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Indication of Immediate Medical Attention and Special Treatment

Can cause temporary mild eye irritation. Symptoms may include irritation, watering, redness.

Notes to Physician: Contains Pyrethroids—For skin effects, a highly efficient therapeutic agent for Pyrethrin/Pyrethroid exposure is topical application of Tocopherol Acetate (Vitamin E).

SECTION 5. Fire-Fighting Measures

Extinguishing Media

Suitable Extinguishing Media: Carbon Dioxide (CO₂), Dry Chemical, foam

Unsuitable Extinguishing Media: Do not use water jet.

Special Hazards Arising From the Substance or Mixture

Specific Hazards: In a fire or if heated, a pressure increase will occur and the container may burst.

Explosion data:

Sensitivity to Mechanical Impact: None

Sensitivity to static discharge: Yes, use proper bonding and/or grounding procedures.

Special Protective Equipment and Precautions for Fire-Fighters

Protection against fire: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Special Procedures: Move container from fire area if it can be done without risk. Do not scatter spilled material with high-pressure water streams. Dike for later disposal. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

SECTION 6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

General Precautions: Use appropriate protection (see section 8). Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Use personal protective equipment as required.

Environmental Precautions: Prevent product from entering into drains and waterways. Collect and dispose of this material and its container in accordance with national and regional regulations. If the product has contaminated surface water, inform the appropriate authorities.

Methods and Material for Containment and Cleaning Up

Methods for containment: Prevent further leakage of spillage if safe to do so. Move containers from spill area.

Small spill: Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

Large Spill: Prevent entry into sewers, water courses, basements or confined areas. Dam up and soak up with inert absorbent material. Pick up and transfer to properly labeled containers.



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Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

SECTION 7. Handling and Storage

Precautions for Safe Handling

Protective measures: Wear appropriate personal protection equipment (see section 8). Take prudent precautions to avoid contact with skin, eyes, and clothing. Mechanical ventilation should be used when handling this product in enclosed spaces. Do not contaminate water, food or feedstuffs, by storage, handling, or by disposal.

Hygiene Measures: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.

Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: Store in a cool, dry place. Keep container closed. Always store pesticides in the original container. Store away from food and pet food. Keep out of reach of children.

SECTION 8. Exposure Controls / Personal Protection

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

Control Parameters

Component Name	List/Source	Type	Value
Inert Ingredient (<60.0%)	US WEEL	TWA Aerosol	10 mg/m ³

Exposure controls

Engineering Controls: Use with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Wash hands thoroughly after handling. Wash clothing before re-using.

Individual Protection Measures, such as Personal Protection Equipment:

Special Note: Maintain and inspect Personal Protective Equipment before use. Discard and replace damaged protective equipment. Polycarbonate and nitrile may show degradation after prolonged or repeated exposure to this product. Promptly remove and clean PPE.

Eye Protection: Take precautions to avoid contact with eyes and face. Though not required, it is recommended to wear safety glasses or goggles when mixing, loading, or using under pressure.

Skin Protection: Wear suitable protective clothing including long-sleeve shirt, long pants, shoes and socks.

Hand Protection: It is good industrial hygiene practice to minimize skin contact. If preferred, wear suitable protective chemical resistant gloves such as nitrile, latex (preferable), neoprene, or butyl-rubber. Promptly clean reusable gloves, if worn, and inspect for signs of damage, swelling, cracking, or brittleness.

Respiratory Protection: None required. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

SECTION 9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Appearance: Clear, liquid

Color: Mildly yellow (1, Gardner liquid color standard)



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Odor:	Mild ether-like odor
Odor Threshold:	No information available
pH:	N/A - Product is not miscible in water
Melting Point:	No information available
Freezing Point:	No information available
Initial Boiling Point:	No information available
Flash Point:	125°C (closed cup)
Evaporation Rate:	No information available
Flammability:	No information available
Explosion limits [U/L]:	No information available
Vapor Pressure:	No information available
Vapor Density (Air =1):	No information available
Relative Density:	No information available
Specific Gravity (Water = 1)	1.132 g/mL (9.447 lbs/gal)
Solubility:	No information available
Partition Coefficient:	No information available
Auto-Ignition Temperature:	No information available
Viscosity:	49.8 centipoises at 20 °C; 22.3 centipoises at 40 °C;
Decomposition Temperature:	No information available
Explosive Properties:	No information available
Oxidizing Properties:	No information available
VOC Content (%):	No information available

SECTION 10. Stability and Reactivity

Reactivity

No data available

Chemical Stability

Stable under recommended normal storage conditions

Possibility of Hazardous Reactions

Hazardous Reactions: None under normal conditions

Hazardous Polymerization: Hazardous polymerization does not occur

Conditions to avoid

Extremes of temperature and direct sunlight

Incompatible materials

Not compatible with strong acids and bases. Not compatible with oxidizing agents.

Hazardous decomposition products

Carbon monoxide (CO), Carbon dioxide (CO₂)

SECTION 11. Toxicological information

Information on Likely Routes of Exposure

Routes of entry: Oral, Dermal, Inhalation, Eyes

Information on Toxicological Effects

Acute Toxicity / Effects

Oral, (Rat) LD₅₀ >5,000 mg/kg

Dermal, (Rabbit) LD₅₀ >5,000 mg/kg



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Inhalation, Rat LC ₅₀	>5.0 mg/L
Skin Corrosion/Irritation:	Not a skin irritant
Eye Irritation:	Not an eye Irritant.
Skin Sensitization:	Negative; Not considered to be a dermal sensitizer (Buehler).
Conditions aggravated by exposure:	None known

Chronic Toxicity / Effects

Assessment of repeated dose toxicity: No significant signs or symptoms indicative of any adverse health effects are expected to occur.

Germ Cell Mutagenicity This product has not been tested. The statement has been derived from the properties of the individual components. No data is available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product may contain trace levels of chemicals known to the State of California to cause cancer, and/or birth defects and/or other reproductive harm.

Ethylene Oxide (CAS # 75-21-8)

Propylene Oxide (CAS # 75-56-9)

1,4-dioxane (CAS# 123-91-1)

Marginally higher incidences of benign liver tumors in mice were observed following lifetime high dose exposures to PBO. The significance of these observations is undetermined and under review. The doses at which tumors were observed for PBO greatly exceeded potential exposure from labeled uses.

Reproductive Effects: This product has not been tested. The statement has been derived from the properties of the individual components. No data is available to indicate product or any components present at greater than 0.1% produce a fertility impairing effect. No indication of a developmental toxic / teratogenic effect.

STOT – Single exposure Not classified

STOT – Repeated exposure Not classified

SECTION 12. Ecological Information

Ecotoxicity:

Product specific data is not available. Data referenced is in relation to active ingredients, Sumithrin, Prallethrin, and PBO

Toxicity to Fish: Sumithrin: 96-hr Acute LC50 16.7 µg/L (rainbow trout), 15.8 µg/L (bluegill sunfish)
PBO: 96-hour Acute LC50 6/12 ppm (rainbow trout)
Prallethrin: LC50 0.012 mg/L (rainbow trout)

Toxicity to Aquatic Invertebrates: Sumithrin: 48-hr LC50 4.4 µg/L *Daphnia magna*
Sumithrin: 48-hr LC50 0.025 µg/L *Mysidopsis bahia*
PBO: 96-hr LC50 0.49 ppm, *Americamysis bahia*
Prallethrin: 48-hr EC50 0.0062 mg/L *Daphnia*

Toxicity to Plants: No data available

Persistence and Degradability

Product specific data not available. Data referenced is in relation to the active ingredients, Sumithrin, Prallethrin, and PBO

Biodegradability: Not readily biodegradable (by OECD criteria)

Bioconcentration Factor: Sumithrin: 592 (edible), 4,000 (non-edible)
PBO: 2, 175
Prallethrin: no data available



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Log Kow:	Sumithrin: 6 PBO: 4.95 Prallethrin: 4.49
Depuration:	Sumithrin, PBO: 2-4 days
Mobility in Soil:	Sumithrin has low water solubility and binds tightly to soil. Based on these properties, Sumithrin is relatively immobile in soil and its potential to contaminate groundwater is low. PBO is not very soluble in water and adheres moderately to soil with organic matter. Prallethrin is not very water soluble and adheres moderately with organic material. The hazard for Prallethrin to move off the site of application with rain or irrigation is rated moderate.

SECTION 13. Disposal Considerations

Waste Treatment and Disposal methods

Pesticide wastes are regulated. Consult product label for chemical substance and container disposal instructions. Avoid release to the environment. Improper disposal of excess product or rinsate is a violation of Federal law. If these wastes cannot be disposed or by 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.

Container disposal: Rinse thoroughly in accordance with label instructions.

SECTION 14. Transport Information

DOT (US)

Proper Shipping Name: Agricultural Insecticide. N.O.I. Non-Hazardous

Primary Hazard Class/Division: Non-Hazardous

In Non-Bulk quantities (i.e., less than or equal to 119 Gallons / 450 Liters): This material is not regulated by the DOT as a hazardous material.

In Bulk Quantities (more than 119 Gallons / 450 Liters):

UN Number: UN3082

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (d-PHENOTHRIN)

Hazard Class: 9

Packing Group: III

Marine Pollutant: Yes

IMDG (Vessel)

UN Number: UN3082

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (d-PHENOTHRIN)

Hazard Class: 9

Packing Group: III

Marine Pollutant: Yes

ICAO/IATA (Air transport)

UN Number: UN3082

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (d-PHENOTHRIN)

Hazard Class: 9

Packing Group: III

Marine Pollutant: Yes

SECTION 15. Regulatory Information

FIFRA Information: This chemical is a pesticide product regulated 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



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information for safety data sheet, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Signal word: none

KEEP OUT OF REACH OF CHILDREN

PRECAUTIONARY STATEMENTS: HAZARDS TO HUMANS AND DOMESTIC ANIMALS:

Personal Protective Equipment (PPE): Mixers, loaders, applicators, and other handlers must wear long-sleeved shirt, long pants, shoes and socks. See engineering controls for additional requirements.

User safety requirements: Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent material that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

User Safety Recommendations: Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change clothing.

Engineering controls: Pilots must use an enclosed cockpit that meets the requirements listed in Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d)(6)]. Human flagging is prohibited. Flagging to support aerial applications is limited to use of the Global Positioning System (GPS) or mechanical flaggers.

Other Federal Regulations

SARA TITLE III CLASSIFICATION

Section 302: None

Section 311/312: Immediate (acute) health hazard

Section 313: This product contains the following chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

CAS Number	Chemical Name	% by wt.
26002-80-2	d-Phenothrin	5.00
51-03-6	Piperonyl Butoxide	5.00
75-56-9	Propylene Oxide	< 0.001
123-91-1	1,4-Dioxane	< 0.00

U.S. California Proposition 65: Ethylene Oxide (CAS # 75-21-8)

Propylene Oxide (CAS # 75-56-9)

1,4-dioxane (CAS# 123-91-1)

STATE RIGHT-TO-KNOW: National, state, provincial or local emergency planning, community right-to-know or other laws, regulations or ordinances may be applicable--consult applicable national, state, provincial or local laws.

OSHA HAZARD COMMUNICATION STANDARD: This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16. Other Information

DISCLAIMER OF LIABILITY: The information in this SDS was obtained from sources we believe to be reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared as is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

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