

MATERIAL SAFETY DATA SHEET

Galigan® 2E

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1. IDENTIFICATION

Product name: Galigan® 2E
Chemical name of active ingredient(s): Oxyfluorfen: 2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl) benzene
Manufacturer: Agan Chemical Manufacturers, Ltd.
Northern Industrial Zone POB 262
Ashdod, Israel
Registrant: Makhteshim-Agan of North America
551 Fifth Avenue, Suite 1100
New York, NY 10176
Phone: 212-661-9800
For fire, spill, and/or leak emergencies, contact Infotrac: Phone: 1-800-535-5053
For medical emergencies and health and safety inquiries, contact Prosar: Phone: 1-877-250-9291

2. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/preparation: Galigan 2E
Information on hazardous ingredients *

Common Name	CAS No.	%
Oxyfluorfen	42874-03-3	22-24
Inert Ingredients, total, including:		
N-Methyl-2-pyrrolidone	872-50-4	8-10
Solvent naphtha (petroleum), heavy aromatic	64742-94-5	54-59

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

*Occupational Exposure Limit(s), if available, are listed in Section 8.

3. HAZARDOUS IDENTIFICATIONS

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects that could occur if this material is not handled in the recommended manner.

MOST IMPORTANT HAZARDS: Harmful if swallowed. Irritating to eyes and skin. Toxic to aquatic organisms.

PRIMARY ROUTES OF ENTRY: Inhalation. Dermal Adsorption. Skin Contact. Eye contact.

INHALATION: Inhalation of solvent vapor or mist can cause irritation of the nose, throat, and lungs, headache, nausea, dizziness, drowsiness, loss of coordination, stupor, and unconsciousness.

EYE: Direct contact with material can cause substantial irritation.

SKIN: N-Methyl pyrrolidone may be absorbed through intact skin. Material can cause severe skin irritation. Prolonged or repeated skin contact can cause defatting and drying of the skin, which can lead to irritation and dermatitis, skin sensitization in susceptible individuals.

DELAYED EFFECTS

Repeated overexposure to the active ingredient in this material can cause liver damage.

Prolonged or repeated exposure to naphtha can cause liver damage and kidney damage.

Prolonged or repeated exposure to N-Methyl pyrrolidone can cause possible adverse reproductive effects.

4. FIRST AID

EFFECTS AND SYMPTOMS OF EXPOSURE

INHALATION: headache, dizziness, nausea, vomiting, and cramps

INGESTION: headache, dizziness, nausea, vomiting, and cramps

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SKIN CONTACT: Irritating to skin

EYE CONTACT: Irritating to eyes

FIRST AID MEASURES

- | | |
|--------------------------------|--|
| IF SWALLOWED: | <ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow.• Do not induce vomiting unless told to do so by a poison control center or doctor.• Do not give anything by mouth to an unconscious person. |
| IF ON SKIN OR CLOTHING: | <ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15-20 minutes. |
| IF IN EYES: | <ul style="list-style-type: none">• Call a poison control center or doctor for treatment advice.• 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 eye.• Call a poison control center or doctor for treatment advice. |
| IF INHALED: | <ul style="list-style-type: none">• Move 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. |

Have the product container or label with you when calling a poison control center or doctor or going for treatment.

NOTE TO PHYSICIAN: Contains petroleum distillate; vomiting may cause aspiration pneumonia. Symptoms of exposure through inhalation or ingestion include headache, dizziness, nausea, vomiting, and cramps. Symptoms from eye or skin contact include irritation. Remove victim from area of exposure. Wash off remaining material with plenty of water. Probable mucosal damage may contraindicate the use of gastric lavage. Treat symptomatically and give supportive therapy. There is no specific antidote.

5. FIRE FIGHTING MEASURES

FLASH POINT: 71°C

EXTINGUISHING MEDIA: Foam, CO₂, dry chemical, water spray

FIRE & EXPLOSION HAZARDS: Flashback may occur along vapor trail.

HAZARDOUS THERMAL DECOMPOSITION PRODUCTS: Chloride compounds, fluoride compounds, and nitrogen oxides.

FIRE-FIGHTING EQUIPMENT: Use positive-pressure self-contained breathing apparatus and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS/LEAKS: Keep away from all ignition sources. Ventilate the spill area. Avoid breathing vapor. Use MSHA/NIOSH self-contained breathing apparatus or air-line respirator for large spills in confined areas. Dike the spill with inert material (sand, earth, etc.) and transfer the liquid or solid diking material to separate containers for recovery or disposal. Remove the contaminated clothing promptly and wash exposed skin areas with soap and water. Wash clothing before reuse. Keep spill out of all sewers and open bodies of water. Report large spills to Makhteshim-Agan of North America at 212-661-9800.

PERSONAL PRECAUTIONS: Wear suitable protective clothing. See Section 8 for recommendations. If exposed to material during clean up, see Section 4 for First Aid recommendations. Thoroughly wash body areas that come into contact with this product.

ENVIRONMENTAL PRECAUTIONS: Keep spills and cleaning runoff out of municipal sewers and open bodies of water. Do not discharge into drains or the environment. Note: Spills on porous surfaces can contaminate groundwater.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: KEEP OUT OF REACH OF CHILDREN. Do not get in eyes, on skin, or clothing. Avoid breathing vapor and spray mist. Users should wash hands before

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eating, drinking, using tobacco, or using the toilet. For handling relative to the end-use of this product, read the product label. Store in original container in a dry storage area. Keep away from freezing. Store above 32°F.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

OCCUPATIONAL EXPOSURE LIMITS

Common Name	OSHA PEL (USA)	ACGIH TLV (USA)	TLV (Agan)	STEL (Agan)	“MAK” (Germany)
Oxyfluorfen	NA	NA	0.2 mg/m ³	1.6 mg/m ³	
N-Methyl-2-pyrrolidone	NA	NA			80 mg/m ³
Solvent naphtha (petroleum), heavy arom.	NA	NA			
Naphthalene	50 mg/m ³ (TWA)	52 mg/m ³ (TWA)			

RESPIRATORY PROTECTION: A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the exposure limits listed above.

Up to 10 times the TLV: Wear a MSHA/NIOSH approved (or equivalent) half-mask, air-purifying respirator.

Up to 1000 ppm organic vapor or unknown: Wear a MSHA/NIOSH approved (or equivalent) self-contained breathing apparatus in the positive pressure mode OR MSHA/NIOSH approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Air-purifying respirators should be equipped with MSHA/NIOSH approved (or equivalent) cartridges for protection against pesticides.

EYE PROTECTION: Use chemical splash goggles. Eye protection worn must be compatible with respiratory production system employed.

SKIN PROTECTION: Use protective clothing impervious to this material. Selection of specific items such as faceshield, gloves, boots, apron, or full body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse. Items, which cannot be decontaminated, such as shoes, belts, and watchbands, should be removed, destroyed, and disposed of.

ENGINEERING CONTROLS: Ventilation required. Use explosion-proof local exhaust ventilation with a minimum capture velocity of 100 ft/min (0.5 m/sec.) at the point of vapor evolution.

HYGIENE MEASURES: When handling, do not eat, drink, or smoke. Wash hands thoroughly after handling. Wash clothing separately before reuse.

OTHER PROTECTIVE EQUIPMENT: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

APPLICATORS AND ALL OTHER HANDLERS: Please refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

COLOR: Amber

ODOR: Aromatic (solvent-type odor)

BOILING POINT: 220-290°C (naphtha)

DENSITY: 1.08 ± 0.02 @ 20°C

VAPOR PRESSURE: <1 x 10⁻⁷ mmHg @ 25°C (oxyfluorfen)

SOLUBILITY IN WATER: 0.04 ppm (oxyfluorfen)

pH: 6-8

FLASH POINT: 71°C (160°F)

FLAMMABILITY: Slight

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AUTOIGNITION TEMPERATURE: >450°C

EXPLOSION PROPERTIES: Naphtha (vapors)-may form explosive mixture with air

LOWER EXPLOSION LIMIT: 0.8 % by volume

UPPER EXPLOSION LIMIT: 7% by volume

OXIDATION PROPERTIES: Not oxidizing

10. STABILITY AND REACTIVITY

STABILITY: Not subject to polymerization.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Oxidizing agents, acids, alkali.

HAZARDOUS DECOMPOSITION PRODUCTS: Chloride compounds, fluoride compounds, nitrogen oxides

HAZARDOUS REACTIONS: None.

11. TOXICOLOGICAL INFORMATION

Preparation:

Acute toxicity, oral: LD₅₀ (rat) > 2000 mg/kg

Acute toxicity, dermal: LD₅₀ (rabbit) > 4000 mg/kg

Acute toxicity, inhalation: LC₅₀ > 4.8 mg/L (4 hours)

Skin irritation: Moderately irritating (rabbit)

Eye irritation: Moderately irritating (rabbit)

Sensitization: The product is not a skin sensitizer (guinea pig).

Oxyfluorfen:

Chronic toxicity: NOEL: rat = 40 mg/kg/day; dog = 100 mg/kg/day; mice = 2 mg/kg/day

Carcinogenicity: EPA = Group C; EU = Not classified, IARC = Not classified

Mutagenicity: Not mutagenic

Reproduction toxicity: NOEL (rat) = 100 ppm (maternal); 400 ppm (fetal)

Teratogenicity: NOEL (rabbit) = 30 mg/kg/day

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE-Oxyfluorfen

MOBILITY: Not mobile in soil. Adsorbed on soils with high organic content.

DEGRADATION & PERSISTENCE: Based on information for oxyfluorfen.

Soil: The product is persistent to some extent.

Half-life time (t_{1/2}): 30-40 days.

Degradation is primarily via photolysis.

ECOTOXICOLOGY: Based on information for oxyfluorfen.

Fish: LC₅₀ (96 hours) (rainbow trout) = 0.1 ppm

Daphnia magna: EC₅₀ (48 hours) = 0.07 mg/L.

Birds: Mallard duck LC₅₀ (8 day feeding) > 5000 ppm

Bees: Not toxic @ 25 µg/bee

Low toxicity to birds. Non toxic to bees.

13. DISPOSAL CONSIDERATIONS:

DISPOSAL: Dispose of in a pesticide approved landfill or in a chemical incinerator equipped with scrubbers, in accordance with local, state, and federal regulations.

14. TRANSPORT INFORMATION:

DOT/IMO Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (oxyfluorfen solution, 24%), 9, UN 3082, PG III, Marine Pollutant

B/L Freight Classification: 45617 [Fungicide, Herbicide, Insecticide or Rodenticide]

Class 92.5

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15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state, or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

OSHA HAZARD COMMUNICATION STANDARD: This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

SARA TITLE 3: Section 311/312 Categorizations (40CFR 370): This product is a hazardous chemical under 29CFR 1910.1200 and is categorized as an immediate and delayed health hazard.

SARA TITLE 3: Section 313 Information (40CFR 372): This product contains a chemical which is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present:

oxyfluorfen (42874-03-3)

N-Methyl-2-pyrrolidone (872-50-4)

Naphthalene (91-20-3)

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND) REPORTABLE QUANTITY: This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA which may require reporting of releases:

Chemical Name	CAS Number	RQ	% in Product
Naphthalene	91-20-3	100 lbs.	6 to 8

RCRA CLASSIFICATION: NA (primary toxicant not a listed RCRA waste, mixture not a characteristic hazardous waste).

TOXIC SUBSTANCES CONTROL ACT (TSCA): Exempt from TSCA.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATING: Not Rated

16. OTHER INFORMATION:

MSDS Revised: 1-28-04; Supercedes all previous versions. Changes made to Section 14.

The information contained herein is given in good faith and is believed to be correct, but no warrant, express or implied, is made. Consult Makhteshim-Agan for further information.

Galigan is a trademark of Agan Chemical Manufacturers, Ltd.