

SAFETY DATA SHEET
FURADAN® 4 FLOWABLE INSECTICIDE

SDS # : 0279-A
Revision date: 2016-05-26
Format: NA
Version 1.02



1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name FURADAN® 4 FLOWABLE INSECTICIDE

Other means of identification

Product Code(s) 0279-A

Synonyms CARBOFURAN (FMC 10242); 2,3-dihydro-2,2-dimethylbenzofuran-7-yl methylcarbamate (IUPAC name); 2,3-dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate (CAS name)

Active Ingredient(s) Carbofuran

Chemical Family Carbamate Pesticide

Alternate Commercial Name Carbodan®48 F; Curater® 4 F; Curater® 47; Furadan® 47 F; Furadan® 48 F; Furadan® 480 F; Furadan® 480 FS; Furadan® 480 g/L SC; Furadan® 4 Flo; Furacarb® 48F

Recommended use of the chemical and restrictions on use

Recommended Use: Insecticide

Restrictions on Use: Use as recommended by the label

Manufacturer Address

FMC Corporation
2929 Walnut Street
Philadelphia, PA 19104
(215) 299-6000 (General Information)
msdsinfo@fmc.com (E-Mail General Information)

Emergency telephone number

For leak, fire, spill or accident emergencies, call:
1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)

Medical Emergencies:
1 800 / 331-3148 (PROSAR - U.S.A. & Canada)
1 651 / 632-6793 (PROSAR - All Other Countries - Collect)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 2
Acute toxicity - Inhalation (Dusts/Mists)	Category 2

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Specific target organ toxicity (single exposure)	Category 1
Specific target organ toxicity (repeated exposure)	Category 1
Flammable liquids	Category 4

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Danger

Hazard Statements

H300 - Fatal if swallowed
H330 - Fatal if inhaled
H370 - Causes damage to organs
H372 - Causes damage to organs through prolonged or repeated exposure



Precautionary Statements - Prevention

P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P271 - Use only outdoors or in a well-ventilated area
P284 - Wear respiratory protection
P210 - Keep away from heat/sparks/open flames/hot surfaces. No smoking
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P235 - Keep cool

Precautionary Statements - Response

P308 + P311 - If exposed or concerned: Call a POISON CENTER or doctor
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor
P330 - Rinse mouth

Precautionary Statements - Storage

P405 - Store locked up
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

P501 - Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

No hazards not otherwise classified were identified.

Other Information

May be harmful in contact with skin. Very toxic to aquatic life with long lasting effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family

Carbamate Pesticide.

Chemical name	CAS-No	Weight %
Carbofuran	1563-66-2	44
Propylene glycol	57-55-6	5-10

Synonyms are provided in Section 1.

4. FIRST AID MEASURES

Eye Contact	Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.
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 further treatment advice.
Inhalation	Move to fresh air. If person is not breathing, call 911 (within the U.S. and Canada) or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
Ingestion	Call a poison control center or doctor immediately for treatment advice. Drink 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed	Symptoms of exposure may include headache, light-headedness, weakness, abdominal cramps, nausea, excessive salivation, perspiration, blurred vision, tearing, pin-point pupils, excessive respiratory secretions, cyanosis, convulsions, generalized tremor and coma.
Indication of immediate medical attention and special treatment needed, if necessary	This product contains a reversible cholinesterase inhibitor. Atropine sulfate is antidotal. Support respiration as needed with removal of secretions, maintenance of a patent airway and, if necessary, artificial ventilation. If cyanosis is absent: Adults - start treatment by giving 2 mg atropine intravenously or intramuscularly, if necessary, and repeat with 0.4 - 2.0 mg atropine at 15 minute intervals until atropinization occurs (tachycardia, flushed skin, dry mouth, mydriasis); Children under 12 - initial dose = 0.05 mg/kg body weight and repeat dose = 0.02 - 0.05 mg/kg body weight. Use of oximes such as 2-PAM is controversial. Observe patient to ensure that these symptoms do not recur as atropinization wears off. If in eyes, instill one drop of homatropine. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Specific Hazards Arising from the Chemical	Thermal decomposition can lead to release of irritating gases and vapors.
Explosion data	
Sensitivity to Mechanical Impact	Not sensitive.
Sensitivity to Static Discharge	Yes.
Protective equipment and precautions for firefighters	Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Isolate and post spill area. Remove all sources of ignition. Ventilate the area. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.
Other	For further clean-up instructions, call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.
Environmental Precautions	See Section 12 for additional Ecological Information.

Methods for Containment	Dike to prevent runoff. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
Methods for cleaning up	Clean and neutralize spill area, tools and equipment for a minimum contact of one hour with vinegar-alcohol solution, then by bleach soap and water. Absorb rinsate and add to the collected waste. Waste must be classified and labeled prior to recycling or disposal. Dispose of waste as indicated in Section 13.

7. HANDLING AND STORAGE

Handling	Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.
Storage	Keep in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep out of reach of children and animals. Keep/store only in original container.
Incompatible products	No information available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Carbofuran (1563-66-2)	TWA: 0.1 mg/m ³	-	TWA: 0.1 mg/m ³	Mexico: TWA 0.1 mg/m ³
Chemical name	British Columbia	Quebec	Ontario TWAEV	Alberta
Carbofuran (1563-66-2)	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³ inhalable fraction and vapor	TWA: 0.1 mg/m ³
Propylene glycol (57-55-6)	-	-	TWA: 10 mg/m ³ aerosol only TWA: 50 ppm aerosol and vapor TWA: 155 mg/m ³ aerosol and vapor	-

Appropriate engineering controls

Engineering measures	Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.
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Individual protection measures, such as personal protective equipment

Eye/Face Protection	For dust, splash, mist or spray exposure, wear chemical protective goggles.
Skin and Body Protection	Wear long-sleeved shirt, long pants, socks, and shoes.
Hand Protection	Protective gloves
Respiratory Protection	For dust, splash, mist or spray exposures wear a full-face air-supplying respirator which is approved for pesticides (U.S. NIOSH/MSHA, EU CEN or comparable certification organization) .
Hygiene measures	Clean water should be available for washing in case of eye or skin contamination. Wash

skin prior to eating, drinking, chewing gum or using tobacco. Shower or bathe at the end of working. Remove and wash contaminated clothing before re-use. Launder work clothing separately from regular household laundry.

General information

If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Suspension
Physical State	Liquid
Color	Off-white
Odor	Phenolic
Odor threshold	No information available
pH	No information available
Melting point/freezing point	Not applicable
Boiling Point/Range	No information available
Flash point	78 °C / 172.4 °F
Evaporation Rate	No information available
Flammability (solid, gas)	No information available
Flammability Limit in Air	
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor pressure	No information available
Vapor density	No information available
Density	8.9 lb/gal
Specific gravity	1.07
Water solubility	No information available
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Viscosity, kinematic	No information available
Viscosity, dynamic	No information available
Explosive properties	No information available
Oxidizing properties	No information available
Molecular weight	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY

Reactivity	Not applicable
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	Excessive heat, Extreme risk of explosion by shock, friction, fire or other sources of ignition
Incompatible materials	No information available.
Hazardous Decomposition Products	Carbon oxides (COx), Nitrogen oxides (NOx), Methyl isocyanate.

11. TOXICOLOGICAL INFORMATION

Product Information

LD50 Oral	Carbofuran 5.3 mg/kg (rat)
LD50 Dermal	Carbofuran: > 2000 mg/kg (rabbit)
LC50 Inhalation	Carbofuran 0.025 mg/L 4 hr Estimated; 0.1 mg/L 1hr (rat)
Serious eye damage/eye irritation	Carbofuran: May cause slight irritation. Absorption through the mucous membranes of the

Skin corrosion/irritation	eyes could be highly toxic. May cause slight irritation. With dermal exposure to carbofuran, conditions of increased temperature and humidity facilitate skin absorption and, therefore, promote increased toxicity.
Sensitization	No information available

Information on toxicological effects

Symptoms	This substance is a reversible cholinesterase-inhibiting pesticide, which elicits symptoms in humans typical of cholinesterase inhibition including headache, light-headedness, weakness, abdominal cramps, nausea, excessive salivation, perspiration and blurred vision. More severe signs of cholinesterase inhibition include tearing, pin-point pupils, excessive respiratory secretions, cyanosis, convulsions, generalized tremor and coma. Excessive cholinesterase inhibition may result in death.
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Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic toxicity	Effects are expected to be similar to those that are seen with acute toxicity.
Mutagenicity	Carbofuran: Not genotoxic in laboratory studies.
Carcinogenicity	Carbofuran: No evidence of carcinogenicity from animal studies.
Neurological effects	Carbofuran: Chronic exposure of laboratory animals has caused decreased cholinesterase activity (erythrocyte, plasma, and/or brain).
Reproductive toxicity	Carbofuran: No toxicity to reproduction in animal studies.
Developmental toxicity	Carbofuran: Not teratogenic in animal studies.
STOT - single exposure	Causes damage to organs. See listed target organs below.
STOT - repeated exposure	Causes damage to organs through prolonged or repeated exposure. See listed target organs below.
Target organ effects	Nervous System, Acetylcholinesterase Inhibition
Neurological effects	Carbofuran: Chronic exposure of laboratory animals has caused decreased cholinesterase activity (erythrocyte, plasma, and/or brain).
Aspiration hazard	No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Carbofuran (1563-66-2)				
Active Ingredient(s)	Duration	Species	Value	Units
Carbofuran	48 h EC50	Crustacea	0.75	mg/L
	72 h EC50	Algae	19	mg/L
	96 h LC50	Fish	0.18	mg/L
	21 d NOEC	Crustacea	0.23	µg/L
	96 h NOEC	Algae	3.2	mg/L
	21 d NOEC	Fish	5.22	µg/L

Persistence and degradability	Carbofuran: Non-persistent. Does not readily hydrolyze. Not readily biodegradable.
Bioaccumulation	Carbofuran: The substance does not have a potential for bioconcentration.
Mobility	Carbofuran: Moderately mobile; expected to reach groundwater.

13. DISPOSAL CONSIDERATIONS

Waste disposal methods	Improper disposal of excess pesticide, spray mixture, or rinsate is prohibited. If these wastes cannot be disposed of by use according to label instructions, contact appropriate disposal authorities for guidance.
Contaminated Packaging	Containers must be disposed of in accordance with local, state and federal regulations.

Refer to the product label for container disposal instructions.

14. TRANSPORT INFORMATION

DOT

UN/ID no UN2992
Proper Shipping Name Carbamate pesticides, liquid, toxic
Hazard class 6.1
Packing Group II
Reportable Quantity (RQ) Carbofuran is in an "RQ" quantity when this material meets or exceeds 22.72 pounds (2.84 gallons) per package.
Marine Pollutant Carbofuran.
Description UN2992, Carbamate pesticides, liquid, toxic (Carbofuran), 6.1, PG II, Marine Pollutant, RQ

TDG

UN/ID no UN2992
Proper Shipping Name Carbamate pesticide, liquid, toxic
Hazard class 6.1
Packing Group II
Marine Pollutant Carbofuran.
Description UN2992, Carbamate pesticides, liquid, toxic (Carbofuran), 6.1, PG II, Marine Pollutant, RQ

ICAO/IATA

UN/ID no UN2992
Proper Shipping Name Carbamate pesticide, liquid, toxic
Hazard class 6.1
Packing Group II
Description UN2992, Carbamate pesticides, liquid, toxic (Carbofuran), 6.1, PG II, RQ
Limited quantity 1 L

IMDG/IMO

UN/ID no UN2992
Proper Shipping Name Carbamate pesticide, liquid, toxic
Hazard class 6.1
Packing Group II
EmS No. F-A, S-A
Marine Pollutant Carbofuran
Description UN2992, Carbamate pesticides, liquid, toxic (Carbofuran), 6.1, PG II, Marine Pollutant, RQ

15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical name	CAS-No	Weight %	SARA 313 - Threshold Values %
Carbofuran - 1563-66-2	1563-66-2	44	1.0

SARA 311/312 Hazard Categories

Acute health hazard Yes
Chronic health hazard Yes
Fire hazard Yes
Sudden release of pressure hazard No
Reactive Hazard No

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Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium Hydroxide 1310-73-2	1000 lb			X
Phosphoric acid 7664-38-2	5000 lb			X
Carbofuran 1563-66-2	10 lb			X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
1,4-Dioxane 123-91-1	100 lb 45.4 kg	
Sodium Hydroxide 1310-73-2	1000 lb 454 kg	
Phosphoric acid 7664-38-2	5000 lb 2270 kg	
Carbofuran 1563-66-2	10 lb 4.54 kg	10 lb

FIFRA Information

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:

DANGER

Poisonous if swallowed or inhaled. May be fatal or harmful as a result of skin or eye contact or by breathingspray mist. Causes cholinesterase inhibition.

This product is toxic to fish, birds and other wildlife.

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Carbofuran 1563-66-2	X	X	X
Propylene glycol 57-55-6	X		X

International Inventories

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELINC S (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)
Carbofuran	X	X	X	X	X	X	X	X

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1563-66-2								
Propylene glycol 57-55-6	X	X	X	X	X	X	X	X

Mexico - Grade Serious risk, Grade 3

Chemical name	Carcinogen Status	Mexico
Carbofuran		Mexico: TWA 0.1 mg/m ³

Chemical name	Mexico - Pollutant Release and Transfer Register - Reporting Emissions for Fabrication, Process or Use -Threshold Quantities	Pollutant Release and Transfer Register - Reporting Emissions - Threshold Quantities
1,4-Dioxane	500 5000 kg/yr	500 kg/yr

WHMIS Hazard Class D1A - Very toxic materials
D2A - Very toxic materials



16. OTHER INFORMATION

NFPA	Health Hazards 4	Flammability 2	Instability 0	Special Hazards -
HMIS	Health Hazards 3*	Flammability 2	Physical hazard 0	Personal Protection X

*Indicates a chronic health hazard.

Revision date: 2016-05-26
Reason for revision: (M)SDS sections updated

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End of Safety Data Sheet