



Material Safety Data Sheet
SEVIN® BRAND 4F CARBARYL INSECTICIDE

MSDS Number: 102000004253
 MSDS Version 2.0
 Revision Date: 02/14/2006

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name SEVIN® BRAND 4F CARBARYL INSECTICIDE
Chemical Name Carbaryl
MSDS Number 102000004253
EPA Registration No. 264-349

Bayer CropScience
 2 T.W. Alexander Drive
 Research Triangle PK, NC 27709
 USA

For MEDICAL, TRANSPORTATION or other EMERGENCY call: 1-800-334-7577 (24 hours/day)
 For Product Information call: 1-866-99BAYER (1-866-992-2937)

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Component Name</u>	<u>CAS-No.</u>	<u>Average % by Weight</u>
Carbaryl	63-25-2	43.00
1,2-Propanediol	57-55-6	5.00

SECTION 3. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview Caution! May be harmful by inhalation, ingestion, skin adsorption. Avoid contact with skin, eyes and clothing. Extremely toxic to aquatic and estuarine invertebrates. Highly toxic to bees.

Physical State liquid opaque

Odor mild

Appearance white to beige

Routes of Exposure Ingestion, Inhalation, Skin contact

Immediate Effects

Eye Causes redness, irritation, tearing. Avoid contact with eyes.

Skin Harmful if absorbed through skin. May produce symptoms similar to those from ingestion. Avoid contact with skin and clothing.



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Ingestion	Harmful if swallowed. This product causes reversible cholinesterase inhibition. Repeated overexposure may cause more severe cholinesterase inhibition with more pronounced symptoms. May lead to rapid onset of nausea, vomiting, diarrhea, abdominal pain, involuntary shaking, excess salivation, pinpoint pupils, blurred vision, profuse sweating, temporary paralysis, respiratory depression, and convulsions. Do not take internally.
Inhalation	Harmful if inhaled. May produce symptoms similar to those from ingestion. Do not breathe vapours or spray mist.
Chronic or Delayed Long-Term	This product or its components may have target organ effects. This product contains ingredients that are considered to be probable or suspected human carcinogens (see Section 11 - Chronic).
Medical Conditions Aggravated by Exposure	Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

SECTION 4. FIRST AID MEASURES

General	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Eye	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.
Skin	Take off all contaminated clothing immediately. Rinse immediately with plenty of water for at least 15 minutes. Call a poison control center or doctor for treatment advice.
Ingestion	Do not leave victim unattended. Call a physician or poison control center immediately. Rinse out mouth and give water in small gulps to drink. Never give anything by mouth to an unconscious person. DO NOT induce vomiting unless directed to do so by a physician or poison control center.
Inhalation	Move 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 physician or poison control center immediately.
Notes to Physician Signs and Symptoms	Local: Temporary blurred vision due to contraction of the pupils (miosis) following contact with the eyes. Systemic: Sweating salivation flushing dizziness



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abdominal pain
discomfort in the chest
muscle twitching
convulsions
respiratory failure
nausea
headache
vomiting
diarrhoea
hypotensive effect
blurred vision

Hazards Must NOT be confused with organophosphorus compounds! This product contains a cholinesterase inhibitor carbamate.

Treatment The product inhibits cholinesterase resulting in stimulation of the central nervous system, the parasympathetic nervous system, and the somatic motor nerves. If symptoms of carbamate poisoning are present, the administration of atropine sulfate is indicated.

ANTIDOTE: Administer atropine sulfate in large therapeutic doses. Repeat as necessary to the point of tolerance. In mild cases, start treatment by giving 1-2 mg of atropine intravenously every 15 minutes until signs of atropinization appear (dry mouth, flushing and dilated pupils if pupils were originally pinpoint). Severe cases should be given 2 to 4 mg intravenously every 10 minutes until fully atropinized, then intramuscularly every 30 to 60 minutes as needed to maintain the effect for at least 12 hours. Dosages for children should be appropriately reduced.

Do not use oximes such as 2-PAM unless organophosphate intoxication is suspected. Do not give morphine. Watch for pulmonary edema, which may develop in serious cases of poisoning even after 24 - 48 hours. At first sign of pulmonary edema, the patient should be placed in an oxygen tent and treated symptomatically.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point > 100 °C / > 212 °F

Lower Flammability Limit 2.6 %(V)

Upper Flammability Limit 19 %(V)

Fire and Explosion Hazards In the event of fire the following can be released:
nitrogen oxides (NOx)
carbon monoxide (CO)



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The product itself does not burn.

Suitable Extinguishing Media

water spray, foam, carbon dioxide (CO₂), dry powder

Fire Fighting Instructions

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Keep unnecessary people away, isolate hazard area and deny entry. Evacuate residents who are downwind of fire. Dike area to prevent runoff and contamination of water sources. Persons who may have been exposed to contaminated smoke should be immediately examined by a physician and checked for symptoms of poisoning. The symptoms should not be mistaken for heat exhaustion or smoke inhalation.

Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Methods for Cleaning Up

Dike area to prevent runoff. Soak up with inert absorbent material. Shovel into suitable container for disposal.

Additional Advice

Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Runoff from fire control or dilution water may cause pollution. If spilled on the ground, the affected area should be removed to a depth of one or two inches and placed in an appropriate container. Do not allow to enter soil, waterways or waste water canal.

SECTION 7. HANDLING AND STORAGE

Handling Procedures

Avoid contact with skin and eyes. Do not ingest. Avoid inhalation of vapour or mist. Smoking, eating and drinking should be prohibited in the application area.

Storing Procedures

Keep out of reach of children and animals. Store in original container. Keep in a dry, cool place. Keep away from food, drink and animal feedingstuffs.

Work/Hygienic Procedures

Wash hands immediately after work, if necessary take a shower.

Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.

Wash exposed skin promptly to remove accidental splashes of contact with this material.



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Contaminated work clothing should not be allowed out of the workplace. In addition, based upon the specific hazard of this product: Shower and change into street clothes before leaving the work site.

Min/Max Storage Temperatures no data available

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection	Cholinesterase activity of the worker should be supervised.			
	Follow all label instructions. Train employees in safe use of the product.			
	Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.			
Engineering Controls	Use local exhaust at all process locations to control employee exposure.			
Eye/Face Protection	Safety glasses with side-shields			
	An emergency eye wash must be readily accessible to the work area.			
Hand Protection	Wear as appropriate: PVC-coated gloves			
Body Protection	Skin contact should be minimized through use of gloves and suitable long-sleeved clothing (i.e., shirts and pants). Consideration must be given both to durability as well as permeation resistance.			
Respiratory Protection	When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or Industry recommendations.			
Exposure Limits				
Carbaryl	63-25-2	ACGIH	TWA	5 mg/m3
		NIOSH	REL	5 mg/m3
		OSHA Z1	PEL	5 mg/m3
		OSHA Z1A	TWA	5 mg/m3
		US CA OEL	TWA PEL	5 mg/m3
Ethanol	64-17-5	ACGIH	TWA	1,000 ppm
		NIOSH	REL	1,000 ppm 1,900 mg/m3
		OSHA Z1	PEL	1,000 ppm 1,900 mg/m3
		OSHA Z1A	TWA	1,000 ppm 1,900 mg/m3
		US CA OEL	TWA PEL	1,000 ppm 1,900 mg/m3



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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	white to beige
Physical State	liquid opaque
Odor	mild
pH	4 - 6 (10 g/l)
Vapor Pressure	23.7 hPa / 17.8 mm Hg at 20 °C
Vapor Density (Air = 1)	0.62
Specific Gravity	1.1 at 20 °C
Density	ca. 1.10 g/cm ³ at 20 °C
Boiling Point	98 °C / 208 °F
Melting/Freezing Point	-3 °C / 27 °F
Water Solubility	miscible
Decomposition Temperature	175 - 190 °C Exothermic decomposition.

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions.
Conditions to Avoid	Exposure to extreme heat. Exposure to open flame.
Incompatibility	strong acids bases
Hazardous Decomposition Products	Thermal decomposition nitrogen oxides (NO _x) Carbon oxides methyl isocyanate (trace; no adverse effects expected)
Hazardous Reactions	No dangerous reaction known under conditions of normal use.



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SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity studies have been bridged from a similar formulation containing a similar percentage of the active ingredient, carbaryl. The non-acute information pertains to technical-grade carbaryl.

- Acute Oral Toxicity** rat: LD50: 699 mg/kg
- Acute Dermal Toxicity** male/female rat: LD50: > 4,000 mg/kg
- Acute Inhalation Toxicity** male/female rat: LC50: 3.8 mg/l
 Exposure time: 4 h
 (actual)
- male/female rat: LC50: 15.2 mg/l
 Exposure time: 1 h
 (actual)
 Extrapolated from the 4 hr LC50.
- Skin Irritation** rabbit: Slight irritation.
- Eye Irritation** rabbit: Slight irritation.
- Sensitization** guinea pig: Non-sensitizing.
- Chronic Toxicity** Reversible cholinesterase inhibition occurred in chronic toxicity studies in rats and dogs. The principal organs affected in rats from long-term exposure to high-doses of carbaryl included the urinary bladder, thyroid, kidneys and liver.

Assessment Carcinogenicity

Carbaryl has been shown to cause tumors in laboratory animals in lifetime feeding studies.

ACGIH		
Carbaryl	63-25-2	Group A4
NTP		
None.		
IARC		
Carbaryl	63-25-2	Overall evaluation: 3
OSHA		
None.		

Reproductive & Developmental Toxicity REPRODUCTION: Carbaryl was not a reproductive toxicant in a two-generation study in rats.

DEVELOPMENTAL TOXICITY: Carbaryl was not a primary developmental toxicant in rats and rabbits. Developmental effects were observed in both species but were considered secondary to maternal toxicity.

Neurotoxicity Carbaryl caused transient neurobehavioral effects (e.g., tremors) related to cholinergic toxicity without correlating neuropathological changes in acute and



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subchronic neurotoxicity studies in rats. Carbaryl did not cause developmental neurotoxic effects in offspring in a one-generation developmental neurotoxicity study in rats.

Mutagenicity

A battery of in vitro and in vivo mutagenicity studies have been conducted on carbaryl. Collectively, these studies indicate that carbaryl poses only a slight mutagenic risk.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to Fish

Rainbow trout (*Oncorhynchus mykiss*)
LC50: 1.4 mg/l
Exposure time: 96 h

Cyprinodon variegatus (sheepshead minnow)
LC50: 13.6 mg/l
Exposure time: 96 h

Acute Toxicity to Aquatic Invertebrates

Water flea (*Daphnia magna*)
EC50: 0.00067 mg/l
Exposure time: 48 h

Toxicity to Other Organisms

Mallard duck
LC50: > 5,000 mg/kg
Exposure time: 8 d
The value mentioned relates to the active ingredient.
Dietary concentrations.

Bobwhite quail
LC50: > 5,000 mg/kg
Exposure time: 8 d
The value mentioned relates to the active ingredient.
Dietary concentrations.

Environmental Precautions

Extremely toxic to aquatic and estuarine invertebrates. For terrestrial uses, do not apply directly to water, or to areas where surface water is present, or to intertidal areas below mean high water mark. Do not allow this product to drift on to non-target areas. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.

Highly toxic to bees. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.



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SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance Follow container label instructions for disposal of wastes generated during use in compliance with the product label. Do not contaminate water, food, or feed by disposal. Open dumping is prohibited. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal Triple rinse containers. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by State and Local authorities, by burning. If burned, stay out of smoke.

RCRA Classification: The RCRA Classifications may be on the individual component(s) and not necessarily on the product as a whole.

63-25-2 Carbaryl
 US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261): U279

63-25-2 Carbaryl
 US. EPA Resource Conservation and Recovery Act (RCRA) U List of Hazardous Wastes (40 CFR 261.33(f) and 40 CFR 302 [CERCLA]): U279

SECTION 14. TRANSPORT INFORMATION

DOT TRANSPORTATION:
 Not regulated for Domestic Surface Transportation*

*When package contains 100 LBS of Carbaryl, or =227 LBS, or 25 Gal. the RQ is met. It is regulated as: RQ, Environmentally Hazardous Substances, Liquid, N.O.S. (Carbaryl) // 9 // UN3082 // PG III

IMDG CLASSIFICATION:
 RQ, Environmentally Hazardous Substances, Liquid, N.O.S. (Carbaryl) // 9 // UN3082 // PG III // Marine Pollutant

FREIGHT CLASSIFICATION:
 Insecticides or Fungicides, N.O.I., other than poison

SECTION 15. REGULATORY INFORMATION

EPA Registration No. 264-349

US Federal Regulations

TSCA list

Carbaryl	63-25-2
1,2-Propanediol	57-55-6



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US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

Carbaryl 63-25-2 1.0%

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

Carbaryl	63-25-2	CA, CT, IL, MA, MN, NJ, PA, RI
1,2-Propanediol	57-55-6	MN, RI

Canadian Regulations

Canadian Domestic Substance List

1,2-Propanediol 57-55-6

Environmental

CERCLA

Carbaryl 63-25-2 100 lbs

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

International Regulations

European Inventory of Existing Commercial Substances (EINECS)

Carbaryl	63-25-2
1,2-Propanediol	57-55-6

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 2 Flammability - 1 Reactivity - 1 Others - none

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason to Revise: Renumbering due to new MSDS system; updated various Sections as needed.

Revision Date: 02/14/2006

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