

# SAFETY DATA SHEET

**Marshal 25 EC**

SDS #: 50000905

Revision date:

27-04-2021 Version 2

Format: BR



## Section 1: PRODUCT AND COMPANY IDENTIFICATION

### Product Identifier

**Product Name** Marshal 25 EC

### Other means of identification

**Product Code(s)** 50000905, FO004298-CR-2-A

**UN/ID no** UN2991

**Synonyms** CARBOSULFAN (FMC 35001): 2,3-dihydro-2,2-dimethyl-7-benzofuranyl [(dibutylamino)thio]methylcarbamate (CAS name); 2,3-dihydro-2,2-dimethylbenzofuran-7-yl (dibutylaminothio)methylcarbamate (IUPAC name)

**Active Ingredient(s)** Carbosulfan

**Chemical Family** Carbamate

### Recommended use of the chemical and restrictions on use

**Recommended Use:** Insecticide.

**Restrictions on Use:** Use as recommended by the label.

### Details of the supplier of the safety data sheet

**Address:** FMC Agroquímica de México, S. de R.L. de C.V. Av. Vallarta No. 6503, Local A1-6, Col. Cd. Granja, 45010 Zapopan, Jalisco, México.  
Tel.: 800 FMC AGRO (362 2476)  
contactomexico@fmc.com

### Emergency telephone number:

1 703 / 741-5970 (CHEMTREC - International)  
911

Guatemala - Center of Toxicological Information and Assistance - (502) 2251-3560 / 2232-0735

El Salvador - Rosales National Hospital - (503) 2231-9262

Honduras - Hospital School - (504) 232-6105

Nicaragua - National Center of Toxicology - (505) 2289-4700 ext. 1294 cel. 8755-0983

Costa Rica - National Center of Poisoning - (506) 2223-1028; 800-INTOXICA

Panama Center of Research and Information on Medications and Toxicology (507) 523-4948

Dominican Republic - Drug Information and Poisoning Center - (809) 562-6601 Ext. 1801

## Section 2: HAZARDS IDENTIFICATION

### General Hazards

This material is considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Aspiration toxicity	Category 1
Acute toxicity - Oral	Category 2
Acute toxicity - Dermal	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 2
Skin corrosion/irritation	Category 2

Serious eye damage/eye irritation	Category 2
Skin sensitization	Category 1
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Specific target organ toxicity (single exposure)	Category 1
Specific target organ toxicity (repeated exposure)	Category 1
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1
FLAMMABLE LIQUIDS	Category 3

**GHS Label elements, including precautionary statements**



**Signal Word: Danger**

**Hazard Statements**

- H304 - May be fatal if swallowed and enters airways
- H312 - Harmful in contact with skin
- H315 - Causes skin irritation
- H317 - May cause an allergic skin reaction
- H319 - Causes serious eye irritation
- H340 - May cause genetic defects
- H350 - May cause cancer
- H370 - Causes damage to organs
- H372 - Causes damage to organs through prolonged or repeated exposure

**Precautionary Statements**

**Precautionary Statements - Prevention**

- P201 - Obtain special instructions before use
- P202 - Do not handle until all safety precautions have been read and understood
- P281 - Use personal protective equipment as required
- P264 - Wash face, hands and any exposed skin thoroughly after handling
- P270 - Do not eat, drink or smoke when using this product
- P272 - Contaminated work clothing should not be allowed out of the workplace
- P280 - Wear protective gloves
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray
- P273 - Avoid release to the environment
- P210 - Keep away from heat/sparks/open flames/hot surfaces. No smoking
- P233 - Keep container tightly closed
- P240 - Ground/bond container and receiving equipment
- P241 - Use explosion-proof electrical/ventilating/lighting/./equipment
- P242 - Use only non-sparking tools
- P243 - Take precautionary measures against static discharge

**Precautionary Statements - Response**

- P308 + P311 - If exposed or concerned: Call a POISON CENTER or doctor

**IF IN EYES**

- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to

do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/ attention

**IF ON SKIN**

P312 - Call a POISON CENTER or doctor if you feel unwell

P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

P363 - Wash contaminated clothing before reuse

**IF SWALLOWED**

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor

P331 - Do NOT induce vomiting

P330 - Rinse mouth

**FIRE** P370 + P378 - In case of fire: Use CO2, dry chemical, or foam for extinction

P391 - Collect spillage

**Precautionary Statements - Storage**

P405 - Store locked up

P403 + P235 - Store in a well-ventilated place. Keep cool

**Precautionary Statements - Disposal**

P501 - Dispose of contents/container according to label directions

**Other Information**

### Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

**Pure substance/preparation** Mixture

**Chemical Family** Carbamate

**Hazardous Components**

Chemical name	CAS-No	Weight %
Carbosulfan	55285-14-8	26.8002
Carbofuran	1563-66-2	0.536
Petroleum naphtha, light aromatic	64742-95-6	20-30
Petroleum distillates, solvent dewaxed light paraffinic	64742-56-9	20-30
Pseudocumene	95-63-6	5-15
Oxirane, methyl-, polymer with oxirane, monobutyl ester	9038-95-3	1.8
Cumene	98-82-8	0.1-1

Synonyms are provided in Section 1.

### Section 4: FIRST AID MEASURES

**FIRST AID MEASURES**

**General Advice**

Do not induce vomiting or give anything by mouth to an unconscious person. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Bring the SDS, product label and package insert when seeking medical assistance.

**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**

Wash off immediately with soap and plenty of water while removing all contaminated

clothes and shoes. Call a poison control center or doctor for further treatment advice.

**Inhalation**

Move to fresh air. If person is not breathing, contact emergency medical services, 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. Do not induce vomiting or give anything by mouth to an unconscious person.

**Protection of first-aiders**

Avoid contact by using personal protective equipment. See Section 8 for more detail.

**Most important symptoms and effects, both acute and delayed**

**Most important symptoms and effects, both acute and delayed**

Symptoms of overexposure include headache, light-headedness, weakness, abdominal cramps, nausea, excessive salivation, perspiration, blurred vision, tearing, pin-point pupils, blue skin color, convulsions, tremor and coma.

**Indication of any immediate medical attention and special treatment needed**

**Indication of immediate medical attention and special treatment needed, if necessary**

Contains petroleum distillate. Vomiting may cause aspiration pneumonia. Start by giving 2 mg atropine intramuscularly. According to clinical response, continue until signs of atropinization occur (dry mouth or dilated pupils). If in eyes, instill one drop of homatropine.

## Section 5: FIRE FIGHTING MEASURES

**Suitable Extinguishing Media**

Foam. Carbon dioxide (CO<sub>2</sub>). Dry chemical. Water spray.

**Unsuitable extinguishing media**

Do not spread material with high pressure water streams.

**Specific extinguishing methods**

Evacuate area and fight fire from a safe distance. Dike to prevent runoff. Very toxic to aquatic life with long lasting effects.

**Special protective equipment for fire-fighters**

Wear self-contained breathing apparatus and protective suit. Use personal protective equipment.

**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

**Hazardous Combustion Products**

Carbon oxides (CO<sub>x</sub>). Nitrogen oxides (NO<sub>x</sub>). Sulfur oxides.

**Explosive properties**

**Sensitivity to Mechanical Impact** Yes.

**Sensitivity to Static Discharge** Yes.

## Section 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal Precautions**

Isolate and post spill area. Remove all sources of ignition. 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**

**Environmental Precautions**

Keep people and animals away from and upwind of spill/leak. Keep material out of lakes,

streams, ponds, and sewer drains. Very toxic to aquatic life with long lasting effects.

### **C. Methods and material for containment and cleaning up**

#### **Methods for Containment**

Dike to prevent runoff.

#### **Methods for cleaning up**

Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. 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.

## **Section 7: HANDLING AND STORAGE**

### **Precautions for Safe Handling**

#### **Handling**

Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

#### **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.

### **Conditions for safe storage, including any incompatibilities**

#### **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**

Acids.

## **Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **Exposure Guidelines**

This product, as supplied, contains hazardous materials with occupational exposure limits established by the region specific regulatory bodies

#### **Hazardous Components**

<b>Chemical name</b>	<b>Brazil</b>	<b>Chile</b>	<b>Argentina</b>	<b>Venezuela</b>	<b>Mexico</b>	<b>ACGIH TLV</b>
Xylenes 1330-20-7	TWA: 78 ppm TWA: 340 mg/m <sup>3</sup>	TWA: 87 ppm TWA: 380 mg/m <sup>3</sup> STEL: 150 ppm STEL: 651 mg/m <sup>3</sup>	TWA: 100 ppm STEL: 150 ppm	TWA: 100 ppm STEL: 150 ppm Skin	Mexico: TWA 100 ppm Mexico: STEL 150 ppm	STEL 150 ppm TWA: 100 ppm
Carbofuran 1563-66-2	TWA: 0.1 mg/m <sup>3</sup>	TWA: 0.09 mg/m <sup>3</sup>	TWA: 0.1 mg/m <sup>3</sup>	TWA: 0.1 mg/m <sup>3</sup>	Mexico: TWA 0.1 mg/m <sup>3</sup>	TWA: 0.1 mg/m <sup>3</sup>
Pseudocumene 95-63-6				TWA: 20 ppm TWA: 100 mg/m <sup>3</sup>		
Cumene 98-82-8	TWA: 39 ppm TWA: 190 mg/m <sup>3</sup> Skin	TWA: 44 ppm TWA: 215 mg/m <sup>3</sup> Skin	TWA: 50 ppm	TWA: 50 ppm Skin	Mexico: TWA 50 ppm	TWA: 50 ppm

### **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.

### **Individual protection measures, such as personal protective equipment**

<b>Eye/Face Protection</b>	For dust, splash, mist or spray exposure, wear chemical protective goggles.
<b>Skin and Body Protection</b>	Wear long-sleeved shirt, long pants, socks, shoes, chemical-resistant gloves and headgear.
<b>Hand Protection</b>	Rubber/latex/neoprene or other suitable chemical resistant gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion and the contact time.
<b>Respiratory Protection</b>	In case of insufficient ventilation wear suitable respiratory equipment. Local nuisance dust standards apply.
<b>Hygiene measures</b>	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.
<b>General information</b>	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

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	Liquid
<b>Appearance</b>	Amber Liquid
<b>Odor</b>	Hydrocarbon-like
<b>Color</b>	Dark amber
<b>Odor threshold</b>	No information available
<b>pH</b>	No information available
<b>Melting point/freezing point</b>	No information available
<b>Boiling Point/Range</b>	No information available
<b>Flash point</b>	55 °C / 131 °F Tag Closed Cup
<b>Evaporation Rate</b>	No information available
<b>Flammability (solid, gas)</b>	No information available
<b>Flammability Limit in Air</b>	
Upper flammability limit:	No information available
Lower flammability limit:	No information available
<b>Vapor pressure</b>	No information available
<b>Vapor density</b>	No information available
<b>Specific gravity</b>	0.932 g/mL @ 20°C
<b>Water solubility</b>	Emulsifies
<b>Solubility in other solvents</b>	No information available
<b>Surface tension</b>	No data available
<b>Partition coefficient</b>	No information available
<b>Autoignition temperature</b>	No information available
<b>Decomposition temperature</b>	No information available
<b>Viscosity, kinematic</b>	No information available
<b>Viscosity, dynamic</b>	No information available
<b>Explosive properties</b>	No information available
<b>Corrosivity</b>	No information available
<b>Oxidizing properties</b>	No information available
<b>Softening point</b>	No information available
<b>Molecular weight</b>	No data available
<b>VOC content (%)</b>	No information available
<b>Relative density</b>	0,932 g/mL@20°C
<b>Bulk density</b>	No information available

## Section 10: STABILITY AND REACTIVITY

### Reactivity

#### Chemical Stability

Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**

Contact with aqueous acids may produce carbofuran.

**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**

Acids.

**Hazardous Decomposition Products**

Burning produces obnoxious and toxic fumes: Carbon oxides (COx), Sulfur oxides, Nitrogen oxides (NOx).

**Section 11: TOXICOLOGICAL INFORMATION**

**Product Information**

**LD50 Oral** 39 mg/kg (rat)

**LD50 Dermal** > 1520 mg/kg (rabbit)

**LC50 Inhalation (dust)** 1.06 mg/L (rat) 1 hr

**Information on likely routes of exposure**

**Inhalation:** There are no data available for this product

**Eye Contact:** Causes serious eye irritation

**Skin Contact:** Repeated or prolonged skin contact may cause allergic reactions with susceptible persons

**Ingestion:** Vomiting after ingestion of this product may cause aspiration of aromatic hydrocarbons into the lungs, which may result in fatal pulmonary edema. Carbosulfan 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.

**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.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Skin corrosion/irritation:** Moderately irritating

**Serious eye damage/eye irritation:** Moderately irritating to the eyes

**Sensitization:** This product produces skin sensitization (allergic reaction) in laboratory animals, and may produce similar effects in humans.

**Mutagenicity:** Carbosulfan, Carbofuran: Not genotoxic in laboratory studies

**Carcinogenicity:** Product contains ingredients classified by ACGIH, IARC, NTP, OSHA, or the EU as known or potential carcinogens. Carbosulfan, Carbofuran: No evidence of carcinogenicity from animal studies.

**Reproductive toxicity:** Carbosulfan, Carbofuran: No toxicity to reproduction 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.

**Developmental toxicity:** Carbosulfan: Caused fetal incomplete ossification and major vessel variations in animal studies.  
Carbofuran: Not teratogenic in animal studies

**Chronic toxicity:** Effects are expected to be similar to those that are seen with acute toxicity.

**Target organ effects:** Nervous system, Bladder, Gastrointestinal tract, Red blood cells, Acetylcholinesterase Inhibition

**Neurological effects:** Carbosulfan, Carbofuran: Chronic exposure of laboratory animals has caused decreased cholinesterase activity (erythrocyte, plasma, and/or brain).

**Aspiration hazard:** Potential for aspiration if swallowed. May be fatal if swallowed and enters airways.

Chemical name	ACGIH	IARC	NTP	OSHA
Petroleum distillates, solvent dewaxed light paraffinic	A2		Known	
Cumene		Group 2B	Reasonably Anticipated	X

**ACGIH (American Conference of Governmental Industrial Hygienists):** A2 - Suspected Human Carcinogen

**IARC (International Agency for Research on Cancer):** Group 2B - Possibly Carcinogenic to Humans

**NTP (National Toxicology Program):** Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen Known - Known Carcinogen

**OSHA (Occupational Safety and Health Administration of the US Department of Labor):** X - Present

## Section 12: ECOLOGICAL INFORMATION

Very toxic to aquatic life with long lasting effects. The environmental impact of this product has not been fully investigated.

### Hazardous Components

Chemical name	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates	Toxicity to algae
Carbosulfan	96 h LC50: 0.015 mg/L 21 d NOEC: 0.003 mg/L	48 h EC50: 0.0015 mg/L 21 d NOEC: 0.0032 mg/L	72 h EC50: 47 mg/L
Carbofuran	96 h LC50: 0.18 mg/L 21 d NOEC: 0.0052 mg/L	48 h EC50: 0.75 mg/L 21 d NOEC: 0.00023 mg/L	72 h EC50: 19 mg/L 96 hr NOEC: 3.2 mg/L

**Persistence and degradability:** Carbosulfan: Non-persistent. Readily hydrolyzed. Not readily biodegradable. Carbofuran: Non-persistent. Does not readily hydrolyze. Not readily biodegradable.

**Bioaccumulation:** Carbosulfan: The substance has a potential for bioconcentration. Carbofuran: The substance does not have a potential for bioconcentration.

**Mobility:** Carbosulfan: Slightly mobile. Carbofuran: Moderately mobile.

Component	Partition coefficient
Pseudocumene	3,63



95-63-6 ( 5-15 )	
Cumene	3,7
98-82-8 ( 0.1-1 )	

**Other Adverse Effects:** See product label for additional application instructions relating to environmental precautions

### Section 13: DISPOSAL CONSIDERATIONS

**Waste disposal methods** Pesticide wastes are toxic. 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. Proper personal protective equipment, as described in Sections 7 and 8, must be worn while handling materials for waste disposal.

**Contaminated containers and packages** Containers must be disposed of in accordance with local regulations. Refer to the product label for container disposal instructions. Do not reuse this container for any other purpose.

### Section 14: TRANSPORT INFORMATION

**IMDG/IMO:**

UN/ID no UN2991  
 Proper Shipping Name Carbamate pesticide, liquid, toxic, flammable  
 Hazard class 6.1  
 Subsidiary Hazard Class 3  
 Packing Group II  
 EmS No. F-A, S-A  
 Environmental Hazards Carbosulfan, Carbofuran

**ICAO/IATA:**

UN/ID no UN2991  
 Proper Shipping Name Carbamate pesticide, liquid, toxic, flammable  
 Hazard class 6.1  
 Subsidiary Hazard Class 3  
 Packing Group II

**DOT**

Proper Shipping Name Carbamate pesticides, liquid, toxic, flammable  
 Hazard class 6.1  
 Subsidiary class 3  
 Packing Group II  
 Marine Pollutant Carbosulfan, Carbofuran.

**TDG:**

UN/ID no UN2991  
 Proper Shipping Name Carbamate pesticide, liquid, toxic, flammable  
 Hazard class 6.1  
 Subsidiary class 3  
 Packing Group II  
 Marine Pollutant Carbosulfan, Carbofuran.

### Section 15: REGULATORY INFORMATION

This safety data sheet has been prepared according to Costa Rican legislation RTCR 481:2015 and RTCR 478:2015.

Chemical name	TSCA	DSL	EINECS/ELI	ENCS	China	KECL	PICCS	AICS
---------------	------	-----	------------	------	-------	------	-------	------

	(United States)	(Canada)	NCS (Europe)	(Japan)	(IECSC)	(Korea)	(Philippines)	(Australia)
Carbosulfan 55285-14-8			X			X		
Carbofuran 1563-66-2	X	X	X	X	X	X	X	X
Petroleum naphtha, light aromatic 64742-95-6	X	X	X		X	X	X	X
Petroleum distillates, solvent dewaxed light paraffinic 64742-56-9	X	X	X		X	X	X	X
Pseudocumene 95-63-6	X	X	X	X	X	X	X	X
Soybean oil, epoxidized 8013-07-8	X	X	X	X	X	X	X	X
Oxirane, methyl-, polymer with oxirane, monobutyl ester 9038-95-3	X	X		X	X	X	X	X
Cumene 98-82-8	X	X	X	X	X	X	X	X

## Section 16: OTHER INFORMATION

**Prepared By:**

FMC Logo - Trademark of FMC Corporation

© 2020 FMC Corporation. All Rights Reserved.

**Revision date:**

27-04-2021

**Revision note**

Product Code, Chemtrec number

**Disclaimer**

FMC Corporation believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. You can contact FMC Corporation to insure that this document is the most current available from FMC Corporation. No warranty of fitness for any particular purpose, warranty of merchantability or any other warranty, expressed or implied, is made concerning the information provided herein. The information provided herein relates only to the specified product designated and may not be applicable where such product is used in combination with any other materials or in any process. The user is responsible for determining whether the product is fit for a particular purpose and suitable for the user's conditions and methods of use. Since the conditions and methods of use are beyond the control of FMC Corporation, FMC Corporation expressly disclaims any and all liability as to any results obtained or arising from any use of the products or reliance on such information.