# SAFETY DATA SHEET

**Marshal 20SC**

**SDS # :** 6576-1-A
**Revision date:** 2021-11-10
**Format:** AP
**Version** 1.1

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

**Product Name** Marshal 20SC

**Product Code(s)** 6576-1-A

**Active Ingredient(s)** Carbosulfan

**Chemical Family** Carbamate Pesticide

**Recommended Use:** Insecticide

**Manufacturer/Supplier**

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

**Emergency telephone**

Medical Emergencies: 0800 140 1447
For leak, fire, spill or accidents: 001-803-017-9114 (CHEMTREC Indonesia)
1 703 741-5970 (CHEMTREC – International)

## Section 2: HAZARDS IDENTIFICATION

**GHS Classification**

| | |
|---|---|
| Acute toxicity - Oral | Category 4 |
| Acute toxicity - Inhalation (Dusts/Mists) | Category 4 |
| STOT - single exposure | Category 1 |
| Specific target organ toxicity (repeated exposure) | Category 1 |
| Acute aquatic toxicity | Category 1 |
| Chronic aquatic toxicity | Category 1 |

**Label Elements**

**Signal Word:** **Danger**

**Hazard Statements**
H302 - Harmful if swallowed
H332 - Harmful if inhaled
H370 - Causes damage to organs
H372 - Causes damage to organs through prolonged or repeated exposure

H410 - Very toxic to aquatic life with long lasting effects

**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
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing should not be allowed out of the workplace
P280 - Wear protective gloves
P273 - Avoid release to the environment
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

**Precautionary Statements - Response**
P308 + P311 - If exposed or concerned: Call a POISON CENTER or doctor
P330 - Rinse mouth
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P312 - Call a POISON CENTER or doctor if you feel unwell
P314 - Get medical advice/ attention if you feel unwell
P391 - Collect spillage
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P311 - Call a POISON CENTER or doctor
P302 + P352 - IF ON SKIN: Wash with plenty of water and soap
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P363 - Wash contaminated clothing before reuse
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
P330 - Rinse mouth
P391 - Collect spillage

**Precautionary Statements - Storage**
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
**Precautionary Statements - Disposal**
P501 - Dispose of contents/container to an approved waste disposal plant

**Other Information**
None known

## Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical name | CAS-No | Weight % |
|---|---|---|
| Carbosulfan | 55285-14-8 | 18.7 |
| Ethylene glycol | 107-21-1 | <5 |

## Section 4: FIRST AID MEASURES

**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.

**Skin Contact**
Call a poison control center or doctor for further treatment advice. Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes.

**Eye Contact**
Call a poison control center or doctor for further treatment advice. Hold eyes 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.

**Ingestion**
Induce vomiting, but only if victim is fully conscious. 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 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.

Use personal protective equipment. See Section 8 for more detail.

| | |
|---|---|
| **Indication of immediate medical attention and special treatment needed, if necessary** | Ingestion, depending on the dose, can cause i.a. abnormal behaviour, unconsciousness, convulsions, respiratory paralysis, pulmonary oedemas, as well as damages to liver and kidneys and can lead, in the worst case, to death. A quick treatment of an ethylene-glycol intoxication, when necessary with haemodialysis, may reduce the toxical effects. Intravenous ethyl alcohol in sodium bicarbonate solution is an approved antitoxin. Rinse mouth. 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. |

## Section 5: FIRE FIGHTING MEASURES

| | |
|---|---|
| **Suitable Extinguishing Media** | Carbon dioxide ($CO_2$). Foam. Dry chemical. Cool containers / tanks with water spray. Soft stream or water fog only if necessary. |
| **Unsuitable extinguishing media** | No information available |
| **Specific Hazards Arising from the Chemical** | Thermal decomposition can lead to release of irritating and toxic gases and vapors. |
| **Protective equipment and precautions for firefighters** | Isolate fire area. Evaluate upwind. As in any fire, wear self-contained breathing apparatus and full protective gear. |

## Section 6: ACCIDENTAL RELEASE MEASURES

| | |
|---|---|
| **Personal Precautions** | Ensure adequate ventilation. Remove all sources of ignition. For personal protection see section 8. Heat, flames and sparks. Isolate and post spill area. Wear suitable protective clothing, gloves and eye/face protection. |
| **Other** | For further clean-up instructions, call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above. |
| **Environmental Precautions** | Keep people and animals away from and upwind of spill/leak. Keep material out of lakes, streams, ponds, and sewer drains. |
| **Methods for Containment** | Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Dike to prevent runoff. |
| **Methods for cleaning up** | 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. 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. |

## Section 7: HANDLING AND STORAGE

| | |
|---|---|
| **Handling** | Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal. |
| **Storage** | Keep away from open flames, hot surfaces and sources of ignition. Keep in a dry, cool and well-ventilated place. Keep out of reach of children and animals. Keep/store only in original container. |

**Materials to avoid** Acids Strong oxidizing agents, Strong acids, Strong bases.

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Exposure Limits**

| Component | China | Japan | Korea | Australia | Taiwan |
|---|---|---|---|---|---|
| Ethylene glycol<br>107-21-1 ( <5 ) | TWA: 20 mg/m³<br>STEL: 40 mg/m³ | | Ceiling: 100 mg/m³ | STEL 40 ppm<br>STEL 104 mg/m³<br>TWA 10 mg/m³<br>TWA 20 ppm<br>TWA 52 mg/m³ | Ceiling 50 ppm<br>Ceiling 127 mg/m³<br>STEL 15 mg/m³ |

**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.

**Personal protective equipment**

**Respiratory Protection** The product does not automatically present an airborne exposure concern during normal handling. In the event of an accidental discharge of the material which produces a heavy vapour or mist, workers should put on officially approved respiratory protection equipment with a universal filter type including particle filter.

**Hand Protection** Wear chemical protective gloves made of materials such as nitrile or neoprene.

**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.

**Hygiene measures** Remove and wash contaminated clothing before re-use. 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. Launder work clothing separately from regular household laundry.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

**Physical State** Liquid
**Appearance** Liquid Viscous
**Odor** Phenolic
**Color** Light beige - beige
**Odor threshold** No information available
**pH** 8.5-9.5 (5% in water)
**Melting point/freezing point** No information available
**Boiling Point/Range** No information available
**Flash point** 100 °C Closed cup
**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**
**Vapor density** No information available
**Specific gravity** No information available
**Water solubility** No information available
**Solubility(ies)** 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
**Molecular weight** No data available

| | |
|---|---|
| **Relative density** | 1.056 lb/gal |
| **Bulk density** | No information available |

## Section 10: STABILITY AND REACTIVITY

| | |
|---|---|
| **Reactivity** | None under normal use conditions |
| **Stability** | Potential self-heating thermal decomposition above 100°C (212°F).<br>Above 200°C (391°F), decomposition will result in rapid gas generation. |
| **Hazardous reactions** | Contact with aqueous acids may produce carbofuran, carbon disulfide, and methylamine. |
| **Hazardous polymerization** | Hazardous polymerization does not occur. |
| **Conditions to Avoid** | Keep away from open flames, hot surfaces and sources of ignition. Excessive heat. |
| **Incompatible products** | Strong oxidizing agents, Strong acids, Strong bases. |
| **Hazardous Decomposition Products** | Acetaldehyde at temperatures around 500 - 600 °C. Incomplete combustion and thermolysis produces potentially toxic gases such as carbon monoxide and carbon dioxide. Possible formation of carbon oxides, nitrogen oxides, and hazardous organic compounds. Carbon oxides (COx). Nitrogen oxides (NOx). Carbon dioxide ($CO_2$). Sulfur oxides. Burning produces obnoxious and toxic fumes. Thermal decomposition can lead to release of toxic/corrosive gases and vapors. carbonyl sulfide. |

## Section 11: TOXICOLOGICAL INFORMATION

**Acute toxicity**

**Numerical measures of toxicity - Product Information**

| | |
|---|---|
| **LD50 Oral** | 500 mg/kg (rat) |
| **LD50 Dermal** | > 2,500 mg/kg (rat) |
| **LC50 Inhalation (dust)** | 2.73 mg/L 4 hr (rat) |
| **Skin corrosion/irritation** | May cause slight irritation. With dermal exposure to carbofuran, conditions of increased temperature and humidity facilitate skin absorption and, therefore, promote increased toxicity. |
| **Serious eye damage/eye irritation** | Minimally irritating (rabbit). |
| **Sensitization** | Non-sensitizing. |

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

| | |
|---|---|
| **Mutagenicity** | Carbosulfan. Not genotoxic in laboratory studies. |
| **Carcinogenicity** | Carbosulfan: No evidence of carcinogenicity from animal studies. |
| **Reproductive toxicity** | Carbosulfan: No toxicity to reproduction in animal studies. |
| **Developmental toxicity** | Carbosulfan: Caused fetal incomplete ossification and major vessel variations in animal studies. |
| **STOT - single exposure** | See listed target organs below. Causes damage to organs. |
| **STOT - repeated exposure** | Causes damage to organs through prolonged or repeated exposure. See listed target organs below. |
| **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: Chronic exposure of laboratory animals caused decreased cholinesterase activity (erythrocyte, plasma, and/or brain). |
| **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. |

**Aspiration hazard** No information available.

## Section 12: ECOLOGICAL INFORMATION

**Ecotoxicity**

The environmental impact of this product has not been fully investigated.

Very toxic to aquatic life with long lasting effects.

| **Carbosulfan (55285-14-8)** | | | | |
|---|---|---|---|---|
| Active Ingredient(s) | Duration | Species | Value | Units |
| Carbosulfan | 48 h EC50 | Crustacea | 1.5 | µg/L |
| | 72 h EC50 | Algae | 47 | mg/L |
| | 96 h LC50 | Fish | 0.015 | mg/L |
| | 21 d NOEC | Crustacea | 3.2 | µg/L |
| | 21 d NOEC | Fish | 3.0 | µg/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 does not have a potential for bioconcentration. Carbofuran: The substance has a potential for bioconcentration.

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

**Other Adverse Effects** No information available.

## Section 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. 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, state and federal regulations. Refer to the product label for container disposal instructions.

## Section 14: TRANSPORT INFORMATION

**IMDG/IMO**

**UN/ID no** UN3082
**Proper Shipping Name** Environmentally hazardous substance, liquid, n.o.s. (Carbosulfan)
**Hazard class** 9
**Packing Group** III
**EmS No.** F-A, S-F
**Environmental Hazards** Yes

**ICAO/IATA**

**UN/ID no** UN3082
**Proper Shipping Name** Environmentally hazardous substance, liquid, n.o.s. (Carbosulfan)
**Hazard class** 9

| | |
|---|---|
| **Packing Group** | III |
| **Environmental Hazards** | Yes |

## Section 15: REGULATORY INFORMATION

**International Inventories**

| Chemical name | TSCA (United States) | DSL (Canada) | EINECS/ELINCS (Europe) | ENCS (Japan) | China (IECSC) | KECL (Korea) | PICCS (Philippines) | AICS (Australia) |
|---|---|---|---|---|---|---|---|---|
| Carbosulfan 55285-14-8 | | | X | | | X | | |
| Ethylene glycol 107-21-1 | X | X | X | X | X | X | X | X |

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
**ENCS** - Japan Existing and New Chemical Substances
**IECSC** - China Inventory of Existing Chemical Substances
**KECL** - Korean Existing and Evaluated Chemical Substances
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances
**AICS** - Australian Inventory of Chemical Substances

## Section 16: OTHER INFORMATION

**Prepared By:** FMC Logo - Trademark of FMC Corporation



**Revision date:** 2021-11-10

**Revision note** SDS sections updated.

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**End of Safety Data Sheet**