

# Safety Data Sheet

Flame Defense Series

SDS No. 9940.6

Date of Preparation: 11/6/19

Revision: 08/19/24

## Section 1 - Chemical Product and Company Identification

**Product Identifier:** Flame Defense Series

**Other means of identification:** FD Series

**Recommended use:** Fire retardant.

**Manufacturer:** Marshall Additive Technologies

Division of the R. J. Marshall Company

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## Section 2 - Hazards Identification

**Classification of the chemical in accordance with paragraph (d) of 1910.1200:** Hazardous

**Carcinogenicity:** Class 1

**Signal Word:** Danger



**Symbols:**

**Hazard Statements:**

May cause cancer by inhalation.

**Precautionary Statements:**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Wear protective gloves/protective clothing/eye protection/face protection.

If exposed or concerned: Get medical advice/attention.

Dispose of contents in accordance with local regulations.

Store locked up.

**Hazards not otherwise classified:** None

## Section 3 - Composition / Information on Ingredients

Ingredient Name	CAS Number	Percent by Weight
Antimony Oxide	1309-64-4	Max 55.0
Crystalline Silica	14808-60-7	Max 0.6%

There are no other ingredients that are classified as health hazards.

## Section 4 - First Aid Measures

**Description of necessary measures subdivided according to the different routes of exposure:**

**Inhalation:** If experiencing respiratory symptoms, remove to a ventilated area and seek medical attention.

**Eye Contact:** If in eyes, flush eyes thoroughly taking care to rinse under eyelids. Do not scrub. Abrasion may cause irritation. Remove contact lenses if present and easy to do. Continue rinsing. If eye irritation persists, consult a physician.

**Skin Contact:** Wash with soap and water. Consult a physician if irritation persists.

**Ingestion:** Rinse mouth with water.

**Most important symptoms/effects, acute and delayed:**

**Inhalation:** May cause respiratory irritation.

**Eye Contact:** May cause irritation.

**Skin Contact:** May cause irritation.

**Ingestion:** May cause irritation of the gastrointestinal tract.

**Indication of immediate medical attention and special treatment:** None anticipated.

## Section 5 - Fire-Fighting Measures

**Suitable Extinguishing Media:** Water spray, carbon dioxide, or other dry chemicals.

**Unsuitable Extinguishing Media:** None known.

**Unusual Fire or Explosion Hazards:** None known.

**Specific hazards arising from the product:** None known.

**Special protective equipment and precautions for firefighters:** Use equipment necessary for surrounding fire.

## Section 6 - Accidental Release Measures

### Personal precautions, protective equipment, and emergency procedures:

Avoid the formation and inhalation of dust. Ensure adequate ventilation. Keep unprotected persons away. Although the substance has no acute toxicity, it is advised to avoid contact with skin, eyes, and clothing-wear suitable PPE.

**Environmental precautions:** It is advised that in the event of accidental release, the product should be prevented from reaching the sewage system or any water course and penetrating the soil. Dispose of spilled material in accordance with the relevant regulations.

**Methods and materials for containment and cleaning up:** Avoid dust formation. Sweep up all spilled material or use an appropriate industrial vacuum cleaner. Collect spilled material in suitable containers or closed plastic bags for recovery or disposal.

## Section 7 - Handling and Storage

### Precautions for safe handling:

**Protective measures:** Do not handle until all safety precautions have been read and understood. As a precautionary measure, the wearing of chemical-resistant gloves, long-sleeved overalls, and closed footwear designed to minimize skin contact is suggested. Use PPE as required. Provide showers, eyebaths, and self-contained breathing apparatus nearby.

**Advice on general occupational hygiene:** Avoid inhalation or ingestion. General occupational hygiene measures are required to ensure the safe handling of the substance. These measures involved good personal and housekeeping practices (i.e., regular cleaning with suitable cleaning devices), no eating, drinking, or smoking at the workplace, and wearing standard working clothes and shoes unless otherwise stated. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas. Shower and change clothes at the end of the work shift. Do not wear contaminated clothing at home. Do not blow the dust off with compressed air.

**Conditions for safe storage, including any incompatibilities:** Store in a well-ventilated dry area. Do not store in open inadequate mislabeled packaging.

## Section 8 - Exposure Controls / Personal Protection

### Control parameters:

Ingredient	OSHA PEL		ACGIH TLV	
	TWA	STEL	TWA	STEL
Antimony Oxide	None established	None established	0.02 mg/m <sup>3</sup>	None established
Crystalline Silica	0.05 mg/m <sup>3</sup> respirable dust	None established	.025 mg/m <sup>3</sup> respirable	None established
Particulates not otherwise classified	15 mg/m <sup>3</sup> total dust 5 mg/m <sup>3</sup> respirable dust	None established	None established	None established

Note: For reporting of TRI (Section 313) the maximum percent by weight Zinc content is 20.19.

**Ventilation:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

### Administrative Controls:

Prevent the formation of dust where possible. Any deposit of dust that cannot be avoided must be regularly removed using preferably appropriate industrial vacuum cleaners or central vacuum systems.

Waste air is to be released into the atmosphere only when it has passed through suitable dust separators.

Wastewater generated during the proplant, on process or cleaning operations should be collected and should preferably be treated in an on-site wastewater treatment plant which ensures efficient removal of antimony.

**Respiratory Protection:** Use NIOSH/MSHA-approved dust respirator.

### Protective Clothing/Equipment:

**Gloves:** Any dust-tight material (e.g., rubber-dipped cotton/rubber/nitrile/leather) suitable for the type of work could be used as material for gloves protecting against ATO exposure (non-corrosive inorganic substance). Breakthrough times are not relevant because corrosion and diffusion are excluded by the nature of the substance. Change gloves when damaged or according to the manufacturer's instructions.

**Other:** Long sleeves, closed footwear, and safety glasses are recommended.

**Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

## Section 9 - Physical and Chemical Properties

<b>Appearance:</b> white powder	<b>Vapor Pressure:</b> not applicable
<b>Odor:</b> odorless	<b>Vapor Density (Air=1):</b> not applicable
<b>Odor Threshold:</b> not applicable	<b>Relative Density:</b> not determined
<b>pH:</b> not established	<b>Water Solubility:</b> Very slight.
<b>Freezing/Melting Point:</b> not applicable	<b>Other Solubilities:</b> not applicable
<b>Boiling Point:</b> not applicable	<b>Partition coefficient: n-octanol/water;</b> not established
<b>Flash Point:</b> not applicable	<b>Auto-ignition Temperature:</b> Not determined.
<b>Flash Point Method:</b> not applicable	<b>Decomposition Temperature:</b> not determined
<b>Evaporation Rate:</b> not applicable	<b>Viscosity:</b> not applicable
<b>Flammability:</b> Non-flammable.	
<b>Upper/lower flammability limits:</b> not applicable	

## Section 10 - Stability and Reactivity

**Reactivity:** Hazardous polymerization cannot occur.

**Chemical Stability:** This product is stable at room temperature in closed containers under normal storage and handling conditions.

**Possibility of Hazardous Reactions:** Reaction with H-equivalents releases antimony hydride (stibine, SbH<sub>3</sub>). Hazardous polymerization will not occur.

**Conditions to Avoid:** Extreme humidity.

**Incompatible Materials:** Strong acids, strong bases, strong oxidizers.

**Hazardous Decomposition Products:** None known.

## Section 11- Toxicological Information

**Information on the likely routes of exposure:** Inhalation, Eye, and Ingestion.

**Symptoms related to the physical, chemical, and toxicological characteristics:**

**Inhalation:** Inhalation of high concentrations of products containing antimony oxide can result in irritation of the respiratory tract, pneumoconiosis, and possibly adverse cardiac effects.

**Eye:** May cause irritation through mechanical abrasion.

**Skin:** May cause irritation through mechanical abrasion. May cause skin rashes with itching.

**Ingestion:** May cause irritation of the gastrointestinal tract.

**Delayed and immediate effects and chronic effects from short- and long-term exposure:** None anticipated.

**Numerical measures of toxicity:** Not determined.

**Carcinogenicity:** IARC lists antimony trioxide as Class 2B possibly carcinogenic to humans. IARC and NTP have listed crystalline silica as a human carcinogen.

## Section 12 - Ecological Information

**Eco-toxicity:** Zinc compounds are very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

**Persistence and degradability:** No information available.

**Bio-accumulative potential:** No information available.

**Mobility in soil:** No information available.

**Results of PBT and vPvB assessment:** The PBT and vPvB criteria of Annex XIII to the Regulation do not apply to inorganic substances.

## Section 13 - Disposal Considerations

**Waste treatment methods:** Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. If the percentage of ATO in waste is greater than 1%, then the waste must be treated as hazardous under Directive 91/689/EEC. If the concentration is below 1%, then ATO-containing waste shall be handled as non-hazardous waste. All waste should be removed by a licensed waste removal company, incinerated, or recycled. If only the total antimony concentration is known, then waste with greater than 1% antimony should be treated as hazardous under Directive 91/689/EEC. Processing, use, or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of containers and unused contents in accordance with federal, state, and local requirements. The used packaging is only meant for packing this product. After usage, empty the packaging completely.

**Suitable disposal of hazardous waste for manufacturing and industrial use:** Keep separate and dispose of to either hazardous waste incineration operated according to Council Directive 2008/98/EC on waste, Directive 2000/76/EC on the incineration of waste, and the Reference Document on the Best Available Techniques for Waste Incineration of August 2006 or hazardous landfill operated under Directive 1999/31/EC.

**Suitable disposal of non-hazardous waste for manufacturing and industrial use:** Disposal of wastes is possible via incineration (operated according to Directive 2000/76/EC on the incineration of waste) or landfilling (operated according to Reference Document on the Best Available Techniques for Waste Industries of August 2006 and Council Directive 1999/31/EC and Council Decision 19 December 2002).

**Suitable disposal of waste for professional use:** Waste from end-of-life articles can be disposed of as municipal waste, except when they are separately regulated, like electronic devices, batteries, vehicles, etc. Disposal of wastes is possible via incineration (operated according to Directive 2000/76/EC on the incineration of waste) or landfilling (operated according to Reference Document on the Best Available Techniques for Waste Industries of August 2006 and Council Directive 1999/31/EC and Council Decision 19 December 2002).

## Section 14 - Transport Information

### DOT Transportation Data (49 CFR 172.101):

(Di)antimony trioxide which does not contain more than 0.5% arsenic is considered not dangerous and does not need to be classified for transportation.

RID/ADR: not restricted          ADNR/AND: not restricted          IATA/ICAO: not restricted

IMO/IMDG: not restricted

**UN Number:** Not applicable

**UN proper shipping name:** Not applicable

**Transport hazard class:** Not applicable

**Packaging group:** Not applicable

**Environmental hazards:** No environmental hazard

**Special precautions for user:** Not available

**Transport in bulk according to Annex II or MARPOL72/78 and the IBC Code:** Not available

Harmonized Tariff Code for Antimony Oxide is 2825.80.0000

## Section 15 - Regulatory Information

### EPA Regulations:

RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)

RCRA Hazardous Waste Classification: Not classified

CERCLA Hazardous Substance (40 CFR 302.4) Antimony Oxide is listed with an RQ of 1000#

SARA Toxic Chemical (40 CFR 372.65): Not listed

SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

Zinc or Zinc compounds and Antimony Oxide are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372.0.

**Prop 65:** **⚠ WARNING:** This product can expose you to chemicals including antimony oxide, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### OSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

### TSCA

This substance or all its components are on the Chemical Substances Inventory of the Toxic Substance Control Act (TSCA Inventory [USA]). Please note that this product is not subject to any legal reporting requirements under these acts.

### INTERNATIONAL REGULATIONS-This product or all its components are listed on the following inventories:

Australia AICS

Canadian DSL

China IECSC

European Union EINECS

Japan ENCS

Korea ECL

Philippines PICCS

Taiwan NECI

**Section 16 - Other Information**

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**Revision Notes:** added FD455S & FD493B

**Product Grades Available from the R. J. Marshall Company** (this list may be incomplete):

FD306	FD313	FD320	FD335	FD373	FD402	FD409	FD415	FD455	FD455S
FD493	FD493B								

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