

Common Name: **SULFUR TRIOXIDE**

Synonyms: Sulfuric Anhydride; Sulfuric Oxide

CAS No: 7446-11-9

 Molecular Formula: SO₃

RTK Substance No: 1767

Description: Colorless to white, crystalline solid or a colorless gas or liquid

HAZARD DATA

Hazard Rating	Firefighting	Reactivity
3 - Health 0 - Fire 2W - Reactivity DOT#: UN 1829 ERG Guide #: 137 Hazard Class: 8 (Corrosive)	Sulfur Trioxide is not combustible but is a STRONG OXIDIZER which enhances the combustion of other substances. Use dry chemical or CO ₂ as extinguishing agents. DO NOT USE WATER directly on Sulfur Trioxide as an explosion may result. POISONOUS GASES ARE PRODUCED IN FIRE. CONTAINERS MAY EXPLODE IN FIRE. Use water spray to keep fire-exposed containers cool. DO NOT get water inside containers. Sulfur Trioxide may ignite combustibles (wood, paper and oil).	Sulfur Trioxide reacts explosively with WATER to form toxic <i>Sulfuric Acid</i> . Sulfur Trioxide reacts violently with ORGANIC MATERIALS; STRONG BASES (such as SODIUM HYDROXIDE and POTASSIUM HYDROXIDE); TETRAFLUOROETHYLENE; OXYGEN DIFLUORIDE; ANHYDROUS PERCHLORIC ACID; and REDUCING AGENTS (such as LITHIUM, SODIUM, ALUMINUM and their HYDRIDES) to release heat and cause fires, and form toxic gases Sulfur Trioxide is AIR SENSITIVE.

SPILL/LEAKS

Isolation Distance:

Small Spill: 60 meters (200 feet)

Large Spill: 300 meters (1,000 feet)

Fire: 800 meters (1/2 mile)

Cover spilled material with crushed limestone, soda ash, or lime.

Cover with a plastic sheet to protect from rain and water.

Collect material in the most convenient and safe manner and deposit into sealed containers.

DO NOT wash into sewer.

 Keep **Sulfur Trioxide** out of confined spaces, such as sewers, because of the possibility of an explosion.

May be toxic to aquatic life.

PHYSICAL PROPERTIES

Odor Threshold:	1 ppm
Flash Point:	Noncombustible
Vapor Density:	2.8 (air = 1)
Vapor Pressure:	73 mm Hg at 77°F (25°C)
Specific Gravity:	1.9 (water = 1)
Water Solubility:	Reacts
Boiling Point:	113°F (45°C)
Ionization Potential:	12.8 +/- 0.04 (liquid)
Molecular Weight:	80

EXPOSURE LIMITS

ERPG-1: 2 mg/m³
ERPG-2: 10 mg/m³
ERPG-3: 30 mg/m³

PROTECTIVE EQUIPMENT

Gloves:	Silver Shield®/4H® and Fluoroelastomer (>8-hr breakthrough for <i>Oleum</i>)
Coveralls:	DuPont Tychem® CPF 4 and TK; Kappler® Zytron® 300; and Saint-Gobain ONESuit® TEC (>8-hr breakthrough for <i>Oleum</i>)
Respirator:	< 2 mg/m ³ - Supplied air > 2 mg/m ³ - SCBA

HEALTH EFFECTS

Eyes:	Severe irritation and burns
Skin:	Severe irritation and burns
Inhalation:	Nose, throat and lung irritation with coughing and severe shortness of breath (pulmonary edema) Headache, dizziness, nausea and vomiting
Chronic:	Strong inorganic acid mists containing <i>Sulfuric Acid</i> cause cancer of the lung and larynx in humans

FIRST AID AND DECONTAMINATION

Remove	the person from exposure.
Flush	eyes with large amounts of water for at least 30 minutes. Remove contact lenses if worn. Seek medical attention immediately.
Quickly	remove contaminated clothing and wash contaminated skin with large amounts of soap and water. Seek medical attention immediately.
Begin	artificial respiration if breathing has stopped and CPR if necessary.
Transfer	promptly to a medical facility.
Medical	observation is recommended as symptoms may be delayed.