

Safety Data Sheet (MSDS)

BORAX 10 mol – Borax Decahydrate

EC number	CAS number	Name
271-536-2	68584-31-6	Borax - Na ₂ B ₄ O ₇ ·10 H ₂ O

COMPOSITION/INFORMATION ON INGREDIENTS

FORMULA: Na₂B₄O₇ · 10 H₂O

CHEMICAL NAME: Sodium Tetraborate Decahydrate

SYNONYMS: Borax Decahydrate, Disodium Tetraborate Decahydrate, Borax 10 mol.

NOTE: Sodium Tetraborate Decahydrate is chemically and toxicologically related to Boric Acid; the majority of the Borate chronic toxicology studies were conducted using Boric Acid. Sodium Tetraborate Decahydrate is converted to Boric Acid in biological systems. The Boric Acid data discussed in this section can be converted to Sodium Tetraborate Decahydrate equivalent data by dividing by a factor of 0.6486.

EMERGENCY OVERVIEW: Sodium Tetraborate Decahydrate is a white odorless, powdered substance that is not flammable, combustible, or explosive, and it presents no unusual hazard if involved in a fire. Sodium Tetraborate Decahydrate presents little or no hazard (to humans) and has low acute oral and dermal toxicities. Care should be taken to minimize the amount of Sodium Tetraborate Decahydrate released to the environment to avoid ecological effects.

ROUTES OF EXPOSURE: In the occupational setting, inhalation is the most important route of exposure. Dermal absorption is usually not important because Sodium Tetraborate Decahydrate is not absorbed through the intact skin.

INHALATION: Mild irritation to nose and throat may occur when the PEL or TLV are exceeded

EYE CONTACT: Exposure to Borate dust does not cause eye irritation in normal industrial use.

DERMAL CONTACT: Sodium Tetraborate Decahydrate is non-irritating to the intact skin. Can be readily absorbed through broken or abraded skin.

INGESTION: Sodium Tetraborate Decahydrate is not intended for ingestion. Amounts greater than one teaspoonful, when ingested, may cause gastrointestinal problems.

CANCER: Sodium Tetraborate Decahydrate is not considered a carcinogen.

REPRODUCTIVE: A human study of occupationally exposed Borate worker population showed no adverse reproductive effects. Animal studies of similar organic Borates demonstrated reproductive effects in males.

TARGET ORGANS: No target organs have been determined in humans. High dose animal ingestion studies indicate that the testes are the target organ.

SIGNS AND SYMPTOMS OF EXPOSURE: Symptoms of accidental overexposure to Borates have been associated with ingestion or absorption through large areas of damaged skin. These may include nausea, vomiting, and diarrhea, with delayed effects of skin redness and peeling.

EMERGENCY & FIRST AID PROCEDURES

EYES: flush exposed eyes, occasionally lifting the upper and lower lids. Get medical attention if irritation persists.

SKIN: Sodium Tetraborate Decahydrate is non-irritating in the normal occupational setting. If irritation occurs, wash affected area with soap or mild detergent and large amounts of water. Get medical attention if irritation persists.

INHALATION: No specific treatment is necessary since Sodium Tetraborate Decahydrate is not likely to be

hazardous by inhalation. Prolonged exposure to dust levels in excess of regulatory limits should always be avoided.
INGESTION: If amounts greater than one teaspoon are swallowed, give two glasses of water to drink.

FIRE FIGHTING MEASURES

GENERAL HAZARD: Sodium Tetraborate Decahydrate is not flammable, combustible, or explosive. Sodium Tetraborate Decahydrate presents no unusual hazards when involved with a fire. This product is an inherent fire retardant.

UEL/LEL: Not Applicable

FLASH POINT: Not Applicable

AUTOIGNITION TEMPERATURE: Not Applicable

FLAMMABILITY CLASSIFICATION: Flammability Classification (29 CFR 1910.1200), Non-flammable solid.

EXTINGUISHING MEDIA: Any fire extinguishing media may be used on nearby fires.

ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS OR LEAKS: Borates may damage trees and vegetation. For dry spills, sweep, vacuum, or shovel and place in containers for disposal in accordance with applicable regulations. Avoid contamination of bodies of water during cleanup. Sodium Tetraborate Decahydrate will cause localized contamination of surrounding waters depending on amount dissolved in these waters. Some damage to local vegetation, fish, and other aquatic life may be expected. Under usual conditions, no protective equipment is required. Sodium Tetraborate Decahydrate is a non-hazardous waste when spilled or disposed of, as defined in the Resource Conservation and Recovery Act (RCRA) regulations (40 CFR 261).

HANDLING & STORAGE

GENERAL: Dry, indoor storage under normal atmospheric conditions is recommended. To maintain package integrity and to minimize caking of the product, bags should be handled on a "first-in-first-out" basis. Good housekeeping should be maintained to minimize dust accumulation and generation. Sodium Tetraborate Decahydrate may cake in moist conditions.

HYGIENIC PRACTICES: Wash hands thoroughly with soap and water after handling and before eating, drinking, or smoking.

EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Use local exhaust ventilation to keep airborne levels below exposure limits.

EYE PROTECTION: Use goggles or vented safety glasses in excessively dusty conditions.

SKIN PROTECTION: Not required under normal conditions. Use if excessively dusty or if skin is damaged.

RESPIRATORY PROTECTION: Use appropriate NIOSH/MSHA certified respirators when levels are expected to exceed exposure limits.

PHYSICAL & CHEMICAL PROPERTIES

SOLUBILITY IN WATER: 4.8% at 20oC; 65.6% at 100oC

APPEARANCE AND ODOR: White granular solid, odorless.

MOLECULAR WEIGHT: 381.37

BOILING POINT: Not Applicable

MELTING POINT: Begins losing water of crystallization @ 62oC, and converts to the anhydrous form which fuses @ 742oC.

pH VALUE: At 20oC: 1% solution - 9.23

VAPOR PRESSURE: Not Applicable

FLASH POINT: None

SPECIFIC GRAVITY: 1.73

BULK DENSITY: 50.97 lbs./ft.3

STABILITY & REACTIVITY DATA

STABILITY: Stable under normal conditions; forms partial hydrate in moist air.

INCOMPATIBILITY: Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas that could create an explosive hazard.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

HAZARDOUS POLYMERIZATION: Will not occur.