Kraft Chemical

Revision Date: February 5, 2019

SAFETY DATA SHEET
BORIC ACID GRAN.TECH GRADE

1. PRODUCT INFORMATION AND COMPANY IDENTIFICATION

Product Name:	Boric Acid Gran.Tech Grade
INCI Name:	Boric Acid
CAS Number:	10043-35-3
Recommended Use:	Agriculture, Pesticide, Fungicide, Water Treatment, Metallurgy, Glass and Ceramics, etc.
Company:	Kraft Chemical Company Melrose Park, IL 60160 Phone: 708-345-5200 Fax: 708-345-4005
Emergency Contact:	Chemtrec: 800-424-9300

2. HAZARD IDENTIFICATION

Product Classification: Reproductive Toxicity Category 2

GHS Label Elements:

Hazard Pictogram:

Signal Word: Warning

Hazard Statement: H361 Suspected of damaging fertility or unborn child

Precautionary Statements:
P201 - Obtain instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P280 - Wear protective gloves, eye protection
P308+P313 - If exposed or concerned: Get medical advice/attention
P501 - Dispose of contents/container to comply with local, state and federal regulations

Other Hazards: None

3. COMPOSITION/INFORMATION ON INGREDIENTS

INCI NAME	CAS NO.	CONCENTRATION (%)
Boric Acid	10043-35-3	>99.9

4. FIRST AID MEASURES

Necessary First Aid Measures:

Protection of Fistaiders: No special protective clothing is required

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Maybe harmful if swallowed or inhaled. May cause moderate eye irritation. Avoid breathing dust. Wash with soap and water after handling.

STATEMENT OF PRACTICAL TREATMENT:

If swallowed: Call a physician or poison control center. Do not induce vomiting. Boric Acid is not intended for ingestion. Amounts greater than one teaspoonful, when ingested, may cause gastrointestinal problems.

If Inhaled: Mild irritation to nose and throat may occur when the PEL or TLV are exceeded (see Section 15). Remove victim to fresh air. Get medical attention.

If in Eyes: Flush eyes with plenty of water. Call a physician if irritation persists.

Dermal Contact: Boric Acid is non-irritating to the intact skin. Can be readily absorbed through broken or abraded skin.

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

Notes to Physician: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

General Hazard: Boric Acid is not flammable, combustible, or explosive. Boric Acid presents no unusual hazards when involved in a fire. This product is an inherent fire retardant.

UEL/LEL: Not Applicable

Flash Point: Not Applicable

Auto-ignition: Not Applicable

Flammability: Non-flammable solid.

Class: Flammability Classification (29 CFR 1910.1200)

Extinguishing Media: Any appropriate fire extinguishing media may be used on nearby fires.

6. ACCIDENTAL RELEASE MEASURES

ENVIRONMENTAL HAZARD:

Personal Precautions: Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

Environmental Precautions:
Should not be released into the environment.

Methods for Containment and Clean Up
Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

7. HANDLING AND STORAGE

[It is a violation of Federal Law to use this product in a manner inconsistent with its labeling]

Caution: Keep out of Reach of Children

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

Storage & Disposal: Do not contaminate water, food or feed by storage or disposal. Notify local authority and contact your State Water Board or Regional Office of the EPA for guidance.

Storage: Store in a cool, dry area away from heat and strong reducing agents.

Container Disposal: Completely empty bags into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. Observe all Federal, state and local regulations concerning disposal of waste pesticide and containers.

FORMULATORS AND REPACKAGERS USING THIS PRODUCT ARE RESPONSIBLE FOR OBTAINING ENVIRONMENTAL PROTECTION AGENCY (EPA) REGISTRATION FOR THEIR PRODUCTS. [Refer to PR Notice 95-1 for the applicability of the Environmental Hazards statement to your product]

This product is a soluble inorganic powder which may be used for the formulation of products for the following **registered end-use patterns:**

i. Algaecides for water treatment in swimming pools.
ii. Bacteriostats for use in impregnating or otherwise applying to absorbent material(s) to inhibit the growth of odor-causing bacteria when applied at a rate of 0.015 to 0.37% w/w (approximately) equivalent boron.
iii. Insecticides for mop, spot and crack and crevice treatment in homes, residential, industrial, institutional and commercial buildings and in transportation equipment.
iv. Insecticide/fungicide for wood treatment.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Product	ACGIH TLV	OSHA PEL	NIOSH IDLH
Boric Acid US	TWA 2mg/m3 STEL 6mg/m3	Total Dust: 15mg/m3 Respirable Dust: 5mg/m3	
			TWAEV
Boric Acid Canada			TWA 2mg/m3 STEL 6mg/m3

Engineering Controls: Use local exhaust ventilation to keep airborne levels Below exposure limits (see Section 15).

Eye Protection: Use goggles or vented safety glasses in excessively dusty conditions.

Skin Protection: (Not required under normal conditions.) Use protection if excessively dusty or if skin is damaged.

Respiratory Protection: Use appropriate NIOSH/MSHA certified respirators when levels are expected to exceed exposure limits (see Section 15).

Personal Protective Equipment:

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR §1910.134 must be followed whenever workplace conditions warrant a respirator's use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Appearance:	White Granular Powder
Odor:	Characteristic Odorless
Molecular weight:	61.83
pH:	Very weak acid. pH ~6 for 0.1% solution @25ºC. pH~5.2 for 1% solution @25ºC. pH~4.8 for 2% solution @25ºC. pH~4.0 for 3.8% solution @25ºC.
Vapor Pressure:	Not applicable. Not a volatile substance
Vapor Density:	Not applicable
Evaporation Rate:	Not applicable
Viscosity:	Not applicable
Boiling Point:	Not available
Freezing/Melting Point:	169 deg C
Autoignition Temperature:	Not applicable. Not a flammable substance.
Flash Point:	Not applicable
Solubility:	Soluble in Water, Methanol, Ethylene Glycol, Glycerol. (in water 4.7 wt%@20C; 27.5 wt%@100C)
Specific Gravity/Density:	1.51g/cm3
Bulk Density:	50-60 Lb/Cft

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal storage and handling conditions; forms partial hydrate in moist air. When heated, water is lost forming Metaboric Acid (HBO2). On further heating, the material is converted to boric oxide (B2O3).

Conditions to Avoid: Incompatible materials, dust generation, heat.

Incompatible Materials: Boric Acid reacts as a weak acid that may cause corrosion of base metals. Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas that could create an explosive hazard. Avoid contact with strong reducing agents. Store according to good industrial practice.

Hazardous Decomposition:
Not known.

Hazardous Polymerization:
Will not occur.

11. TOXICOLOGICAL INFORMATION

Product	LD50 Oral	LD50 Dermal	LC50 Inhale(dust)
Boric Acid	3500-4100 mg/kg Rat	2000mg/kg Rabbit	>2.03 mg/L Rat 4h

EYES: Long occupational exposure history indicates no human eye injury from exposure to Boric Acid.

SKIN: Low acute dermal toxicity; LD50 for rabbits is expected to be greater than 2,000 mg/kg of body weight (test conducted per 16 CFR 1500.41). Boric Acid is not absorbed through intact skin.

INHALATION: Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposure to Boric Acid and Sodium Borate dust (See Section 4 also).

INGESTION: Low acute oral toxicity; LD50 for Sprague-Dawley rats is 3,500 to 4,100 mg/kg of body weight. (See Section 4).

CARCINOGENICITY: Boric Acid is not listed as a carcinogen by the Environmental Protection Agency (EPA), the State of California, or the International Agency for Research on Cancer (IARC). A report issued by the National Toxicology Program showed "no evidence of carcinogenicity" from a full two-year bioassay on Boric Acid on mice at feed doses of 2,500 to 5,000 ppm in the diet. No mutagenic activity was observed for Boric Acid in a recent battery of four short-term mutagenicity assays.

REPRODUCTIVE: A human study of occupationally exposed Borate worker population showed no adverse reproductive effects. Animal studies indicate that Boric Acid reduces or inhibits sperm production, causes testicular atrophy, and, when given to pregnant animals during gestation, may cause developmental changes. These feed studies were conducted under chronic exposure conditions leading to doses many times in excess of those that could occur through inhalation of dust in the occupational setting.

Teratogenicity: No information available.

Reproductive Effects: No information available.

Neurotoxicity: No information available.

Mutagenicity: No information available.

Other Studies: See actual entry in RTECS for complete information.

12. ECOLOGICAL INFORMATION

NOTE: Boron is the element in Boric Acid that is used to characterize Borate product ecological effects. To convert Boric Acid to boron multiply by 0.1748.

FISH TOXICITY: Boron naturally occurs in seawater at an average concentration of 5 mg B/liter. In laboratory studies the acute toxicity (96-hr LC50) for under-yearling Coho salmon (Onchorhynchus kisutch) in seawater was determined as 40 mg B/L (added as Sodium Metaborate). The Minimum Lethal Dose for minnows exposed to Boric Acid at 20C for 6 hours is 18,000 to 19,000 mg/l in distilled water, 19,000 to 19,500 in hard water.

Rainbow trout: 24-day LC50 = 150.0 mg/B/L
36-day NOEC-LOEC = 0.75-1 mg/B/L

Goldfish: 7-day NOEC-LOEC = 26.50 mg/B/L
3-day LC50 = 178 mg/B/L

BIRD TOXICITY: Dietary levels of 100 mg/kg resulted in reduced growth of female mallards. As little as 30 mg/kg fed to mallard adults adversely affected the growth rate of offspring.

INVERTEBRATE TOXICITY:
Daphnids 48-hour LC50 = 133 mg/B/L; 1-day NOECLOEC = 6-13 mg/B/L

PHYTOTOXICITY: Although boron is an essential micro-nutrient for healthy growth of plants, it can be harmful to boron-sensitive plants in higher quantities. Plants and trees can easily be exposed by root absorption to toxic levels of boron in the form of watersoluble Borate leached into nearby waters or soil. Care should be taken to minimize the amount of boron released to the environment.

ENVIRONMENTAL FATE DATA:

Persistence/Degradation: Boron is naturally occurring and is commonly found in the environment. Boric Acid decomposes in the environment to natural borate.

Soil Mobility: The product is soluble in water and is leachable through normal soil.

13. DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from

federal disposal regulations. Disposal of container and unused contents must be carried out in accordance with the federal, state and local requirements.

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

Boric Acid is not classified as Hazardous substance for transport. It is not regulated by

US DOT: **Unregulated**

Canada TDG: **WHIMS Class D2A**

Transport Classification for Road (ADR) / Rail (RID); Inland waterways (ADN); Sea (IMDG); Air (ICAO/IATA):

UN Number: Not Regulated

UN Proper Shipping Name: Not Regulated

Transport hazard class(es): Not Regulated

Packing Group: Not Regulated

Environmental Hazards (e.g. marine pollutant): Not regulated

Transport in bulk according to Annex II of Marpol 73/78 and the IBC code: Not Regulated

Special precautions for user: Not Regulated

15. REGULATORY INFORMATION

US Regulations:

TSCA: CAS# 10043-35-3 is listed on the TSCA inventory.

RCRA (40CFR 261): None listed under any section.

CERCLA (SUPERFUND): None listed under any section.

Health & Safety Reporting List:
Not on the Health & Safety Reporting List.

Chemical Test Rules: Not under a Chemical Test Rule.

TSCA 12(b) Chemical Weapons Convention: TSCA 12(b): No

CDTA: No

SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No Reactivity: No (Mixture / Solid)

TSCA Significant New Use Rule:
Not a SNUR under TSCA.

SARA Section 302 (RQ): None of the chemicals in this material have an RQ.

Section 302 (TPQ): None of the chemicals in this product have a TPQ.

SARA Codes: CAS # 10043-35-3: chronic.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act: This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletory substance. This material does not contain any Class 2 Ozone depletory substance.

Clean Water Act: Boric Acid is not regulated by any water quality criteria under Section 304, is not listed as priority pollutant under Section 307, and is not listed as a hazardous substance under Section 311.

SAFE DRINKING WATER ACT:
Not regulated under SDWA, 42 USC 300g-1, 40 CFR 141 et seq. Consult state and local regulations for possible water quality advisories involving boron.

OCCUPATIONAL EXPOSURE LIMITS:
Boric Acid is listed/regulated by OSHA, CAL OSHA, or ACGIH as "Particulate Not Otherwise Classified" or "Nuisance Dust".

OSHA: Permissible Exposure Limit: 15mg/m3, total dust 5 mg/m3, respirable dust

ACGIH: Threshold Limit Value: 2 mg/m3.

CALIFORNIA OSHA: Permissible Exposure Limit: 5 mg/m3

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STATE: CAS# 10043-35-3 can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts. California No Significant Risk Level: None of the chemicals in this product are listed.

Other Regulations:

Canada: CAS#10043-35-3 is listed on Canada's DSL List.
This product has a WHMIS classification of D2A.
CAS#10043-35-3 is listed on Canada's Ingredient Disclosure List.

Exposure Limits
CAS#10043-35-3 : OEL-AUSTRALIA:TWA 5 mg/m3
OEL-BELGIUM:TWA 5 mg/m3
OEL-DENMARK:TWA 5 mg/m3
OEL-FRANCE:TWA 5 mg/m3
OEL-THE NETHERLANDS:TWA 5 mg/m3
OEL-SWEDEN:TWA 2 mg/m3;STEL 5mg/m3;Skin
OEL-SWITZERLAND:TWA 5 mg/m3
OEL-UNITED KINGDOM:TWA 5 mg/m3
OEL IN BULGARIA, COLOMBIA, KOREA,
NEW ZEALAND, SINGAPORE, VIETNAM check ACGIH TLV

INTERNATIONAL AGENCY for CANCER RESEARCH:
Not listed as a carcinogen.

NTP ANNUAL REPORT ON CARCINOGENS:
Not listed as a carcinogen.

OSHA CARCINOGEN: Not listed as an OSHA carcinogen.

CONEG MODEL LEGISLATION:
Meets all CONEG requirements relating to heavy metal limitations on components of packaging materials.

CALIFORNIA PROPOSITION 65:
Not listed as carcinogen or reproductive toxin.

FEDERAL DRUG AGENCY (FDA):
Pursuant to 21 CFR 175.105, 176.180, and 181.30,
Boric Acid (non-pesticide) is approved by the FDA for use in adhesive components of packaging materials, as a component of paper coatings on such materials, or for use in the manufacture thereof, which materials are expected to come in contact with dry food products.

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEMS (WHMIS):

Boric Acid is regulated as a Controlled Product and is classified as D2A because of possible reproductive toxicity.

FIFRA: This product is a **PESTICIDE**

16. OTHER INFORMATION

All statements, technical information and recommendations contained herein are based on tests and data which Kraft Chemical Company believes to be currently reliable, but this accuracy or completeness thereof is not guaranteed and no warranty of any kind is made with respect thereto. This information is not intended as a license to operate under or a recommendation to practice or infringe any patent of this company or others covering any process, composition of matter or use. Since we shall have no control of the use of the product described here in, we assume no Liability for loss or damage incurred from the proper or improper use of such product.