CROWN ALLOYS COMPANY

SAFETY DATA SHEET

Section 1 – PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Silver Paste Flux**

PRODUCT IDENTIFICATION: **#45 SILVER FLUX (WHITE)**

SPECIFICATION: N/A

RECOMMENDED USE: For use in TB (Torch Brazing) applications

SUPPLIER: Crown Alloys Company
30105 Stephenson Hwy.
Madison Heights, MI. 48071

TELEPHONE NUMBER: (248) 588-3790

EMERGENCY NUMBER: (800) 424-9300 (24-Hr Toll-free number)

WEBSITE: www.crownalloys.com

Section 2 – HAZARDS IDENTIFICATION

2.1 Classification of the mixture

This product is placed on the market in solid (paste) form

2.1.1 Classification in accordance with GHS-US

Acute Tox. 4 (Oral)	H302	STOT SE 3	H335
Eye Irrit. 2	H319	STOT SE 3	H336
Acute Tox. 4 (Inhalation)	H332	Repr. 2	H361

2.2 Label elements

GHS-US labelling

Hazard Pictograms (GHS-US):

GHS07

GHS08

Signal word (GHS-US): Warning

Hazard statements (GHS-US):

H302 – Harmful if swallowed
H319 – Causes serious eye irritation
H332 – Harmful if inhaled
H335 – May cause respiratory irritation
H361 – Suspected of damaging fertility or the unborn child
H336 – May cause drowsiness or dizziness

Precautionary statements (GHS-US):

P202 – Do not handle until all safety precautions have been read and understood
P260 – Do not breathe dust/fume/gas/mist/vapors/spray
P261 – Avoid breathing dust/fume/gas/mist/vapors/spray
P264 – Wash hands 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/protective clothing/eye protection/face protection
P301+P312+P330 – IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Do not induce vomiting unless so instructed by medical personnel
P302+P352 – IF ON SKIN: Wash with plenty of soap and water
P308+P313 – IF EXPOSED OR CONCERNED: Get medical advice/attention
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing
P312 – Call a POISON CENTER or physician if you feel unwell
P314 – Get medical advice and attention if you feel unwell
P321 – Specific treatment (see label)
P333+P313 – If skin irritation or rash occurs: Get medical advice/attention
P362+P364 – Take off contaminated clothing and wash it before reuse
P403+P233 – Store in a well-ventilated place. Keep container tightly closed
P405 – Obtain special instructions before using. Store locked up
P501- Dispose of contents/container in accordance with local / regional / national / international regulations

2.3 Other hazards

No additional information available

2.4 Unknown acute toxicity (GHS-US)

No data available

Other hazards which do not result in GHS classification: Heat rays (infrared radiation) from flame or hot metal can injure eyes. Overexposure to brazing fumes and gases can be hazardous. Read and understand the manufacturer's instructions, Safety Data Sheets and the precautionary labels before using these alloys. Refer to Section 8.

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Substance(s) formed under the conditions of use: The welding/brazing fumes produced from this brazing flux may contain the following constituent(s) and/or their complex metallic oxides as well as solid particles or other constituents from the consumables, base metal, or base metal coating not listed below:

Chemical Identity	CAS-No.	Chemical Identity	CAS-No.	Chemical Identity	CAS-No.
Carbon Dioxide	124-38-9	Ozone	10028-15-6	Nitrogen Dioxide	10102-44-0
Carbon Monoxide	630-08-0				

Section 3 – COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable

Full text of H-phrases: See section 16

3.2 Mixture

Reportable Hazardous Ingredients

Chemical Identity	CAS-No.	Weight Percent (%)	GHS-US Classification
Boric acid	10043-35-3	15.0 – 30.0	Repr. 2, H361
Potassium fluoride	7789-23-3	15.0 – 30.0	Accute Tox. 4, H302 + H332
Potassium tetraborate	1332-77-0	25.0 – 40.0	Eye Irrit. 2, H319 Repr. 2, H361
Water	7732-18-5	10.0 – 20.0	

Composition Comments: The term “Hazardous Ingredients” should be interpreted as a term defined in Hazard Communication standards and does not necessarily imply the existence of a welding hazard. This brazing flux may contain additional non-hazardous ingredients or may form additional compounds under the condition of use. Refer to Sections 2 & 8 for more information.

Section 4 – FIRST AID MEASURES

4.1 Description of first aid measures

Protection of first-aiders: No special protective clothing is required.

Ingestion: Very low ingestion hazard during normal use. Never give anything by mouth to an unconscious person. Do not induce vomiting. If the subject is conscious, give 2-4 cups of milk or water. Seek immediate medical assistance. Consult a physician.

Inhalation: If signs and symptoms of toxicity are observed, remove subject from area, administer oxygen, and seek medical attention. Keep the subject warm and at rest. Perform artificial respiration if breathing has stopped.

Skin Contact: Remove contaminated clothing. Wash affected area with large quantities of water for at least five minutes. Seek medical attention if necessary. Launder or dry-clean clothing before reuse.

Eye Contact: Flush affected areas with water for at least 15 minutes. Seek medical assistance if necessary. If irritation persists for more than 30 minutes, seek medical attention. Do not rub eyes or keep eyes tightly closed.
Arc rays can injure eyes. If exposed, move victim to a dark room, remove contact lenses and cover eyes with a padded dressing and rest. Obtain medical assistance if symptoms persist.

4.2 Most important symptoms/effects, acute and delayed

Symptoms/injuries after inhalation: May cause respiratory irritation.

Symptoms/injuries after skin contact/ingestion: Symptoms of accidental over-exposure to high doses of potassium fluoride have been associated with ingestion or absorption through large areas of severely damaged skin. These may include nausea, vomiting and diarrhea, with delayed effects of skin redness and peeling (see Section 11).

Symptoms/injuries after eye contact: Causes eye irritation.

4.3 Indication of immediate medical attention and special treatment needed

Note to physicians: Depending upon the dose, ingestion of the component potassium fluoride may be harmful. Its concentration in the product is <300 gm/kg. Treat fluoride intoxication symptomatically. No components are readily absorbed through the skin, although contact may cause skin irritation.

Section 5 – FIRE-FIGHTING MEASURES

General Fire Hazards: *As shipped*, this product is nonflammable, combustible or explosive. However, the #45 Silver Flux (White) is used during welding and brazing. Welding/brazing arcs and sparks can ignite combustibles and flammable products. Read and understand American National Standard Z49.1, "Safety In Welding, Cutting and Allied Processes” and National Fire Protection Association NFPA 51B, “Standard for Fire Prevention During Welding, Cutting and Other Hot Work” before using this product.

5.1 Extinguishing media

Suitable extinguishing media: Use extinguishing media appropriate for surrounding fire. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media: None known.

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5.2 Special hazards arising from the substance

Fire hazard: Not flammable, however, if #45 Silver Flux (White) is present in a fire or explosion, potential decomposition byproducts may include boron oxide, potassium oxide, and/or fluorides.

Explosion hazard: Not combustible.

5.3 Special protective equipment and precautions for firefighters

Special firefighting procedures: Use standard firefighting procedures and consider the hazards of other involved materials.

Special protective equipment for firefighters: The product itself is a flame retardant. However, firefighters should wear full protective gear that is appropriate to the local circumstances and the surrounding environment.

Section 6 – ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid contact with skin, eyes, and mucous membranes. Wear appropriate protective equipment (e.g. gloves, chemical goggles etc.) during cleanup. If airborne dust and/or fume is present, use adequate engineering controls and, if needed, personal protection to prevent overexposure. Refer to recommendations in Section 8.

6.2 Environmental precautions

Prevent spills from entering sewers or contaminating soil.

6.3 Methods and material for containment and cleaning up

Clean up spills immediately, observing precautions in the personal protective equipment in Section 8. Prevent product from entering any drains, sewers or water sources. Refer to Section 13 for proper disposal. Attempt to reclaim the product if possible. Transfer to impervious containers.

Section 7 – HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhaling welding/brazing fumes. Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Read and understand the manufacturer's instruction and the precautionary label on the product. See American National Standard Z49.1, "Safety In Welding, Cutting and Allied Processes" published by the American Welding Society, http://pubs.aws.org and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, www.gpo.gov.

Do not eat, drink or smoke when using the product. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Cosmetics should not be applied in areas where exposures exist! Routinely wash work clothing and protective equipment to remove contaminants.

7.2 Conditions for safe storage, including any incompatibilities

Store in closed original container in a dry place. Store away from incompatible materials (see Section 10). No special handling precautions are required, but dry, indoor storage is recommended. To maintain package integrity and to minimize drying out, jars should be handled on a first-in first-out basis.

Storage temperature: Ambient

Storage pressure: Atmospheric

Special sensitivity: Drying

Store in accordance with local/regional/national regulations.

7.3 Specific end use(s)

For welding/brazing consumables and related products

Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Ingredients – Exposure Limits

Chemical Identity (CAS-No.)	**ACGIH TLV (TWA)**	**OSHA PEL (TWA)**	**NIOSH REL**	**Cal OSHA/PEL**
Boric acid (10043-35-3)	2.0 mg/m^3 (inhalable fraction) [Borate Compounds, inorganic] 6.0 mg/m^3 (inhalable fraction) [Borate Compounds, inorganic] 15 min STEL	5.0 mg/m^3 (respirable dust) 15.0 mg/m^3 (total dust)	N/A	5.0 mg/m^3
Potassium fluoride (7789-23-3)	2.5 mg/m^3 (as F)	2.5 mg/m3 (as F)	N/A	N/A
Potassium tetraborate (1332-77-0)	Not Established	Not Established	N/A	N/A

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Ingredients – Biological Limits

Chemical Identity (CAS-No.)	**ACGIH BEI (s)**
Boric acid (10043-35-3)	No ACGIH BEI (s) or other biological limit (s)
Potassium fluoride (7789-23-3)	ACGIH BEI's for fluoride in urine: 2.0 mg/l prior to shift 3.0 mg/l end of shift
Potassium tetraborate (1332-77-0)	No ACGIH BEI (s) or other biological limit (s)

8.2 Exposure controls

Appropriate Engineering Controls:

Use enough ventilation, local exhaust at the arc/flame, or both to keep the fumes and gases from the worker's breathing zone & the general area. Maintain exposures below acceptable exposure levels (see Section 8.1). Use industrial hygiene air monitoring to ensure that your use of these products does not create exposures that exceed the recommended exposure limits. Always use exhaust ventilation in user operations such as high temperature cutting, grinding, welding and brazing. Train the welder to keep their head out of the fume plume. Confined spaces require adequate ventilation and/or air supplied respirators. Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, Safety in Welding, Cutting, and Allied Processes, published by the American Welding Society, 8669 Doral Blvd. Suite 130, Doral, FL 33166 and OSHA Publication 2206 (29CFR1910), US Government Printing Office, Washington, D.C. 20402 for more details on many of the following.

General information: **Exposure Guidelines:** Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) are values published by the American Conference of Government Industrial Hygienists (ACGIH). ACGIH Statement of Positions Regarding the TLVs® and BEIs® states that the TLV-TWA should be used as a guide in the control of health hazards and should not be used to indicate a fine line between safe and dangerous exposures. See Section 10 for information on potential fume constituents of health interest. Threshold Limit Values are figures published by the American Conference of Government Industrial Hygienists.

Eye/face protection: Wear helmet or use face shield with filter lens of the appropriate shade number. No specific lens shade recommendation for submerged arc processes. Shield others by providing screens and flash goggles.

Skin/Hand Protection: Wear protective gloves. Suitable gloves can be recommended by the glove supplier.

Protective Clothing: Wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Wear dry gloves free of holes or split seams. Train the welder not to permit electrically live parts or electrodes to contact skin . . . or clothing or gloves if they are wet. Insulate yourself from the work piece and ground using dry plywood, rubber mats or other dry insulation.

Respiratory Protection: Keep your head out of fumes. Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area. An approved respirator should be used unless exposure assessments are below applicable exposure limits. Use respirable fume respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV's (see Section 8.1). Use only NIOSH approved respirators in accordance with 29 CFR 1910.134 – Respiratory Protection. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full face-piece pressure/demand SCBA or a full face-piece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

Hygiene measures: Do not eat, drink or smoke when using the product. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Cosmetics should not be applied in areas where exposures exist! Routinely wash work clothing and protective equipment to remove contaminants.

Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS F1.1, F1.2, F1.3 and F1.5, available from the American Welding Society, www.aws.org.

Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Physical state	Solid
Form	Paste
Color	White
Odor	None
Odor threshold	Not applicable: odorless

pH	8.0 (approximate)
Melting point/freezing point	Not applicable
Flammability	Not applicable
Flash Point	Not applicable
Evaporation rate	Not applicable
Initial boiling point/range	>212^{O}F / 100^{O}C

Flammability limit - upper (%)	Not applicable: non-flammable
Flammability limit - lower (%)	Not applicable: non- flammable
Explosive limit - upper (%)	Not applicable
Explosive limit - lower (%)	Not applicable
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density (H_2O)	Approx. 1.7
Solubility in water	Soluble
Solubility (other)	No data available
Partition coefficient	No data available
Auto-ignition temperature	Not applicable: not self-heating
Decomposition temperature	No data available
Viscosity	Not applicable

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Section 10 – STABILITY AND REACTIVITY

10.1 Reactivity

This product is non-reactive under normal conditions of use, storage and transport.

10.2 Chemical stability

Under normal ambient temperatures, the product is stable.

10.3 Possibility of hazardous reactions

Some components may decompose at elevated temperatures.

10.4 Conditions to avoid

Avoid contact with strong acids or strong reducing agents by storing according to good industrial practice.

10.5 Incompatible materials

Acetic anhydride; alkali and alkali earth metals; zirconium; platinum; bromine trifluoride.

10.6 Hazardous decomposition products

Welding/brazing fumes and gases can't be classified simply. The composition and quantity of both are dependent upon the metal being welded/brazed and the rods used. Coatings on the metal being welded/brazed (such as paint, plating, or galvanizing), the number of welders, the volume of the work area, the quality and the amount of ventilation, the position of the welder's head with respect to the gas plume, the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities), the process and procedures, as well as the welding/brazing consumables.

When the #45 Silver Flux (White) is heated, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 3, plus those from the base metal, coatings, etc., as noted above. **Some of the potential hazardous decomposition products are boron oxide, potassium oxide, and/or fluorides.** Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from an arc, in addition to the shielding gases like argon and helium, whenever they are employed. One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welder's helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1 *"Method for Sampling Airborne Particles Generated by Welding and Allied Processes"* and *"Characterization of Arc Welding Fume"* available from the American Welding Society, 8669 Doral Blvd. Suite 130, Doral, FL 33166.

Section 11 – TOXICOLOGICAL INFORMATION

11.1 Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact)

Ingestion: This product is *not* intended for ingestion. Ingestion of this product may cause one or more of the following symptoms and effects: nausea, vomiting, cramps, gastrointestinal irritation, abdominal pain, convulsions, and tachycardia. Chronic ingestion may cause fluorosis (a disease characterized by mottled teeth, osteosclerosis, and pain and loss of mobility in joints).

Inhalation: Inhalation of toxicologically significant quantities of the components is unlikely when the product is used in accordance with instructions and specified protective measures (see Section 8).

Skin Contact: Arc rays can burn skin. Skin cancer has been reported. This product can produce irritation, particularly on abraded skin. Prolonged exposure can cause dermatitis.

Eye contact: Arc rays can injure eyes. This product may cause irritation or injury.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure): Harmful if swallowed or inhaled

Toxicological Data

Specified substance: BORIC ACID	Specified substance: POTASSIUM FLUORIDE	Specified substance: POTASSIUM TETRABORATE
LD50 (oral, rat) = 2660 mg/kg LC50: No data available	LD50 (oral, rat) = 245 mg/kg LC50: No data available	LD50 (oral, rat) = 2660 mg/kg LC50: No data available

11.2 Symptoms related to the physical, chemical and toxicological characteristics

Inhalation: Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema). Long-term (chronic) overexposure to welding fumes can lead to siderosis (iron deposits in lung), central nervous system effects, bronchitis and other pulmonary effects.

At high concentrations irritation to the nose, throat and respiratory tract; cough, nose bleeds, nausea, vomiting, chest tightness, chills, fever, pneumonitis, tearing, and pulmonary edema. Product is *not* intended for ingestion. Symptoms of accidental over-exposure to high doses of inorganic borate salts have been associated with ingestion or absorption through large areas of severely damaged skin. These may include nausea, vomiting, and diarrhea, with delayed effects of skin redness and peeling.

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

Liver and kidney damage, impaired pulmonary function, fluorosis, and/or aggravation of pre-existing diseases of the liver, kidneys and the skeletal, nervous and gastrointestinal systems.

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Additional toxicological information under the conditions of use:

Acute toxicity

Specified substance: CARBON MONOXIDE LC50 (inhalation, rat) = 1300 mg/l /4h	**Specified substance: CARBON DIOXIDE** LCLo (inhalation, human) = 90000 ppm/5 min.	**Specified substance: NITROGEN DIOXIDE** LC50 (inhalation, rat) = 88 ppm/4h **Specified substance: OZONE** LCLo (inhalation, human) = 50 ppm/30 min.

Carcinogenicity (product): This product contains no chemicals classified as potential or demonstrated carcinogens by IARC, NTP, or OSHA.

Germ cell mutagenicity (product): Some inorganic fluorides have been demonstrated to induce mutagenic changes in mammalian cells in culture. No genetic effects in humans from occupational exposure to potassium fluoride have been established.

Reproductive effects (product): In experimental studies, boric acid has been found to cause decreased sperm production and testicular effects in male rats, and developmental effects in fetuses of exposed female mice. No reproductive effects in humans from occupational exposure to borates have been established.

Acute Toxicity Estimates (product): LD50 (oral) = >400 mg/kg
LD50 (dermal) = no data available
LC50 = no data available

Interactive effects of components: No data available.

Section 12 – ECOLOGICAL INFORMATION

12.1 Eco-toxicity

No ecological data is available for the product. Ecological data for the components is as follows:

Fish

Specified substance: BORIC ACID Prolonged toxicity: (Freshwater fish), 72 h): 1020 mg/l Prolonged toxicity: (Freshwater fish), 120 h): 1260 mg/l Prolonged toxicity: (Freshwater fish), 216 h): 890 mg/l	**Specified substance: POTASSIUM FLUORIDE** Aquatic toxicity: LC50 (Trout), 240 h): 64 mg/l Aquatic toxicity: LC50 (Grass carp), 96 h): 9.3 mg/l
Specified substance: POTASSIUM TETRABORATE No data available for aquatic toxicity to fish.	

Aquatic Invertebrates

Specified substance: BORIC ACID EC50 (Water flea (Daphnia magna), 48 h): 658 – 875 mg/l Depressed growth rate: (Algae): 290 mg/l	**Specified substance: POTASSIUM FLUORIDE** Aquatic toxicity: EC50 (Water flea (Daphnia magna): 270 mg/l
Specified substance: POTASSIUM TETRABORATE No data available for aquatic toxicity to invertabrates.	

Plants

Specified substance: BORIC ACID Depressed growth rate: (Algae): 290 mg/l	**Specified substance: POTASSIUM FLUORIDE** Aquatic toxicity: EC50 (Algae), 96 h): 95 mg/l
Specified substance: POTASSIUM TETRABORATE No data available for aquatic toxicity to plants.	

Microorganisms

Specified substance: BORIC ACID No data available for aquatic toxicity to microorganisms.	**Specified substance: POTASSIUM FLUORIDE** Aquatic toxicity: EC50 (Protozoa): 101 mg/l
Specified substance: POTASSIUM TETRABORATE No data available for aquatic toxicity to microorganisms.	

Persistence and Degradability
Biodegradation (product): No data available

Bioaccumulation Potential
Bioconcentration Factor (BCF) (product): No data available

Mobility in Soil (product): No data available

Toxicity to Terrestrial Organisms: No data available

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Section 13 – DISPOSAL CONSIDERATIONS

Waste disposal recommendations: Prevent waste from contaminating surrounding environment. Do not discharge waste product into sanitary or storm sewers or allow it to contaminate soil. Disposal of products containing fluorides and/or borates may be subject to restrictions. Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with international/federal/state/local regulations. Product packaging should be recycled where possible.

Section 14 – TRANSPORT INFORMATION

In accordance with DOT / ADR / RID / ADNR / IMDG / ICAO / IATA

14.1 UN number

Not a dangerous good in sense of transport regulations

14.2 UN proper shipping name

Not applicable

14.3 Additional information

Other information: No supplementary information available

Overland transport:

No additional information available

Transport by sea:

No additional information available

Air transport:

No additional information available

Section 15 – REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Clean Air Act (Montreal Protocol) - Substances that deplete the ozone layer: Not manufactured with and does not contain any Class I or Class II ozone depleting substances.

United States Regulatory Information:

National Regulations: Ensure all national/local regulations are observed.

All components of this product are listed on the EPA's TSCA inventory.

SARA Hazard Classes: Acute Health Hazard; Chronic Health Hazard

SARA Section 313 Notification: This product contains no ingredients in concentrations >1% (for carcinogens >0.1%) regulated under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 or 40 CFR 372.

Canadian Regulatory Information:

All components of this product are listed on either the Domestic Substances List (DSL) or the Nondomestic Substances List (NDSL).

WHMIS Class (es) and Division (s): D1B, D2A, D2B
Components on Ingredients Disclosure List:

1. Boric acid (CASRN 10043-35-3)
2. Fluoride compounds, inorganic, n.o.s.

This product has been classified according to the hazard criteria of the CPR and this SDS contains all of the information required by the CPR.

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Section 16 – OTHER INFORMATION

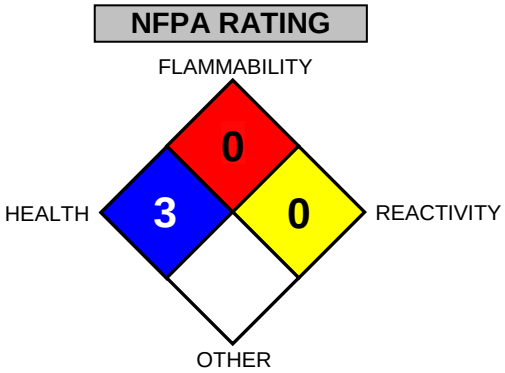
SUPERSEDES LAST REVISION: 12/28/2004 (MSDS)

HMIS RATING (Hazardous Materials Information System)			
Health (blue) - 3	**Flammability (red) - 0**	**Reactivity (yellow) - 0**	**Protective Equipment - X** (See Sections 4, 8 & 10)

Health Hazard: **0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure hazard); **3** (severe acute exposure hazard; one time overexposure can result in permanent injury and may be fatal); **4** (extreme acute exposure hazard; onetime overexposure can be fatal).
Flammability Hazard: **0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93ºC [100-200ºF]); **3** (Class IB and IC flammable liquids with flash points below 38ºC [100ºF]); **4** (Class IA flammable liquids with flash points below 23ºC [73ºF] and boiling points below 38ºC [100ºF].
Reactivity Hazard: **0** (normally stable); **1** (material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures).

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDS's under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used only in conjunction with a fully implemented HMIS® program by workers who have received appropriate HMIS® training. HMIS® is a registered trade and service mark of the NPCA.

NATIONAL FIRE PROTECTION ASSOCIATION:
Health Hazard: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials);
1 (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure cause serious temporary or residual injury); **4** (materials that under very short exposure causes death or major residual injury).
Flammability Hazard: Refer to definitions for "HMIS RATING (Hazardous Materials Information System)"
Reactivity Hazard: Refer to definitions for "HMIS RATING (Hazardous Materials Information System)"



DEFINITIONS OF TERMS

ACGIH - American Conference of Governmental Industrial Hygienists
CAS No. - Chemical Abstracts Service Number
EPA - Environmental Protection Agency
GHS - Globally Harmonized System
IARC - International Agency for Research on Cancer
LC50 - Lethal Concentration (50 percent kill)
LCLO - Lowest published lethal concentration
LD50 - Lethal dose (50 percent kill)
LDLO - Lowest published lethal dose
NIOSH - National Institute of Occupational Safety and Health
NTP - National Toxicology Program
OSHA - U.S. Occupational Safety and Health Administration
PEL - Permissible Exposure Limit
SARA - Superfund Amendments and Reauthorization Act
STEL - Short Term Exposure Limit
TCLo - the lowest concentration to cause a symptom
TDLo - the lowest dose to cause a symptom
TLV - Threshold Limit Value
TSCA - Toxic Substances Control Act
TWA - Time Weighted Average

Full text of H-phrases (from Section 2)

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Irrit. 2	Eye Irrit. Category 2
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation), Category 4
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3
Repr. 2	Reproductive toxicity, Category 2
H302	Harmful if swallowed
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H361	Suspected of damaging fertility or the unborn child

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