



Harris Products Group
Since 1905

Printing date 25/08/2010

Reviewed on 01/01/2017

Safety Data Sheet

WARNING: PRODUCT COMPONENTS PRESENT HEALTH AND SAFETY HAZARDS. READ AND UNDERSTAND THIS MATERIAL SAFETY DATA SHEET (M.S.DS.). ALSO, FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES.

The information contained herein relates only to the specific product. If the product is combined with other materials, all component properties must be considered. **BE SURE TO CONSULT THE LATEST VERSION OF THE MSDS. MATERIAL SAFETY DATA SHEETS ARE AVAILABLE FROM HARRIS PRODUCTS GROUP** Harris Products Group, HGE PTY LTD, Brisbane | Melbourne | Perth | New Zealand, 14 Queensland Rd, Darra, QLD 4076, Phone: (07) 3375 3670 | Fax: (07) 3375 3620, Email: sales@hgea.com.au, www.harrisproductsgroup.com.au,

STATEMENT OF LIABILITY-DISCLAIMER

To the best of the Harris Products Group knowledge, the information and recommendations contained in this publication are reliable and accurate as of the date prepared. However, accuracy, suitability, or completeness are not guaranteed, and no warranty, guarantee, or representation, expressed or implied, is made by Harris Products Group. as to the absolute correctness or sufficiency of any representation contained in this and other publications; Harris Products Group assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this and other publications, or that other or additional measures may not be required under particular or exceptional conditions or circumstances. Data may be changed from time to time.

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED):	600 Flux
CHEMICAL NAME/CLASS:	Inorganic Borates
SYNONYMS:	Bronze Brazing flux
PRODUCT USE:	Metal Processing Operations
DOCUMENT NUMBER:	0029
SUPPLIER/MANUFACTURER'S NAME:	HARRIS PRODUCTS GROUP.
ADDRESS:	14 Queensland Rd, Darra, QLD, 4076
EMERGENCY PHONE:	000 - Australia 111 - New Zealand
BUSINESS PHONE:	(07) 3375 3670

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	% w/w	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER mg/m ³
			TLV mg/m ³	STEL mg/m ³	PEL mg/m ³	STEL mg/m ³	IDLH mg/m ³	
Borax The following exposure limits are for "Borates, tetra, sodium salts, anhydrous".	1330-43-4	35-65	1	NE	10 (Vacated 1989 PELs)	NE	NE	NIOSH: 1
Boric Acid	10043-35-3	35-65	NE	NE	NE	NE	NE	NE

NE = Not Established. C = Ceiling Limit. See Section 16 for Definitions of Terms Used.

NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This product consists of a white powder with no odor. Inhalation or contact with this product can cause irritation. Ingestion may be fatal. If involved in a fire, this product may decompose to produce irritating vapors and gases (i.e. Boron oxides). Emergency responders must wear personal protective equipment suitable for the situation to which they are responding.

GHS classification of the substance/mixture.

Classified according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE:

The most significant routes of over-exposure for this product are by skin or eye contact. During Brazing operations, the most significant routes of exposure are inhalation.

INHALATION: If fumes, dusts or powders generated by this product are inhaled, irritation of the nose and mucous membranes may occur. Symptoms of such over-exposure include sneezing, coughing and difficulty breathing.

CONTACT WITH SKIN or EYES: Contact of the dusts or powders, generated by this product, with the eyes or the skin can cause irritation and reddening. Skin contact with Boric Acid, a component of this product, is reported to produce significant health effects in humans. Prolonged or repeated skin over-exposures can result in dermatitis with symptoms such as dry, red, itchy skin. Repeated over-exposures may cause borism, with symptoms such as dry skin eruptions and gastrointestinal disorders.

SKIN ABSORPTION: Skin absorption is not a significant route of over-exposure for any component of this product.

INGESTION: Ingestion is not anticipated to be a route of occupational exposure for this product. If this product is ingested, nausea, vomiting, diarrhea, abdominal cramps, cyanosis, convulsions, and coma can occur. Ingestion of 5-20 grams of Boric Acid, a component of this product, has been fatal in adult humans.

INJECTION: Though not a likely route of occupational exposure for this product, injection (via punctures or lacerations in the skin) may cause local reddening, tissue swelling, and discomfort. Symptoms such as those described for "Ingestion" may occur.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Symptoms associated with over-exposure to this product and fumes generated during brazing operations are as follows:

ACUTE: This product can be irritating to eyes, skin, mucous membranes, and any other exposed tissue. If powders are inhaled, irritation of the mucous membranes may occur, with coughing, and breathing difficulty. Though unlikely to occur during occupational use, ingestion of this product can produce nausea, vomiting and diarrhea; ingestion of more than 5 grams may be fatal.

CHRONIC: Persistent irritation and dermatitis may result from repeated exposures to this product. Repeated over-exposures may cause borism (dry skin eruptions and gastrointestinal disorders).

HAZARDOUS MATERIAL INFORMATION SYSTEM			
HEALTH		(BLUE)	1
FLAMMABILITY		(RED)	0
REACTIVITY		(YELLOW)	0
PROTECTIVE EQUIPMENT			X
EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8
See Section 16 for Definition of Ratings			

4. FIRST-AID MEASURES

SKIN EXPOSURE: If the product contaminates the skin, begin decontamination with running water. Minimum flushing is for 15 minutes. Victim must seek medical attention if any adverse reaction occurs.

EYE EXPOSURE: If this product enters the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Victim must seek immediate medical attention.

INHALATION: If this product is inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions.

INGESTION: If swallowed call physician immediately! Do not induce vomiting unless directed by medical personnel. Rinse mouth with water if person is conscious. Never give fluids or induce vomiting if person is unconscious, having convulsions, or not breathing.

Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with victim.

5. FIRE-FIGHTING MEASURES

Read and understand the Work Safe Australia Code of Practice on Welding Processes and "Standard for Fire Prevention During Welding, Cutting and Other Hot Work" before using this product. Section 274 of the Work Health and Safety Act (the WHS Act.)

FLASH POINT, °C (method): Not flammable.

AUTOIGNITION TEMPERATURE, °C: Not flammable.

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): Not applicable.

Upper (UEL): Not applicable.

FIRE EXTINGUISHING MATERIALS:

Water Spray: YES

Halon: YES

Dry Chemical: YES

Carbon Dioxide: YES

Foam: YES

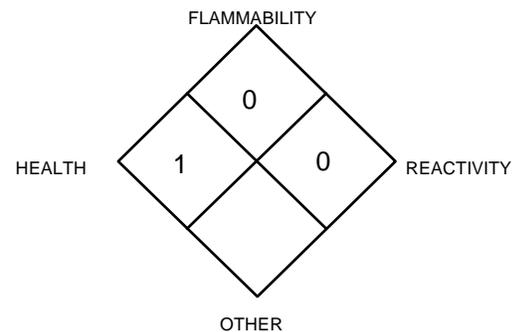
Other: Any "ABC" Class.

UNUSUAL FIRE AND EXPLOSION HAZARDS When involved in a fire, this material may decompose and produce irritating vapors and gases containing boron and sodium compounds.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

NFPA RATING



See Section 16 for

Definition of Ratings

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment. If possible, prevent run-off water from entering storm drains, bodies of water, or other environmentally sensitive areas.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel.

Minimum Personal Protective Equipment should be Level C: triple gloves (rubber gloves and nitrile gloves, over latex gloves), chemically resistant suit and boots, hard-hat, and Air-Purifying Respirator with a high efficiency particulate filter. **Level B: triple-gloves (rubber gloves and nitrile gloves, over latex gloves), and a Self-Contained Breathing Apparatus should be worn when oxygen levels are below 19.5% or are unknown.**

Pick-up, sweep-up, or vacuum solid material carefully. Decontaminate the area thoroughly. Place all spilled residues in a suitable container and seal. Dispose of in accordance with Federal, State, and local hazardous waste disposal regulations (see Section 13, Disposal Considerations).

7. HANDLING and STORAGE

Read and understand the manufacturer's instruction and the precautionary label on the product. Refer to Lincoln Safety Publications at www.lincolnelectric.com/safety. See the Australian Standard - AS 1674.1 – 1997 – Reconfirmed 2016. Safety in Welding and Allied Processes Australia.

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash hands after handling this product. Do not eat or drink while handling this material. Use ventilation and other engineering controls to minimize potential exposure to dusts or powders of this product.

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Use in a well ventilated location. Open containers on a stable surface. Containers of this product must be properly labeled.

Store containers in a cool, dry location, away from direct sunlight, sources of intense heat or where freezing is possible. Store away from incompatible materials (see Section 10, Stability and Reactivity). Keep container tightly closed when not in use. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Empty containers may contain residual powders; therefore, empty containers should be handled with care.

If this product is used during welding operations, follow the requirements of the Federal Occupational Safety and Health Welding and Cutting Standard (29 CFR 1910 Subpart Q) and the safety standards of the American National Standards Institute for welding and cutting (ANSI Z49.1).

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment using soapy water before maintenance begins. Collect all rinsates and dispose of according to applicable Federal, State, or local procedures.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in Section 2 (Composition and Information on Ingredients). Prudent practice is to ensure eyewash/safety shower stations are available near areas where this product is used.

RESPIRATORY PROTECTION: Maintain airborne contaminant concentrations below guidelines listed in Section 2 (Composition and Information on Ingredients). If respiratory protection is use only protection authorized in 29 CFR 1910.134, or applicable State regulations. Use supplied air respiration protection if oxygen levels are below 19.5% or are unknown.

EYE PROTECTION: Safety glasses. When this product is used in conjunction with brazing, wear safety glasses, goggles or face-shield with filter lens of appropriate shade number (per ANSI Z49.1-1988, "Safety in Welding and Cutting").

HAND PROTECTION: Wear neoprene gloves for routine industrial use. Use triple gloves for spill response, as stated in Section 6 (Accidental Release Measures) of this MSDS. When this product is used in conjunction with brazing, wear gloves that protect from sparks and flame (per ANSI Z49.1-1988, "Safety in Welding and Cutting").

BODY PROTECTION: Use body protection appropriate for task.



9. PHYSICAL and CHEMICAL PROPERTIES

RELATIVE VAPOR DENSITY (air = 1): Not applicable.

SPECIFIC GRAVITY (water = 1): 1.55

SOLUBILITY IN WATER: Moderately soluble.

VAPOR PRESSURE, mm Hg @ 20°C: Not available.

ODOR THRESHOLD: Not applicable.

COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not available.

APPEARANCE AND COLOR: This product consists of an odorless, white powder.

HOW TO DETECT THIS SUBSTANCE (warning properties): The appearance is a distinctive characteristic of this product.

EVAPORATION RATE (nBuAc = 1): Not applicable.

FREEZING/MELTING POINT: Not available.

pH: Not applicable.

BOILING POINT: Not available.

10. STABILITY and REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: Boron and sodium compounds.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: This product is not compatible with strong oxidizers, alkali carbonates and hydroxides.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Avoid uncontrolled exposure to extreme temperatures and incompatible materials.

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: Presented below are human toxicological data available for the components of this product. Other data for animals are available for the components of this product, but are not presented in this Material Safety Data Sheet.

BORIC ACID:

Skin-(Human) = 15 mg/3D-I Mild irritation effects

TDLo (Oral-Child) = 500 mg/kg;

Gastrointestinal tract effects

LDLo (Oral-Man) = 429 mg/kg;

Cardiovascular effects, Systemic effects

BORIC ACID (Continued):

TDLo (Oral-Child) = 500 mg/kg;

Gastrointestinal tract effects

LDLo (Oral-Woman) = 200 mg/kg

TDLo (Oral-Infant) = 800 mg/kg/4W-I

LDLo (Oral-Infant) = 934 mg/kg

LDLo (Skin-Infant) = 1200 mg/kg

BORIC ACID (Continued):

LDLo (Skin-Child) = 4 g/kg/4 days

LDLo (Skin-Man) = 2430 mg/kg

LDLo (Skin-Child) = 1500 mg/kg

LDLo (Subcutaneous-Infant) = 1100 mg/kg

TDLo (Unreported-Man) = 170 mg/kg;

Gastrointestinal tract effects

LDLo (Unreported-Man) = 147 mg/kg

SUSPECTED CANCER AGENT: The components of this product are not found on the following lists: FEDERAL, OSHA Z LIST, NTP, IARC and CAL/OSHA and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: This product can be irritating to contaminated skin and eyes.

SENSITIZATION TO THE PRODUCT: The components of this product are not known to be sensitizers with repeated or prolonged use.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: This product is not reported to produce mutagenic effects in humans. Studies on test animals exposed to relatively high doses of Boric Acid (a component of this product) indicate mutagenic effects.

Embryotoxicity This product is not reported to produce embryotoxic effects in humans.

Teratogenicity: This product is not reported to cause teratogenic effects in humans.

Reproductive Toxicity: This product is not reported to cause reproductive effects in humans. Studies on test animals exposed to relatively high doses of Boric Acid and Borax (components of this product) indicate adverse reproductive effects.

A mutagen is a chemical, which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical, which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical, which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance, which interferes in any way with the reproductive process.

BIOLOGICAL EXPOSURE INDICES: Currently, there are no Biological Exposure Indices (BEIs) associated with the components of this product.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin and respiratory disorders may be aggravated by prolonged over-exposures to this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: The components of this product will slowly react with water, oxygen, and other compounds to form a variety of boron and sodium compounds. The following environmental data are available for the components of the product:

Boric Acid: Log K_{ow} = 0.7570. Water Solubility = 4.7% Boric Acid is leachable through normal soil.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: This product is harmful to animal life in very low concentrations. Specific data on test animals are available, but are not presented in this Material Safety Data Sheet. Boric Acid is toxic to plants at the following levels: alfalfa and vegetables tolerate 2-4 mg/L; potatoes, corn, tomatoes, peas and grain 1-2 mg/L, citrus fruit no more than 0.5-1 mg/L.

EFFECT OF CHEMICAL ON AQUATIC LIFE: This product will cause adverse effects on aquatic life. The following aquatic toxicity data are available for the components of this product.

Boric Acid:

LC50 (trout) = 100 ppm/ soft water 4 days

LC50 (trout) = 79 ppm/ hard water 4 days

LC50 (catfish) = 155 ppm/ soft water 4 days

LC50 (catfish) = 22 ppm/ hard water 4 days

LC50 (goldfish) = 46 ppm/ soft water 4 days

LC50 (goldfish) = 75 ppm/ hard water 4 days

LC50 (Daphnia magna) = 133 mg/L/ 48-hr

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Government, State, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

EPA WASTE NUMBER: Not applicable to wastes consisting only of this product.

14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME:	Not applicable.
HAZARD CLASS NUMBER and DESCRIPTION:	Not applicable.
UN IDENTIFICATION NUMBER:	Not applicable.
PACKING GROUP:	Not applicable.
DOT LABEL(S) REQUIRED:	Not applicable.

15. REGULATORY INFORMATION

Product Name: 600 Flux

Refer to the Australian Inventory of Chemical Substances – AICS at <https://www.nicnas.gov.au/chemicals-on-AICS#main>

Poison schedule: Classified as a Schedule 6 (S6) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP). <https://www.legislation.gov.au/Details/F2016L01638>

Classifications: Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

16. OTHER INFORMATION

References

Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice

Standard for the Uniform Scheduling of Medicines and Poisons

Australian Code for the Transport of Dangerous Goods by Road & Rail.

Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.

Workplace exposure standards for airborne contaminants, Safe work, Australia

American Conference of Industrial Hygienists (ACGIH)

Globally Harmonised System of classification and labelling of chemicals.

WELDING (1): Due to the diversity of welding techniques, processes, materials used, nature of the surface being welded and the presence of contaminants, the fumes & gases associated with welding will vary in composition and quantity. When assessing a welding process, the toxic fumes generated may not only be associated with the parent metal, filler wire or electrode. The welding/cutting arc may generate nitrogen oxides, carbon monoxide & other gases, whilst UV radiation emitted from some arcs generates ozone. Ozone may irritate mucous membranes and cause pulmonary oedema & haemorrhage. Shielding gases (e.g. carbon dioxide and inert gases i.e. argon and helium) in high concentrations, in confined spaces, may reduce oxygen in the atmosphere to dangerous levels, resulting in possible asphyxiation.

WELDING (2): In addition to complying with individual exposure standards for specific contaminants, where current manual welding processes are used, the fume concentration inside the welder's helmet should not exceed 5 mg/m³ (unless otherwise classified) when collected in accordance with Australian Standard AS 3853.1: Fume from welding and allied processes - Guide to methods for the sampling and analysis of particulate matter and AS 3853.2: Fume from welding and allied processes - Guide to methods for the sampling and analysis of gases. Airway irritation and metal fume fever are the most common acute effects from welding fumes. Reported to cause reduced sperm quality in welders.

WELDING (3): Other gases and fumes associated with welding processes include: Inert shielding gases (e.g. argon, carbon dioxide, helium) which may reduce the atmospheric oxygen content in poorly ventilated areas. UV-radiation and Infra-Red radiation may decompose chlorinated degreasing agents to form highly toxic and irritating phosgene gas. This may occur if a metal has been degreased but inadequately dried or when vapours from a nearby degreasing bath enter the welding zone.

WELDING (4): Welding fumes may contain a wide variety of chemical contaminants, including oxides and salts of metals and other compounds which may be generated from electrodes, filler wire, flux materials and from the welded material (e.g. painted surfaces). Welding stainless-steel and its alloys generates nickel and chromium (VI) compounds. Welding fumes are retained in the lungs. Sparingly soluble compounds may be released slowly from the lungs. Welding fume is classified as possibly carcinogenic to humans (IARC Group 2B).

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

Disclaimer:

We urge each end user and recipient of this SDS to study it carefully. If necessary, consult an industrial hygienist or other expert to understand this information and safeguard the environment and protect workers from potential hazards associated with the handling or use of this product.

Harris Products Group cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for use, handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

[End of SDS]