

# Safety Data Sheet

Latest Revision: May 2017

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## 1. PRODUCT AND COMPANY IDENTIFICATION:

**PRODUCT NAME:** Brazing Flux

**MANUFACTURER:** Forney Industries, Inc.  
2057 Vermont Drive  
Fort Collins, CO 80525 USA  
Phone: 800-851-6038  
Fax: 970-498-9505  
E-mail: [customerservice@forneyind.com](mailto:customerservice@forneyind.com)

**EMERGENCY TELEPHONE NUMBER:** 1-800-535-5053

**INTERNATIONAL EMERGENCY RESPONSE PHONE:** 352-323-3500

## 2. HAZARD IDENTIFICATION:

**Emergency Overview:** This product is normally not considered hazardous as shipped. Avoid eye contact or inhalation of dust from the product. When this product is used in a welding process, the most important hazards are welding fumes and heat.

**Classification of the Substance/Mixture**

**CLP/GHS Classification (1272/2008):**  
Reproductive Toxicity, Category 1B

**EU Classification (67/548/EEC):**  
Toxic (T), R60, R61

**Hazardous Classification per 29CFR 1910.1200 (Rev. July 1, 2012):**  
Reproductive Toxicity, Category 1B

**Labelling:**

**Symbols:** 

**Signal Word:** Danger

**Hazard Statements:**

H360 – May damage fertility or the unborn child.

**Precautionary Statements:**

P201 – Obtain special instructions before use.







P202 – Do not handle until all safety precautions have been read and understood.

P308+P313 – IF exposed or concerned: Get medical advice/attention.

P405 – Store locked up.

P501 – Dispose of contents/container in accordance with local/regional/national/international regulations

## 3. COMPOSITION / INFORMATION ON INGREDIENTS:

Chemical Identity	CAS #	Range %	OSHA PEL (mg/m3)	ACGIH-TLV (mg/m3)	Carcinogenicity	EU Classification (67/548/EEC)	CLP/GHS Classification (1272/2008)	Hazardous Classification per 29CFR 1910.1200 (Rev. July, 2012)
Boric Acid	10043-35-3	75-85	10	NR	No	Repr. Cat. 2;  (T), R60, R61	(H360FD) Repr. 1B 	(H360FD) Repr. 1B 
Borax 5 Mol	12179-04-3	15-25	10	10	No	Repr. Cat. 2;  (T), R60, R61	(H360FD) Repr. 1B 	(H360FD) Repr. 1B 

**Important** This section covers the materials of which the products manufactured. The fumes and gases produced during normal use of this product are covered in section 10. The term "Hazardous" in "Hazardous Material" should be interpreted as a term required and defined in OSHA Hazard Communication Standard 29CFR 1910-1200 and it does not necessarily imply the existence of hazard. The chemicals or compounds reportable by Section 313 of SARA are marked by the symbol #.

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#### 4. FIRST AID MEASURES:

**Inhalation:** Remove to fresh air immediately or administer oxygen. Get medical attention immediately.

**Skin:** Flush skin with large amounts of water and soap. If irritation develops and persists, get medical attention.

**Eye:** Flush eyes with water for at least 15 minutes. Get medical attention.

**Ingestion:** Obtain medical attention immediately if ingested. Rinse mouth.

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#### 5. FIRE-FIGHTING MEASURES:

**Suitable Extinguishing Media:** Not applicable. Non-combustible; inherent fire retardant.

**Unsuitable Extinguishing Media:** Not applicable

**Specific Hazards Arising From Chemical:** 29 CFR 1910.120 (Non Flammable Solid). Boric oxide fumes

**Protective Equipment:** Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

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#### 6. ACCIDENTAL RELEASE MEASURES:

**Personal Precautions:** Refer to section 8.

**Environment Precautions:** Refer to section 13.

**Cleaning Measures:** As an inert solid waste in accordance with state, local, and federal regulations.

**California:** Sodium Tetraborate Pentahydrate is a "hazardous waste" in California and should be handled in accordance with state regulations.

**EPA Hazardous Waste Number:** None

**RCRA (40 CFR 261):** Sodium Tetraborate Pentahydrate is not listed under any sections of the Federal Resource Conservation and Recovery Act.

**Water Spill:** Sodium Tetraborate Pentahydrate will cause localized contamination of surrounding waters based on the quantity dissolved in these waters. At high concentrations, some damage to local vegetation, fish, and other aquatic life may be expected. Advise the local water authority that none of the affected water should be used for irrigation or for potable water until natural dilution returns boron level to normal.

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#### 7. HANDLING AND STORAGE:

**Precautions for Safe Handling:** Keep container tightly sealed. Store in cool, dry location in tightly closed containers. Ensure good ventilation at the workplace. Open and handle the container with care.

**Conditions for Safe Storage:** Store away from oxidizing agents. Keep container tightly sealed. Store at room temperature. Store in cool dry conditions in well sealed containers.

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#### 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION:

**Engineering Controls:** The usual precautionary measures for handling chemicals should be followed. Keep away from food, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before break and at the end of the work. Store all protective clothing separately. Maintain an ergonomically appropriate working environment. Wear protective equipment. Keep unprotected persons away. Avoid causing dust.

**Exposure limits:** Use industrial hygiene equipment to ensure that exposure does not exceed applicable national exposure limits. The limits defined under section 3 can be used as guidance. Unless noted, all values are for 8 hour time weighted average.

**Biological limits:** No available data

**Personal protection:**

**Respiratory protection:** Use an air purifying dust respirator when welding or brazing in a confined space, or when local exhaust or ventilation is not sufficient to keep exposure values within safe limits.

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**Hands protection:** Wear appropriate gloves to prevent skin contact.

**EN 12477: Protection gloves for welders**

Requirements (EN Levels)	Type A	Type B
Abrasion (Cycles)	2 (500)	1 (100)
Cut (Factor)	1 (1.2)	1 (1.2)
Tear (Newton)	2 (25)	1 (10)
Puncture (Newton)	2 (60)	1 (20)
Burning Behaviour	3	2
Contact Heat	1	1
Convective Heat	2	-
Small Splashes	3	2
Dexterity	1 (11)	4 (6.5)

Type B gloves are recommended when high dexterity is required as for TIG welding, while type A gloves are recommended for other welding processes. The contact temp (°C) is 100 and the threshold time (seconds) >15.

**Eyes protection:** Welder's helmet or face shield with colour absorbing lenses. Shield and filter to provide protection from harmful UV radiation, infra red and molten metal approved to standard EN379. Filter shade to be a minimum of shade 9.

**Skin protection:** Heat-resistant protective clothing. Wear safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry. Clothing should be selected to suit the level, duration and purpose of the welding activity.

Class 1	
Impact of Spatter	15 Drops
Heat Transfer (radiation)	RHTI 24 ≥ 7 seconds
Process	Manual welding with light formation of spatter and drops <ul style="list-style-type: none"> <li>• Gas Welding</li> <li>• TIG Welding</li> <li>• MIG Welding</li> <li>• Micro plasma welding</li> <li>• Brazing</li> <li>• Spot Welding</li> <li>• MMA Welding (with rutile-covered electrode)</li> </ul>
Environmental Conditions	Operation of machines <ul style="list-style-type: none"> <li>• Oxygen cutting machines</li> <li>• Plasma cutting machines</li> <li>• Resistance welding machines</li> <li>• Machines for thermal spraying</li> <li>• Bench welding</li> </ul>

Class 2	
Impact of Spatter	25 Drops
Heat Transfer (radiation)	RHTI 24 ≥ 16 seconds
Process	Manual welding with heavy formation of spatter and drops <ul style="list-style-type: none"> <li>• MMA welding (with basic or cellulose-covered electrodes)</li> <li>• MAG welding (with CO2 or mixed gases)</li> <li>• MIG Welding (with high current)</li> <li>• Self shielded flux core arc welding</li> <li>• Plasma cutting</li> <li>• Gouging</li> </ul>

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	<ul style="list-style-type: none"> <li>• Oxygen cutting</li> <li>• Thermal spraying</li> </ul>
Environmental Conditions	<p style="text-align: center;">Operation of machines</p> <ul style="list-style-type: none"> <li>• In confined spaces</li> <li>• At overhead welding/cutting or in comparable constrained positions</li> </ul>

## 9. PHYSICAL AND CHEMICAL PROPERTIES:

**Appearance:** Powder

**Color:** White

**Odour:** Odourless

**Odour Threshold:** Not Available

**pH Value:** Not Available

**Specific Gravity:** Not Available

**Melting Point/Melting Range:** 750° F, 400° C

**Freezing Point:** Not Available

**Boiling Point/Boiling Range (° F @ 760 mmHg):** N/A

**Flash point:** Not Available

**Evaporation Rate:** Not Available

**Self-in flammability:** Not Available

**Explosion limits:** Not Available

**Vapour pressure:** (mm Hg): NA

**Vapour density:** (Air= 1): NA

**Density at 20°C:** Not Available

**Percent volatile by volume:** Not Available

**Bulk Density:** Not Available

**Relative density:** Not Available

**Solubility:** Moderate (hot water).

**Reactivity in Water:** Not Available

**Partition coefficient:** Not Available

**Auto-ignition temperature:** Not Available

**Decomposition temperature:** Not Available

**Other Information:** No available data.

## 10. STABILITY AND REACTIVITY:

**Chemical Stability:** This product is stable under normal conditions. This product loses H<sub>2</sub>O when heated.

**Hazardous Reactions:** Contact with chemical substances like acids or strong bases cause generation of gas.

**Conditions to Avoid:** Not applicable.

**Incompatible Materials:** Oxidizing agents. Reaction with strong reducing agents such as metal hydrides, acetic anhydride or alkali metals will generate hydrogen gas which could create an explosive hazard.

**Hazardous Decomposition Products:** Boric oxide fumes.

## 11. TOXICOLOGICAL INFORMATION:

**Acute Effects:** Toxicity reported for borates in humans: ingestion or absorption may cause nausea, vomiting, diarrhea, abdominal cramps, and erythematous lesions on the skin and mucous membranes.

LD/LC50 Values that are relevant for classification
Boric Acid 10043-35-3

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Oral	LD50	2660 mg/kg (rat)
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LD/LC50 Values that are relevant for classification		
Borax 5 Mol 12179-04-3		
Oral	LD50	>2000 mg/kg (rat)
Oral	LD50	>2000 mg/kg (rabbit)

**Chronic Effects:** Overexposure to brazing and soldering fumes may affect pulmonary function. Boric acid may impair fertility and may cause harm to the unborn child.

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## 12. ECOLOGICAL INFORMATION:

**Toxicity:** No available data.

**Persistence and Degradability:** No available data.

**Bio accumulative Potential:** No available data.

**Mobility in Soil:** No available data.

**Other Adverse Effects:** No available data.

Do not allow undiluted product or large quantities to reach ground water, water course or sewage systems. Do not allow product to be released in the environment without proper governmental permits.

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## 13. DISPOSAL CONSIDERATIONS:

**Product:** For product elimination, dispose of in accordance with EPA regulations.

**Package:** May be disposed in approved landfills provided local regulations are observed.

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## 14. TRANSPORT INFORMATION:

**UN-number:** Not applicable

**UN proper shipping name:** Not applicable

**Transport hazard class:** Not applicable

**Packing group:** Not applicable

**Environmental hazards:** Not applicable

**Special precautions for users:** Not applicable

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** No international regulations or restrictions are applicable.

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## 15. REGULATORY INFORMATION:

**TSCA No.:** Sodium Tetraborate Pentahydrate appears on the EPA TSCA inventory list under the CAS no. 1330-43-4, which represents the anhydrous form of this inorganic salt.

**RCRA:** Sodium Tetraborate Pentahydrate is not listed as a hazardous waste under any sections of the Resource Conservation and Recovery Act or regulations (40 CFR 261 et seq.).

**Superfund:** CERCLA/SARA. Sodium Tetraborate Pentahydrate is not listed under CERCLA (the Comprehensive Environmental Response Compensation and Liability Act) or its 1986 amendments, SARA, (the Superfund Amendments and Reauthorization Act), including substances listed under Section 313 of SARA, Toxic Chemicals, 42 USC 11023, 40 CFR 372.65; Section 302 of SARA, Extremely Hazardous Substances, 42 USC 11002, 40 CFR 355; or the CERCLA Hazardous Substances list, 42 USC 9604, 40 CFR 302.

**Safe Drinking Water Act:** Sodium Tetraborate Pentahydrate is not regulated under the SDWA, 42 USC 300g-1, 40 CFR 141 et seq. Consult state and local regulations for possible water quality advisories regarding Boron.

Clean Water Act (Federal Water Pollution Control Act): 33 USC 1251 et seq.

- (a) Sodium Tetraborate Pentahydrate is not itself a discharge covered by any water quality criteria of Section 304 of the CWA, 33 USC 1314.
- (b) It is not on the Section 307 List of Priority Pollutants, 33 USC 1317, 40 CFR 129.
- (c) It is not on the Section 311 List of Hazardous Substances, 33 USC 1321, 40 CFR 116.

**OSHA/Cal OSHA:** This MSDS document meets the requirements of both OSHA (29 CFR 1910.1200) and Cal OSHA (Title 8 CCR 5194(g)) hazard communication standards. Refer to Section 6 for regulatory exposure limits.

**IARC:** The International Agency for Research on Cancer (of the World Health Organization) does not list or categorize Sodium Tetraborate Pentahydrate as a carcinogen.

**NTP Annual Report on Carcinogens:** Sodium Tetraborate Pentahydrate is not listed.

**OSHA Carcinogen:** Sodium Tetraborate Pentahydrate is not listed.

**CALIFORNIA PROPOSITION 65:** Sodium Tetraborate Pentahydrate is not listed on any Proposition 65 lists of carcinogens or reproductive toxicants.

**CALIFORNIA PROPOSITION 65:** No compounds present. (California Health & Safety Code § 25249.5 et seq.)

**CONEG Model Legislation:** Sodium Tetraborate Pentahydrate meets all the CONEG requirements relating to heavy metal limitations on components of packaging materials.

**Clean Air Act:** Sodium Tetraborate Pentahydrate was not manufactured with and does not contain any Class I or Class II ozone depleting substances, as defined by EPA.

**Federal Food, Drug and Cosmetic Act:** Pursuant to 21 CFR 175.105, 176.180 and 181.30, Sodium Tetraborate Pentahydrate 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.

#### **Chemical Inventory Listing**

US EPA TSCA 1330-43-4

Canadian DSL 1330-43-4

EINECS 215-540-4

South Korea 1-760

Japanese MITI (1)-69

#### **Federal Food, Drug, and Cosmetic ACT:**

Pursuant to 21 CFR 175.105, 176.108 and 181.30, Sodium Tetraborate

Pentahydrate 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

#### **16. OTHER INFORMATION:**

The information in this document is believed to be correct as of the date issued. However, no warranty is expressed to be implied regarding the accuracy or completeness of this information. This information and product are furnished on the condition that the person receiving them shall make his own determinations as to the suitability of the product for his particular purpose and on the condition that he assumes the risk of his use thereof.

This Material Safety Data Sheet complies with the EC directives 91/155/EEC and 93/112/EEC, including modifications 2001/58/EC.

Complies with OSHA Communication Standard 29 CFR 1910.1200 and Superfund Amendments and Reauthorization Act (SARA) of 1986 Public Law 99-499

#### **Hazard Statements:**

**H360** – May damage fertility or the unborn child.

#### **R-Phrases:**

**R60** – May impair fertility.

**R61** – May cause harm to the unborn child

#### **S-Phrases:**

**S2** – Keep out of reach of children.

**S45** – In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).

**S53** – Avoid exposure – obtain special instructions before use.

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