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1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT NAME: Lava Brazing Electrode (10645, 10646, 10647, 10746)
DISTRIBUTOR: Tifco Industries, Inc.
PO Box 40277
Houston, TX 77240
Phone: 281-571-6000

EMERGENCY TELEPHONE NUMBER: Chem-Tel: 800-255-3924

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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):
Skin Sensitization, Category 1
Carcinogenicity, Category 2
Specific Target Organ Toxicity (Repeated Exposure), Category 1
Hazardous to the Aquatic Environment – Acute Hazard, Category 1

EU Classification (67/548/EEC):
Toxic (T), Harmful (Xn), Irritant (Xi), Dangerous for the Environment (N), Carcinogen Category 3, R48/23, R40, R43, R50

Labeling:

Symbols: 

Signal Word: Danger
Hazard Statements:
H317 – May cause an allergic skin reaction.
H351 – Suspected of causing cancer.
H372 – Cause damage to respiratory system, eyes, brain and nervous system through prolonged or repeated exposure.
H400 – Very toxic to aquatic life.
Precautionary Statements:
P201 – Obtain special instructions before use.
P202 – Do not handle until all safety precautions have been read and understood.
P210 – Keep away from heat/sparks/open flames/hot surfaces – No smoking.
P260 – Do not breathe dust/fume/gas/mist/vapours/spray.
P264 – Wash skin and hair thoroughly after handling.
P270 – Do not eat, drink or smoke when using this product.
P272 – Contaminated work clothing should not be allowed out of the workplace.
P273 – Avoid release to the environment.
P280 – Wear protective gloves/eye protection/face protection.
P281 – Use personal protective equipment as required.
P302+P352 – IF ON SKIN: Wash with plenty of soap and water.
P333+P313 – IF skin irritation or rash occurs: Get medical advice/attention.
P308+P313 – IF exposed or concerned: Get medical advice/attention.
P314 – Get medical advice/attention if you feel unwell.
P363 – Wash contaminated clothing before reuse.
P391 – Collect spillage.
P405 – Store locked up.
P501 – Dispose of contents/container in accordance with local/regional/national/international regulations.

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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)
#Copper	7440-50-8	45-55	1.0	1.0	No	 (F) R11  (N) R50	(H228) Flam. Sol. 1  (H400) Aquatic Acute 1 
#Zinc	1314-13-2	25-35	5.0	5.0	No	 (N),R50/53	(H400) Aquatic Acute 1  (H410) Aquatic C. 1 
#Nickel	7440-02-0	5-15	1	1	Yes	Carc. Cat. 3  (Xn) R40  (Xi) R43  (T) R48/23	(H317) Skin Sens. 1  (H351) Carc. 2  (H372) STOT RE 1 
Boric Acid	10043-35-3	1-11	15	10	No	Repr. Cat. 2  (T),R60, R61	(H360FD) Repr. 1B 
Borax	1303-96-4	2-8	10	1	No	 (Xn) R62	(H361) Repr. 2 

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 #.

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.

5. FIRE-FIGHTING MEASURES:

Suitable Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Use the extinguishing media recommended for the burning material and fire situation.
Unsuitable Extinguishing Media: Not applicable
Specific Hazards Arising From Chemical: Formation of toxic gases is possible during heating or in case of fire. Copper oxides, Zinc/zinc oxides, Nickel/nickel oxides, Aluminium oxide, Borane/boron oxides, Sodium oxide
Protective Equipment: Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES:

Personal Precautions: Refer to section 8.
Environment Precautions: Refer to section 13.
Cleaning Measures: Solid objects may be picked up and placed into a container. Liquids or pastes should be scooped up and placed into a container. Wear proper protective equipment while handling these materials. Do not discard as refuse.
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.

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 product at room temperature. Store in cool dry conditions in well sealed containers.

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.

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 (ºC) 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** • **Gas Welding** • **TIG Welding** • **MIG Welding** • **Micro plasma welding** • **Brazing** • **Spot Welding** • **MMA Welding (with rutile-covered electrode)**
Environmental Conditions	**Operation of machines** • **Oxygen cutting machines** • **Plasma cutting machines** • **Resistance welding machines** • **Machines for thermal spraying** • **Bench welding**

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Class 2	
Impact of Spatter	**25 Drops**
Heat Transfer (radiation)	**RHTI 24 ≥ 16 seconds**
Process	**Manual welding with heavy formation of spatter and drops** • **MMA welding (with basic or cellulose-covered electrodes)** • **MAG welding (with CO2 or mixed gases)** • **MIG Welding (with high current)** • **Self shielded flux core arc welding** • **Plasma cutting** • **Gouging** • **Oxygen cutting** • **Thermal spraying**
Environmental Conditions	**Operation of machines** • **In confined spaces** • **At overhead welding/cutting or in comparable constrained positions**

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance: Solid
Color: None/3182- red/ 3184-none/ 3185-none/ 3186-white.
Odour: Odourless
Odour Threshold: Not Available
pH Value: Not Available
Specific Gravity: Not Available
Melting Point/Melting Range: 1560-2000° F, 850-1100° C
Freezing Point: Not Available
Boiling Point/Boiling Range: Not Available
Flash point: Not Available
Evaporation Rate: Not Available **Self-**
in flammability: Not Available
Explosion limits: Not Available
Vapour pressure: Not Available
Vapour density: Not Available
Density at 20ºC: Not Available
Relative density: 6-9 g/cm3
Solubility: Insoluble in water.
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 H2O 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.

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11. TOXICOLOGICAL INFORMATION:

Acute Effects: Overexposure to brazing and soldering fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes. Symptoms of systematic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis and coma. Signs and symptoms of zinc exposure are central nervous system depression, cough, chest pain and difficulty breathing. Exposure to high airborne concentrations can cause anaesthetic effects. Toxicity reported for borates in humans: ingestion or absorption may cause nausea, vomiting, diarrhea, abdominal cramps, anderythematous lesions on the skin and mucous membranes. Other symptoms include: circulatory collapse, tachycardia, cyanosis, delirium, convulsions and coma. Death has been reported to occur in infants from less than 5 grams and in adults from 5 to 20 grams.

LD/LC50 Values that are relevant for classification		
Copper 7440-50-8		
Oral	**LD50**	**>2000 mg/kg (rat)**
Dermal	**LD50**	**>2000 mg/kg (rat)**
Inhalation	**LC50**	**>5.11 mg/L/4 hr (rat)**
Intraperitoneal	**LD50**	**3.5 mg/kg (mouse)**

LD/LC50 Values that are relevant for classification		
Zinc 7440-66-6		
Oral	**LD50**	**630 mg/kg (rat)**

LD/LC50 Values that are relevant for classification		
Nickel 7440-02-0		
Oral	**LD50**	**>9000 mg/kg (rat)**
Inhalation	**LC50**	**>10.2 mg/L/1 hr (rat)**

LD/LC50 Values that are relevant for classification		
Boric Acid 10043-35-3		
Oral	**LD50**	**2660 mg/kg (rat)**
	LC50	**53.2 mg/l (21d) (water flea)**

Chronic Effects: Overexposure to brazing and soldering fumes may affect pulmonary function. Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defect and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has led to haemolytic anemia and accelerates arteriosclerosis, damage to the lungs, vomiting, diarrhoea, abdominal pain and blood disorders. Excessive inhalation of zinc oxide fumes may produce symptoms known as "Zinc Shakes" which are flu-like and usually cease when the individual is removed from the source. Prolonged or repeated exposure can cause vomiting, diarrhoea, lung irritation. Prolonged inhalation of nickel (Classified 2B by IARC and R by NTP) above safe exposure limits may cause cancer.

12. ECOLOGICAL INFORMATION:

Toxicity: No available data.
Persistence and Degradability: No available data.
Bio accumulative Potential: The following figures are the bio concentration factor (BCF) for the substances on their own.
BCF:
Copper, BCF: 29
Nickel, BCF: 16
Mobility in Soil: No available data.
Other Adverse Effects: No available data.
Welding materials could degrade into components originating from the materials used in the welding process. Avoid exposure to conditions that could lead to accumulation in soils or groundwater. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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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.

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

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.
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
EPCRA/SARA Title III Toxic Chemicals

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The following metallic components are listed as SARA 313 "Toxic Chemicals" and potential subject to annual SARA reporting. See Section 3 for weight percentage.

Ingredient Name	Disclosure Threshold
Copper	**1.0 mg/m3**
Zinc	**5.0 mg/m3**
Nickel	**1.0 mg/m3**

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:

H228 – Flammable solid.
H317 – May cause an allergic skin reaction.
H351 – Suspected of causing cancer.
H360 – May damage fertility or unborn child
H361 – Suspected of damaging fertility or the unborn child..
H372 – Cause damage to respiratory system, eyes, brain and nervous system through prolonged or repeated exposure.
H400 – Very toxic to aquatic life
H410 –Very toxic to aquatic life with long lasting results

R-Phrases:

R11 – Highly flammable.
R40 – Limited evidence of a carcinogenic effect.
R43 – May cause sensitization by skin contact.
R48/23 – Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R50 – Very toxic to aquatic organisms**.**
R50/53 – Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R60 – May impair fertility**.**
R61 – May cause harm to the unborn child**.**
R62 – Possible risk of impaired fertility**.**

S-Phrases:

S15 – Keep away from heat.
S16 – Keep away from source of ignition – No smoking.
S22 – Do not breathe dust.
S24/25 – Avoid contact with skin and eyes.
S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28 – After contact with skin, wash immediately with plenty of water.
S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection.
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.
S61 – Avoid release to the environment.

End of the document.