MATERIAL SAFETY DATA SHEET

Warning: Product Components Present Health and Safety Hazards. Read and Understand This Material Safety Data Sheet (M.S.D.S.). Also Follow Your Employer’s Safety Practices

Statement of Liability-Disclaimer

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Section 1  Product & Company Identification

UNITED BRAZING, LLC
Houston, Texas  77061
Ph: 713-641-9000  Fax 713-641-9001
Chemtrec: 800-424-9300 (Emergency)
Trade Name: Brazecraft X, Brazecraft 2, Brazecraft 5, Brazecraft 6, Brazecraft 15, Brazecraft 18M

Nominal Composition

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Silver (Ag)</th>
<th>Copper (Cu)</th>
<th>Phosphorous (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazecraft X</td>
<td>Balance</td>
<td>7 – 8.2%</td>
<td></td>
</tr>
<tr>
<td>Brazecraft XLP</td>
<td>Balance</td>
<td>5.5 – 6.5%</td>
<td></td>
</tr>
<tr>
<td>Brazecraft 0</td>
<td>Balance</td>
<td>6.8 – 7.1%</td>
<td></td>
</tr>
<tr>
<td>Brazecraft 2</td>
<td>1.8-2.0%</td>
<td>Balance</td>
<td>6.5 - 7.4%</td>
</tr>
<tr>
<td>Brazecraft 5</td>
<td>5.0%</td>
<td>Balance</td>
<td>5.7 – 6.5%</td>
</tr>
<tr>
<td>Brazecraft 6</td>
<td>5.8-6.0%</td>
<td>Balance</td>
<td>7.0 – 7.25%</td>
</tr>
<tr>
<td>Brazecraft 15</td>
<td>15%</td>
<td>Balance</td>
<td>4.7 – 5.4%</td>
</tr>
<tr>
<td>Brazecraft 18M</td>
<td>18%</td>
<td>Balance</td>
<td>6.05-6.45%</td>
</tr>
</tbody>
</table>

Chemical  CAS#  TWA mg/m3  STEL mg/m3  IDLH mg/m3  Other mg/m3

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS#</th>
<th>TWA mg/m3</th>
<th>STEL mg/m3</th>
<th>IDLH mg/m3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphorous</td>
<td>7723-14-0</td>
<td>0.1</td>
<td>Not Established</td>
<td>5</td>
</tr>
<tr>
<td>Silver</td>
<td>7440-22-4</td>
<td>0.1</td>
<td>Not Established</td>
<td>10</td>
</tr>
<tr>
<td>Copper</td>
<td>7440-50-8</td>
<td>0.2</td>
<td>Not Established</td>
<td>100</td>
</tr>
</tbody>
</table>

Niosh Rel:
TWA=0.1
DFG MAKs: TWA 0.1
Peak= 2 MAK 5 min., momentary value
DFG Pregnancy Risk Classification D
Carcinogen: EPA -D

Niosh Rel:
TWA=0.01
DFG MAKs: TWA 0.01 inhalable fraction
Peak= 10 MAK 30 min., average value
Carcinogen: EPA -D

Niosh Rel:
TWA=0.1
DFG MAKs: TWA 0.1 inhalable fraction
Peak= 2 MAK 30 min., average value
Carcinogen: EPA -D
Section 2  Hazard Identification

Primary route of Entry
During the brazing process the route of over exposure is inhalation of fumes.

Inhalation
Exposure to the fumes of these products will irritate the nose, throat and other tissues of the respiratory system. Acute exposure to Copper fumes may cause fever, muscle ache, chills, cough, weakness, nausea and metallic taste. Chronic exposure to Copper fume may cause damage to the liver, kidney, spleen, pancreas, and brain.

Eye Contact
Contact with wire or rod of these products is not anticipated to be irritating. Wire and rod forms can be physically damaging to the eye. In other forms including fumes from the brazing process may cause irritation, conjunctivitis, ulceration of the cornea, and argyria.

Skin Contact
May cause irritation, argyria, or dermatitis. Fumes can irritate the skin and molten metal from the brazing process can burn the skin.

Ingestion
Ingestion may cause nausea, vomiting, and gastrointestinal irritation.

Hazardous Material Identification System
Health (Blue) : 1  Flammability (Red) : 0  Reactivity (Yellow) : 0  Protective Equipment: X

See Exposure Controls & Personal Protection Section
Routine Industrial Applications

Section 3  First Aid Measures

Eye Exposure
Flush effected area with water for at least fifteen minutes. Seek medical assistance if necessary.

Skin Exposure
Remove contaminated clothing. Wash effected with large quantities of water for at least 5 minutes. Seek Medical attention if necessary. Launder clothes before reuse. If molten metal contacts skin run cold water over affected area and seek medical attention.

Ingestion
Ingestion is not likely route of exposure with these products. If swallowed call a physician immediately. Do not induce vomiting unless directed by medical personnel. Rinse mouth with water if conscious.

Inhalation
If symptoms of toxicity are observed remove subject from area to fresh air. If necessary administer oxygen and seek medical attention. Perform artificial respiration if breathing has stopped.

Physician Recommendation: Treat symptoms and eliminate overexposure.
Section 4  Fire Fighting Measures

Flash Point: Not Applicable – degrees C or F
Autoignition: Not Applicable – degrees C or F
Flammability Class: Not Applicable
Flammability Limits: LEL – Not Applicable  UEL: Not Applicable

Fire Extinguishing Media
   Halon: Yes  Water Spray: Yes  Dry Chemical: Yes  Carbon Dioxide: Yes  Foam: Yes

NFPA RATING
   Health: 1  Flammability: 0  Reactivity: 0  Other: X

Unusual Fire & Explosion Hazards
In the presence of flame or explosion, they may emit fumes of the constituent metals, metal oxides, and / or phosphorous pentoxide. Molten metal can present significant thermal hazards to firefighters. These products are not explosion sensitive to mechanical impact or static discharge.

Section 5  Accidental Release Measures

NOT APPLICABLE

Section 6  Handling and Storage

Work and Hygiene Practices
Wash thoroughly after handling these products. Do not eat or drink while handling these products. Use ventilation and other controls to minimize potential exposure to these products.

Storage and Handling Practices
All employees who handle these products should be trained to handle them safely. Use these products in a well ventilated area. Avoid breathing fumes generated from the brazing process. Store in a cool dry location. It is suggested that 29CFR 1910 Subpart Q and American National Standard Institute ANSI Z49.1 be followed.

Section 7  Exposure Controls – Personal Protection

Engineering Controls
Use appropriate ventilation to ensure concentration of all components are within their applicable limits. See Section 1. Safety practice should include eyewash/safety shower stations near areas where products are used.

Eye Protection
Wear eye protection adequate to prevent eye contact with product and eye injury. Spectacles with side shields and #3 or 4 filter lenses are recommended. Consult ANSI Z49.1-1988, Safety in Welding and Cutting.
Respiratory Protection
If an exposure level exceeds an applicable exposure standard, use a NIOSH approved respirator having a configuration (face piece, filter media, assigned protection factor) appropriate to the concentration of the contaminate generated. Use only protection authorized in 29 CFR 1910.134 or applicable State regulations. Respiratory protection is recommended to be worn during brazing operations.
NIOSH RECOMMENDATIONS (Copper Metal Dust)
Up to 5 mg/m3: Dust and mist respirator
Up to 10 mg/m3: Dust and mist respirator except single use and quarter mask respirator or SAR Supplied Air respirator
Up to 25 mg/m3: Powered air purifying respirator with dust and mist filters or SAR operated in a continuous flow mode.
Up to 50 mg/m3: Full face piece respirator with high efficiency particulate filters or full face piece SCBA Self Contained Breathing Apparatus or SAR or powered air purifying respirator with tight fitting face piece. Consult ANSI Z88.

Hand Protection
Wear gloves recommended for industrial use. Gloves should protect from sparks and flames as per ANSI Z49.1 – 1988, Safety in Welding and Cutting.

Body Protection
Use body protection appropriate for the job or task.

Section 8 Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Use: Metal Brazing</td>
<td>Odorless light copper metals in the form of wire, rod, strip, powder, tape, grain, or preformed shapes.</td>
</tr>
<tr>
<td>Relative Vapor Density:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility in Water:</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Odor Threshold:</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>pH:</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Melting Point:</td>
<td>1190F</td>
</tr>
<tr>
<td>Specific Gravity:</td>
<td>(Water=1) 7.8 – 10.5</td>
</tr>
<tr>
<td>Vapor Pressure mm Hg@20C:</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Evaporation Rate (nBuAc=1):</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>2595C (4703F)</td>
</tr>
</tbody>
</table>

Section 9 Stability and Reactivity

Stability: Stable
Hazardous Polymerization: will not occur
Decomposition Products: Thermal decomposition may produce copper, phosphorous, and silver compounds and a variety of metal oxides.
Incompatible Materials: Strong Acids, Oxidizers, Halogens, and Acid Chlorides.
Conditions to Avoid: Silver and Copper can form acetylides if in contact with acetylene gas.
Section 10  Toxicological Information

Copper TDLo (oral, human) = 120ug/kg; gastrointestinal tract effects
Silver TCLo (inhalation, human) = 1 mg/m3, Skin effects
Phosphorous TDLo (unreported, man) 4412 ug/kg

Copper: EPA-D (Not Classifiable as to Human Carcinogenicity)
Silver: EPA-D (Not Classifiable as to Human Carcinogenicity)
Phosphorous: EPA-D (Not Classifiable as to Human Carcinogenicity)

Other components of these products are not found on the following lists: Federal, OSHA Z List, NTP, IARC and CAL/OSHA.

Product Sensitization: Rare cases of allergic contact dermatitis have been reported with people working with copper.

Reproductive Toxicity Information

Mutagenicity: These products are not reported to produce mutagenic effects in humans.

Embryotoxicity: These products are not reported to produce embryotoxicity effects in humans.

Teratogenicity: These products are not reported to cause teratogenic effects in humans.

Reproductive Toxicity: These products are not reported to cause reproductive effects in humans.

Section 11  Ecological Information

In their intended manner of use, these products should not be released into the environment, and adverse effects on ecosystems are not anticipated under recommended conditions of use, storage, and disposal.

COPPER
LC50 (fathead minnows) = 0.14 ppm in hard water
LC50 (bluegill) 0.02 ppm in soft water
LC50 (brook trout) 0.09 ppm in soft water

SILVER
0.x1 ppm is toxic to bacteria and aquatic life. Discharge into marine waters should not exceed /20 od 96 hour LC50, 0.25 – 0.025 mg/kg/day

Section 12  Disposal Considerations

Dispose of product in accordance with applicable Federal, State, Provincial, and Local regulations. EPA waste number D011 (Silver) Regulated Level 5.0mg/L
Section 13  Transportation

Proper Shipping Name: Not Applicable
Hazard Class Number & Description: Not Applicable
UN Identification Number: Not Applicable
Packing Group: Not Applicable
DOT Labels Required: Not Applicable
Marine Pollutant: No component of this product is designated as a marine pollutant.
Transport Canada transportation of Dangerous Goods Regulations: This material is not considered as dangerous goods.

Section 14  Regulatory Information

U.S. Sara Reporting Requirements: The components of these products are subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Sara 302 40CFR 355 Appendix A</th>
<th>Sara 304 40CFR Table 302.4</th>
<th>Sara 313 40CFR 372.65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Silver</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Phosphorous</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes (Yellow or White)</td>
</tr>
</tbody>
</table>

U.S. SARA Threshold: Phosphorous = 100 lbs.

U.S. TASCA Inventory Status: The components of these products are not listed in TSCA.

U.S. CERCLA Reportable Quantity (RQ): Copper 5000 lb., Silver 1000 lb., Phosphorous 1 lb. (for metal particles under 100 micrometers in diameter)

Other Federal regulations: Not Applicable

U.S. State Regulatory Information:

- Alaska-Designated Toxic and Hazardous Substances Copper fume, dust, mist, phosphorous(yellow) tin
- California Permissible Exposure Limits for Chemical Contaminants Copper, silicon, silver, phosphorous(yellow) tin.
- Florida Substance List Copper fume, dust, mist, silver, phosphorous (yellow) tin
- Illinois Toxic Substance List Copper, silicon, silver phosphorous
- Kansas Section 302/313 List Copper and compounds
- Massachusetts Substance List phosphorous (yellow), tin
- Michigan critical Materials Register Copper
- Minnesota List of Hazardous Substances Copper, fume, silver, silicon, phosphorous (yellow) tin
- Missouri Employer Toxic Substance List Copper, silicon, silver phosphorous (yellow) tin
- New Jersey Right to Know List Copper, Silver, Tin
- North Dakota List of Hazardous Chemicals Copper, silver, phosphorous
- Pennsylvania Hazardous Substance List Copper, silicon, silver, phosphorous, tin
- Rhode Island Hazardous Substance List Copper, fume, dust, mist, silicon, silver Phosphorous(red, white, yellow) tin
- Texas Hazardous Substance List Copper, fume phosphorous (yellow) tin
WARNING: PROTECT yourself and others. Read and understand this information

Fumes and Gases can be hazardous to your health.

Heat Rays (Infrared Radiation) from flame or hot metal can injure your eyes

- Before use, read and understand the manufacturer’s instructions. Material Safety Data Sheets (MSDSs), and your employer’s safety policies.
- Keep your head out of the fumes
- Avoid contact of flux with the eyes and skin
- Do not take internally.
- Use enough ventilation, exhaust at the flame, or both. To keep fumes and gases from your breathing zone and the general area.
- Wear correct eye, ear, and body protection.
- DO NOT REMOVE THIS INFORMATION

Additional Canadian Regulations

Canadian DSL/NDSL Inventory Status: The components of these products are on the DSL Inventory.

Canadian Environmental Protection Act (CEPA) : The components of these products are not on the CEPA Priorities Substances List.

Canadian WHMIS Symbols: Not Applicable

Section 15 Other Information

Date Publication: September 1, 2005