

MATERIAL SAFETY DATA SHEET

DATE PREPARED:
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C 65600

MSDS No.
1-31

Rev. Date

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IMPORTANT: Read this MSDS before handling and disposing of this product and pass this information on to employees, customers, and users of this product

I. General			
Trade Name	SILICON BRONZE (BRAZING ROD)	Telephone Numbers	
Other Names	NONE	203 736-2651	
Chemical Family	COPPER SILICON ALLOY	DOT Hazardous Materials Proper Shipping Name NONE	
Generic Name	SILICON BRONZE (WELDING ROD)	DOT Hazard Class N/AP	
CAS No.	NONE	Company ID No.	3000000031
		UN/NA ID No.	NOT REGULATED
II. CAUTION Summary of Hazards			
METAL MACHINING OR GRINDING OPERATIONS MAY PRODUCE FINE PARTICULATE OR DUST. HEATING, MELTING, WELDING, OR BRAZING MAY PRODUCE METAL FUMES AND PARTICULATES. INHALATION OF EXCESSIVE FUME OR DUST CONCENTRATIONS MAY RESULT IN RESPIRATORY TRACT IRRITATION AND/OR METAL FUME FEVER.			
III. Fire and Explosion			
Flash Point (Method)	Autorigination Temperature (Method)	Flammable Limits (% Vol. in Air)	
N/AP	N/AP	Lower N/AP	Upper N/AP
Fire and Explosion Hazards	DUST HAZARD EXISTS UNDER FAVORING CONDITIONS OF SMALL PARTICLE SIZE. DISPERSION IN AIR AND STRONG IGNITION SOURCE MAY RESULT IN AN EXPLOSION.		
Extinguishing Media	DRY CHEMICAL USE DRY POWDER FOR METAL FIRES. GENTLY SPOON MEDIA ONTO FIRE. DO NOT DISTURB PARTICLES.		
Special Firefighting Procedures	DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION INCLUDING PRESSURE-DEMAND, SELF-CONTAINED BREATHING APPARATUS.		

IV. Health Hazards

Summary of Acute Hazards RESPIRATORY TRACT, IRRITATION, METAL FUME FEVER, EYE IRRITATION.

ROUTE OF EXPOSURE	SIGNS AND SYMPTOMS	Primary Route(s)
Inhalation	INHALATION OF EXCESSIVE FUME OR DUST CONCENTRATIONS MAY RESULT IN RESPIRATORY TRACT IRRITATION AND METAL FUME FEVER.	<input checked="" type="checkbox"/>
Eye Contact	MECHANICAL IRRITATION MAY RESULT FROM AN ACCUMULATION OF DUST PARTICLES IN THE EYE.	<input checked="" type="checkbox"/>
Skin Absorption	NO SIGNIFICANT SIGNS OR SYMPTOMS INDICATIVE OF ANY ADVERSE HEALTH HAZARD ARE EXPECTED TO OCCUR.	<input type="checkbox"/>
Skin Irritation	NO SIGNIFICANT SIGNS OR SYMPTOMS INDICATIVE OF ANY ADVERSE HEALTH HAZARD ARE EXPECTED TO OCCUR.	<input type="checkbox"/>
Ingestion	THIS MATERIAL MAY BE TOXIC IF SWALLOWED IN LARGE QUANTITIES.	<input type="checkbox"/>
Summary of Chronic Hazards and Special Health Effects	LONG TERM EXPOSURES TO EXCESSIVE FUME OR DUST CONCENTRATIONS MAY RESULT IN MANGANESE INTOXICATION WHICH MAY INVOLVE BEHAVIOR CHANGES, PSYCHOSIS, AND IN MORE SERIOUS CASES NEUROLOGICAL SIGNS AND SYMPTOMS SIMILAR TO PARKINSON'S DISEASE.	

V. Protective Equipment and Other Control Measures

Respiratory	IF EXPOSURE EXCEEDS THE PEL/TLV, USE NIOSH/MSHA APPROVED RESPIRATORY PROTECTION EQUIPMENT AS SPECIFIED IN THE NIOSH/OSHA OCCUPATIONAL HEALTH GUIDELINES FOR CHEMICAL HAZARDS.
Eye	USE SAFETY GLASSES WITH SIDE SHIELDS OR GOGGLES TO PREVENT INJURY FROM FLYING PARTICLES OR HIGH DUST CONCENTRATIONS. USE GOGGLES OR SHIELD WITH APPROPRIATE LIGHT FILTRATION DURING WELDING OR CUTTING OPERATIONS.
Skin	WHERE USE CAN RESULT IN SKIN CONTACT WITH PARTICULATE, PRACTICE GOOD PERSONAL HYGIENE WASH HANDS AND OTHER EXPOSED AREAS WITH MILD SOAP AND WATER BEFORE EATING, DRINKING, OR SMOKING.
Engineering Controls	USE ADEQUATE VENTILATION TO KEEP FUME OR DUST CONCENTRATION BELOW THE OCCUPATIONAL EXPOSURE LIMITS SHOWN IN SECTION VI (REFER TO ANSI Z49.1, "SAFETY IN WELDING AND CUTTING" AND "OSHA REGULATION" CFR 1910.252).
Other Hygienic and Work Practices	WHERE APPLICABLE, USE PROTECTIVE GLOVES TO PROTECT AGAINST HEAT OR SHARP METAL EDGES.

VI. Occupational Exposure Limits

SEE ADDITIONAL DATA BEGINNING ON PAGE 5

Substance	Source	Date	Type	Value/Units	Time
COPPER FUME	OSHA	1984	TWA	0.1 MG/M3	8 HRS
COPPER DUSTS AND MISTS	OSHA	1984	TWA	1 MG/M3	8 HRS
IRON OXIDE FUME	OSHA	1984	TWA	10 MG/M3	8 HRS
MANGANESE	OSHA	1984	CEILING	5 MG/M3	
TIN (INORGANIC COMPOUNDS, EXCEPT OXIDES)	OSHA	1984	TWA	2 MG/M3	8 HRS
ZINC OXIDE FUME	OSHA	1984	TWA	5 MG/M3	8 HRS
COPPER FUME	ACGIH	1984	TWA	0.2 MG/M3	8 HRS
COPPER DUSTS & MISTS, AS CU	ACGIH	1984	TWA	1 MG/M3	8 HRS
			STEL	2 MG/M3	15 MIN
IRON OXIDE FUME (FE2O3), AS FE	ACGIH	1984	TLV	5 MG/M3	8 HRS
			STEL	10 MG/M3	15 MIN
MANGANESE DUST & COMPOUNDS	ACGIH	1984	CEILING	5 MG/M3	
MANGANESE, FUME	ACGIH	1984	TWA	1 MG/M3	8 HRS
			STEL	3 MG/M3	15 MIN

VII. Emergency and First Aid

Inhalation	IMMEDIATELY REMOVE FROM CONTAMINATED AREA TO FRESH AIR. IF IRRITATION PERSISTS, OR IF OTHER SIGNS OR SYMPTOMS DEVELOP, SEEK MEDICAL ATTENTION.
Eye Contact	MECHANICAL INJURY ONLY. TREAT AS MECHANICAL INJURY ONLY. TREAT AS INERT FOREIGN BODY.
Skin Contact	NOT EXPECTED TO PRESENT A SIGNIFICANT SKIN CONTACT HAZARD UNDER ANTICIPATED CONDITIONS OF NORMAL USE.
Ingestion	NOT EXPECTED TO PRESENT A SIGNIFICANT INGESTION HAZARD UNDER ANTICIPATED CONDITIONS OF NORMAL USE.
Emergency Medical Treatment Procedures	METAL FUME FEVER MAY BE TREATED SYMPTOMATICALLY.

VIII. Spill and Disposal

Precautions if Material is Spilled or Released	NO NOTABLE ENVIRONMENTAL HAZARD IS ANTICIPATED TO BE ASSOCIATED WITH THE ACCIDENTAL "RELEASE" OF THIS MATERIAL ON LAND. THIS MATERIAL SHOULD BE RECOVERED FROM AQUATIC ENVIRONMENTS.
Waste Disposal Methods	MAXIMIZE PRODUCT RECOVERY FOR REUSE OR RECYCLING. CONDITIONS OF USE MAY CAUSE THIS MATERIAL TO BECOME A SOLID "HAZARDOUS WASTE" AS DEFINED BY STATE OR FEDERAL LAWS. SOLID WASTE "LEACHATE" TESTING MAY INDICATE THE NEED FOR PROPERLY PERMITTED DISPOSAL OF SUCH WASTES IN COMPLIANCE WITH ALL APPLICABLE LAWS. CONDITIONS OF USE MAY ALSO GENERATE LIQUID WASTES WITH METAL CONCENTRATIONS IN EXCESS OF THOSE PERMITTED THROUGH PRE-TREATMENT OR DIRECT DISCHARGE NPDES REQUIREMENTS. APPROPRIATE ANALYSES SHOULD BE CONDUCTED TO ENSURE COMPLIANCE WITH EXISTING WASTEWATER PERMITS.

IX. Components (This may not be a complete list of components)

Component Name	CAS No.	Carcinogen**	Composition amount (Vol.) (See Qualification on Page 4)
ALUMINUM	7429-90-5	N/A P	MAX. 0.01 %
LEAD	7439-92-1	2	MAX. 0.02 %
MANGANESE	7439-96-5	N/A P	0.50 TO 1.50 %
SILICON	7440-21-3	N/A P	2.8 TO 4.0 %
TIN	7440-31-5	N/A P	MAX. 1.5 %
COPPER	7440-50-8	N/A P	REM.
ZINC COMPOUND(S), MEASURED AS ZN	7440-66-6	N/A P	MAX. 1.5 %
IRON	15438-31-0	N/A P	MAX. 0.5 %

**Listed By 1 = NTP, 2 = IARC, 3 = OSHA, 4 = Other

Compositions given are typical values, not specifications.

X Physical and Chemical Data			
Boiling Point N/AP	Viscosity Units, Temp. (Method) N/AP		Dry Point N/AP
Freezing Point N/AP	Vapor Pressure N/AP		Volatile Characteristics N/AP
Specific Gravity (H ₂ O = 1 at 39.2° F) 8.53	Vapor Sp. Gr. (Air = 1.0 at 60° - 90° F) N/AP	Solubility in Water N/AP	pH N/AP
Hazardous Polymerization N/DA	Other Chemical Reactivity N/AP		Stability STABLE
Other Physical and Chemical Properties	MELTING/FREEZING RANGE 1780 F - 1880 F DEGREES.		
Appearance and Odor	COLOR - RED BRONZE METALLIC. ODORLESS.		
Conditions to Avoid	EXPOSURE DURING STORAGE, TO STRONG ACIDS, BASES OR OXIDIZING AGENTS.		
Materials to Avoid	MERCURY, AMMONIA AND ACETYLENE.		
Hazardous Decomposition Products	TOXIC GASES, AEROSOLS AND VAPORS MAY BE RELEASED IN A FIRE INVOLVING COPPER ALLOYS IF FUMES OF OTHER COMPOUNDS OR OTHER CONTACTING MATERIALS ARE INVOLVED.		

XI. Additional Precautions

Handling, Storage and Decontamination Procedures: GOOD HOUSEKEEPING MUST BE PRACTICED DURING STORAGE, TRANSFER, HANDLING AND USE TO AVOID EXCESSIVE DUST ACCUMULATION. APPLY RECOMMENDATIONS OF NFPA 481 M FOR COPPER ALLOYS.

General Comments: SYMPTOMS OF METAL FUME FEVER MAY LAST 24 TO 48 HOURS AND MAY INCLUDE A SWEET OR METALLIC TASTE IN THE MOUTH, DRYNESS AND IRRITATION OF THE THROAT, COUGH, SHORTNESS OF BREATH, CHEST PAIN, NAUSEA, VOMITING, WEAKNESS, FATIGUE, MUSCLE AND JOINT PAIN, CHILLS, SWEATING AND FEVER. SALTS OF METAL COMPONENTS HAVE DEMONSTRATED MUTAGENIC POTENTIAL IN SEVERAL BIOASSAYS, BUT THE HEALTH SIGNIFICANCE OF THESE RESULTS IS NOT KNOWN.

USE GOOD PERSONAL HYGIENE. WASH HANDS WITH MILD SOAP AND WATER BEFORE EATING, DRINKING, SMOKING, OR BEFORE LEAVING WORK AFTER CONTACT WITH METAL DUST OR FUME.

--- Note --- Qualifications: EQ = Equal AP = Approximately N/P = No Applicable Information Found
 LT = Less Than UK = Unknown N/AP = Not Applicable
 GT = Greater Than TR = Trace N/DA = No Data Available

Disclaimer of Liability

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The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

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Section VI Page 2

Occupational Exposure Limits

Substance	Source	Date	Type	Value/Units	Time
SILICON	ACGIH	1984	TLV	10 MG/M3	8 HRS
			STEL	20 MG/M3	15 MIN
TIN METAL	ACGIH	1984	TWA	2 MG/M3	8 HRS
			STEL	4 MG/M3	15 MIN
TIN OXIDE & INORGANIC COMPND. EXCEPT SN	ACGIH	1984	TWA	2 MG/M3	8 HRS
			STEL	4 MG/M3	15 MIN
ZINC OXIDE FUME	ACGIH	1984	TWA	5 MG/M3	8 HRS
			STEL	10 MG/M3	15 MIN
ZINC OXIDE DUST	ACGIH	1984	TLV	10 MG/M3	8 HRS