BETE®

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Material Safety Data Sheet

TO: Graham Corporation FROM: BETE FOG NOZZLE,INC PO#: B131201 BETE SO#: 320083-1 OTHER REF: 1327653	BETE PART: 1 SCF10M@4 MATERIAL: Brass QUANTITY: 1

We hereby certify that the material accompanying this certificate is supplied in accordance with our ISO 9001:2008 Registered Quality Management System. The attached Material Safety Data Sheets (MSDS) are typical of the supplied material(s).

CERTIFIED BY: _____ DATE: April 8, 2013

MSC 4035 - C
Rev.

MUELLER BRASS Co.
MATERIAL SAFETY DATA SHEET

7/23/07

CA3600

IDENTITY (As Used on Label and List) **BRASS** BAR

SECTION I

Manufacture's Name: **Mueller Brass Co.**	Emergency Telephone Number: **(810) 987-7770**
Address (Number, Street, City, State and Zip Code): **2199 Lapeer Avenue**	Telephone Number for Information: **(810) 987-7770**
Port Huron, Michigan 48060	Revision Date:
	Reviewed By: **David Tipton**

SECTION II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity/Common Name(s)			OSHA PEL	ACGIH TWA	%
*Copper	(7440-50-8)	(Dust & Mist)	1 mg/m³	1 mg/m³	55.0 - 86.0
*Copper	(7440-50-8)	(Fume)	0.1 mg/m³	0.2 mg/m³	55.0 - 86.0
*Zinc	(7440-66-6)	(2.0 Fume)	1 mg/m³	5 mg/m³	13.0 - 43.0
*Lead	(7439-92-1)		0.005 mg/m³	0.15 mg/m³	0.00 - 3.7
Tin	(7440-31-5)		2 mg/m³	2 mg/m³	0.00 - 1.2
*Aluminum	(7429-90-5)	(Total Dust)	15 mg/m³	10 mg/m³	0.00 - 2.3
*Manganese	(7439-96-5)	(Fume)	(C)5 mg/m³	0.2 mg/m³	0.00 -3.5
Silicon	(7440-21-3)	(Total Dust)	15 mg/m³	10 mg/m³	0.00 - 1.5
*Nickel	(7440-02-0)		1 mg/m³	1 mg/m³	0.00 - 0.2

**Denotes a toxic chemical or chemicals subject to reporting requirements of Section 313 Emergency Planning and Community Right-To-Know Act of 1986 and 40 CFR Part 372.*

SECTION III — Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H_2O=1)	7.7 - 8.9
Vapor Pressure (mm Hg.)	N/A	Melting Point	1,590 - 1,900° F
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A

Solubility in Water: NIL

Appearance and Odor: Yellow - Gold metal - no odor

SECTION IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	N/A	Flammable Limits	N/A	LEL N/A	UEL N/A

Extinguishing Media: N/A

Special Fire Fighting Procedures: N/A

Unusual Fire and Explosion Hazards: Water on hot material may cause splattering which could result in scalding.

SECTION V — Reactivity Data

Stability	Unstable		Conditions to Avoid N/A
	Stable	X	

Incompatibility (Materials to Avoid)
Acids, oxidizers, ammonia.

Hazardous Decomposition or Byproducts
Exposure to Nitric Acid will cause generation of NOx fumes.

Hazardous Polymerization	May Occur		Conditions to Avoid N/A
	Will Not Occur	X	

SECTION VI — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled
Prevent exposure to acids, oxidizers, and ammonia products.

Waste Disposal Method
In accordance with Federal, State and local regulations.

Precautions to Be Taken in Handling and Storing
Material may be heavy Prevent spillage from high storage areas.

Other Precautions
N/A

SECTION VII — Control Measures

Respiratory Protection (Specify Type)
May be applicable if cutting, welding, brazing, grinding, etc. depending on exhaust.

Ventilation	Local Exhaust: During grinding, welding, etc.	Special: N/A
	Mechanical (General): N/A	Other: N/A

Protective Gloves: Recommended when handling metal.	Eye Protection: Goggles if cutting, welding, brazing, grinding, etc.

Other Protective Clothing or Equipment
Not applicable as shipped but protective clothing is determined by processing activity, i.e. casting, machining, etc.

Work/Hygienic/Maintenance Practices
Wash with soap and water after handling.

SECTION VIII — Health Hazard Data (See pages three and four of MSDS)

Route(s) of Entry: Inhalation? Skin? Ingestion?

Health Hazards (Acute and Chronic)
See pages three and four of MSDS

Carcinogenicity:	NTP? NO	IARC Monographs? NO	OSHA Regulated? NO

Signs and Symptoms of Exposure
See pages three and four of MSDS

Medical Conditions Generally Aggravated by Exposure
Anyone with pre-existing respiratory disease should avoid overexposure to dust, fumes, and respiratory irritants.

Emergency and First Aid Procedures
If exposed to excessive levels of dust or fumes, remove the victim to fresh air. Eyes and skin - flush with water for at least 15 minutes and seek medical assistance immediately.

SECTION VIII — HEALTH HAZARD DATA

HEALTH HAZARDS (SHORT TERM AND LONG TERM)

ALUMINUM: Chronic inhalation of aluminum fumes or dust may cause pulmonary fibrosis. Aluminum fragments left in the cornea may cause irreversible eye damage. Aluminum has been implicated in Alzheimer's disease.

COPPER: Inhalation of copper fumes or dust may cause metal fume fever and damage to nasal membranes. The skin and hair may turn green in severe cases. Skin and eye irritation may occur. Skin sensitization may occur. Chronic exposure may cause Wilson's disease which is characterized by damage to the blood cells, brain, kidneys, liver, and pancreas. Copper fragments left in the cornea may cause cataracts. Copper fragments that penetrate the eye may cause irreversible eye damage if not removed immediately.

LEAD: Lead has been shown to cause birth defects and tumors of the kidneys and lungs in animal tests. It also is a cumulative central nervous system poison.

MANGANESE: Manganese has been shown to cause tumors in animal tests. Manganese oxide has been shown to be a mutagen in animal tests causing birth defects in offspring. Inhalation of manganese fumes or dust may cause irritation of the lungs. Manganese is also a skin and eye irritant. Long term poisoning may cause permanent damage to the central nervous system.

NICKEL: Ingestion of large doses of nickel have been shown to cause gastrointestinal disorders and convulsions. Nickel and most of its compounds are considered to be carcinogenic. Inhalation of airborne nickel can cause upper respiratory cancer. Nickel causes both allergic skin and respiratory sensitization.

SILICON: Silicon itself poses little health risk. It has been shown to cause only minimal effects on the lungs if inhaled. Silicon dioxide formed by heating silicon in the presence of air may cause pulmonary fibrosis and silicosis in chronically exposed employees.

TIN: Tin has been shown to cause tumors in animal tests. Tin oxides have been shown to cause mildly restrictive lung disease. Tin dust and fumes are skin and eye irritants.

ZINC: Zinc itself poses little health risk. It has been shown to cause eye, skin, and respiratory irritation. Freshly formed zinc oxide fumes causes a form of metal fume fever.

SIGNS AND SYMPTOMS OF EXPOSURE

ALUMINUM: Pulmonary fibrosis is characterized by difficulty in breathing, coughing, shortness of breath, wheezing, and other respiratory symptoms.

COPPER: Metal fume fever is characterized by a dry irritated throat, chills, fever, and elevated white blood cell count, and general flu-like symptoms. Skin, eye, and nasal irritation and skin sensitization are characterized by pain, swelling, and reddening of the affected tissue. Wilson's disease is characterized by weakness, anemia, abdominal pain, and yellowing of the skin or jaundice.

LEAD: Chronic lead poisoning is characterized by a metallic taste in the mouth, a dark lead line at the base of the teeth, abdominal pain, diarrhea, loss of appetite, nausea, vomiting, insomnia, weakness, joint and muscle pain, irritability, headaches, dizziness, loss of weight, stupor, convulsions, and loss of consciousness.

SECTION VIII — HEALTH HAZARD DATA

SIGNS AND SYMPTOMS OF EXPOSURE

MANGANESE: Skin and eye irritation are characterized by pain, swelling, and reddening of the affected tissue. Chronic poisoning is initially characterized by a sleepiness and weakness in the legs followed by muscular tremors and nighttime leg cramps.

NICKEL: Upper respiratory tract cancer is characterized by pain, bleeding, nasal obstruction, impairment of vision, loss of weight, and change in voice. Allergic respiratory sensitization is characterized by difficulty breathing after a small exposure to nickel. Allergic skin sensitization is characterized by a severe rash after a small exposure to nickel.

SILICON: Pulmonary fibrosis is characterized by difficulty in breathing, coughing, shortness of breath, wheezing, and other respiratory symptoms.

TIN: Skin and eye irritation are characterized by pain, swelling, and reddening of the affected tissue. Restrictive lung disease is characterized by shortness of breath, coughing, difficulty breathing, wheezing, and other respiratory symptoms.

ZINC: Skin and eye irritation are characterized by pain, swelling, and reddening of the affected tissue. Respiratory irritation is characterized by coughing and pain in the nose and throat. Zinc fume fever is characterized by a sweet taste in the mouth, dry throat, cough, weakness, generalized body aches, fever, nausea, and vomiting.