



MATERIAL SAFETY DATA SHEET

For Welding Consumables and Related Products
Essentially Similar to U.S. Department of Labor Form OSHA 20
(to comply with OSHA Hazard Communication Standard 29 CFR 1910.1200)

SECTION I – IDENTIFICATION

Manufacturer/Supplier Name: UNIBRAZE CORP.
Address: 1050 PENNER CREST, HOUSTON, TX 77055
Emergency Phone: (713) 869-6000, 1-800-364-6900
Product Type: **GOUGING CARBONS**
Classification: N/A

SECTION II - HAZARDOUS MATERIALS*

IMPORTANT: this section covers the materials from which the product is manufactured. The fumes and gases produced during welding with the normal use of this product are covered under Section V.

*The term "HAZARDOUS MATERIALS" should be interpreted as a term required and defined in OSHA HAZARD COMMUNICATION STANDARD 29 CFR 1910.1200 however the use of this term does not necessarily imply the existence of any hazard.

INGREDIENTS	CAS NO.	Exposure Limit (mg/m ³)	
		OSHA PEL	ACGIH TLV
Carbon	7440-44-0	3.5 (Carbon Black)	3.5 (Carbon Black)
Copper	7440-50-8*	0.1 (Fume)	0.2 (Fume, as Cu)
Graphite	7782-42-5	2.5 (Respirable Dust)	2 (Respirable Dust)

Occupational Safety and Health Administration 29 CFR 1910.1000 Permissible Exposure Limit (PEL).

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV[R]).

* A toxic chemical subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (SARA) and 40 CFR Part 372.

SECTION III - PHYSICAL DATA

Physical State: Solid Appearance and Odor: Bare and copper coated carbon and graphite rods, odorless.

SECTION IV – FIRE AND EXPLOSION HAZARD DATA

Non-Flammable: Welding arc and sparks can ignite combustibles. See Z-49.1 referenced in Section VI.

SECTION V – REACTIVITY DATA

Hazardous Decomposition Products

Welding fumes and gases cannot be classified simply. The composition and quantity of these fumes and gases are dependent upon the metal being welded, the procedures followed and the electrodes used. Workers should be aware that the composition and quantity of fumes and gases to which they may be exposed, are influenced by: coatings which may be present on the metal being welded (such as paint, plating, or galvanizing), the number of welders in operation and the volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing procedure). When the electrode is consumed, the fumes and gas decomposition products generated are different in percent and form from the ingredients listed in Section II, The composition of these fumes and gases are the concerning matter and not the composition of the electrode itself.

Decomposition products include those originating from the volatilization, reaction, or oxidation of the ingredients shown in Section II, plus those from the base metal, coating and the other factors noted above.

Reasonable expected decomposition products from normal use of these products include a complex of the oxides of the materials listed in Section II, as well as carbon monoxide, carbon dioxide, ozone and nitrogen oxides (refer to "characterization of Arc Welding Fume" available from the American Welding Society).

Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc. One method of determining the composition and quantity of the fumes and gases to which the workers are exposed is to take an air sample from inside the welder's helmet while worn or within the worker's breathing zone. See ANSI/AWS F1.1 publication available from the

American Welding Society 550 N.W. LeJeune Road, Miami, Florida 33126.

SECTION VI- HEALTH HAZARD DATA

Threshold Limit Value: The ACGIH recommended general limit for welding fume NOC (Not otherwise classified) is 5 mg/m³. ACGIH1985 preface states: "The TLC-TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations." See section V for specific fume constituents, which may modify this TLV.

Common Entry Is by Inhalation or Through the Eyes, Skin Contact and Ingestion.

Effects of Over-exposure: Electric arc welding may create one or more of the following health hazards; fume and gases can be dangerous to your health. Short-term (acute) over-exposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. Copper fumes may cause metal fume fever, the symptoms of which are metallic taste, dryness or irritation of the throat, nausea, fever body aches and chills. Long-term (chronic) over-exposure to welding fumes can lead to their accumulation in the lungs, a condition which may be seen as dense areas on chest X-rays. The severity of the change is proportional to the length of the exposure. The changes seen are not necessarily associated with symptoms or signs of reduced lung function or disease. In addition, the changes on X-rays maybe caused by non-work factors such as smoking, etc.

Exposure limits for the ingredients are listed in Section II. The 1989 OSHA TWA for welding fume is 5 mg/m³. TLV-TWAs should be used as a guide in the control of health hazards and not as fine lines between safe and excessive concentrations.

Arc Rays can injure eyes and burn skin.

Electric shock can kill.

See Section VII.

Emergency and First Aid Procedures: Call for medical assistance. Use first aid procedures recommended by the American Red Cross. If breathing is difficult – give oxygen. If not breathing-use CPR (cardiopulmonary resuscitation). Consult a physician if irritation of the eyes and skin or flash burns develops after exposure.

Carcinogenicity 29 CFR 1910.1200 – Hazard Communication Standard lists possible carcinogenic information.

SECTION VII - CONTROL MEASURES AND PRECAUTIONS FOR SAFE HANDLING AND USE

Read and understand the manufacturer's instructions and precautionary label on this product. See American Standard Z49.1 Safety in Welding and Cutting, published by the AMERICAN WELDING SOCIETY, 550 N.W. Lejeune Road, Miami, Florida 33126 and OSHA Publication 2206 (29 CFR 1910), U.S.Government Printing Office, Washington D.C. 20402 for more details on the following topics.

Ventilation: Use plenty of ventilation and/or local exhaust at the arc, to keep the fumes and gases below the threshold limit value within the worker's breathing zone and the general work area. Welders should be advised to keep their head out of the fumes.

Respiratory Protection: Use respirable fume respirator or air supplied respirator when welding in a confined space or general work area where local exhaust and/or ventilation does not keep exposure below the threshold limit value.

Eye Protection: Wear a helmet or face shield with a filter lens shade number 12-14 or darker. Shield other workers by providing screens and flash goggles.

Protective Clothing: Wear approved head, hand and body protection, which help to prevent injury from radiation, sparks and electrical shock. See ANSI Z-49.1. This would include wearing welder's gloves and a protective face shield and may include arm protectors, apron, hats, shoulder protection, as well as dark substantial clothing. Welders should be trained not to allow electrically live parts to contract the skin or wet clothing and gloves. The welders should insulate themselves from the work and ground.

Waste Disposal Method: Discard any product, residue, disposal container, or liner in an environmentally acceptable manner approved by Federal, State and Local regulations.

Unibraze believes that information set forth in this Material Safety Data Sheet is accurate.

Unibraze makes no warranty, expressed or implied, with respect thereto and disclaims any liability from reliance therein.