Section 1 – PRODUCT AND COMPANY IDENTIFICATION

Issue Date: June 11, 2015

Material Name: Ceramic Ferrule Synonyms – Arc shield, Ceramic Welding Tile

Product Use: Contains and controls molten pool of metal during drawn arc stud welding process.

Manufacturer Information:

Tru-Weld Division, TFP Corporation
460 Lake Road
Medina, Ohio 44256 U.S.A.
Phone: 330-725-7741
E-mail:truweld@tfpcorp.com
www.tfpcorp.com
Fax: 330-725-0161

Section 2 – HAZARDS IDENTIFICATION

Ferrules are made from mixtures of naturally occurring clays and shales fired to temperatures above 2200° Fahrenheit. Under normal conditions, ceramic ferrules do not liberate any hazardous material.

Caution should be observed to avoid free dust which may be released upon breakage of the fragile ceramic ferrule. This free dust may contain Respirable Crystalline Silica (Quartz).

Section 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Ball clay (Kaolinite, silica, absorbed salts) magnesium talc, alumina silicate, mullite, kyanite feldspar. Note: These materials are mixed, formed, and fired at temperatures exceeding 2200° F to produce a reacted ceramic body of sintered and/or fused cordierite ($Mg_2Al_4Si_5O_{18}$), mullite ($3Al_2O_32SiO_2$) and glass with some un-worked remnants of the initial ingredients.

Hazardous Components	**CAS No.**	**Estimated % by Wt.**	**OSHA PEL mg/m³** (8 hr. TWA)	**ACGIH TLV mg/m³** (8 hr. TWA)	**NIOSH REL mg/m³**
Respirable Crystalline Silica (Quartz)	14808-60-7	20-30	$\underline{10mg/m^3}$ (%SiO_2+2)	0.05	0.05

Note: The Osha PEL for Respirable dust containing 1% or greater crystalline silica varies depending on the concentration of crystalline found in the air sample according to the referenced formula.

Section 4 – FIRST AID MEASURES

Ceramic Ferrules in their final manufactured state do not represent inhalation, ingestion, or contact hazards. However, the following recommendations are for overexposure to dust from breakage and other particulate released during processing operations. Do not clean area or clothes with compressed air.

Eye Contact: Immediately flush with water for at least 15 minutes; keep eyelids open; get medical attention.
Skin Contact: Wash with soap and water to remove particles.
Inhalation: Remove from excessive exposure to fresh air immediately.

Section 5 – FIRE FIGHTING MEASURES

In manufactured state, ceramic ferrules are considered noncombustible.

Section 6 – ACCIDENTAL RELEASE MEASURES

Steel Weld studs in ma Steel Weld studs in manufactured state are not expected to pose a release hazard.

Section 7 – HANDLING AND STORAGE

No special storage precautions required.

Section 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation – Use adequate ventilation to keep dust exposure below recommended levels. Do not clean area with compressed air to cause air-borne dust.

Section 9 – PHYSICAL AND CHEMICAL PROERTIES

Color:	Gray or Brown
Odor:	Odorless
Physical State:	Solid Ceramic
pH:	Not Applicable

Melting Point:	>2500°F
Boiling Point:	>2500°F
Flash Point:	Non-Flammable
Evaporation Rate:	Not Applicable
Upper Flammability Limit:	Not Applicable
Lower Flammability Limit:	Not Applicable
Vapor Pressure:	Not Applicable
Vapor Density:	Not Applicable
Flammability (solid gas):	Not Applicable
Specific Gravity:	Not Applicable
Solubility (water):	Not Applicable
Partition Coefficient (n-octane/water)	Not Applicable
Auto Ignition Temperature:	Not Applicable
Percent Volatile (wt. %):	Not Applicable
Volatile Organic Compound Content (wt. %):	Not Applicable

Section 10 – STABILITY AND REACTIVITY

Stability:	Stable
Incompatible Materials:	Hydrofluoric Acid
Hazardous Decomposition Products:	Does not exhibit hazardous decomposition products. Contact with Hydrofluoric acid may liberate free hydrogen. Dust from breakage may contain Respirable silica.

Section 11 – TOXICOLOGICAL INFORMATION

Routes of Entry:

Inhalation: Heavy contamination with dust may cause respiratory irritation to nose and throat. Repeated exposure by inhalation may cause a serious chronic effect which could lead to silicosis, a serious lung disease. The onset of silicosis is usually slow and lung damage may occur without symptoms or signs of illness. Silicosis can develop to a more serious degree even after exposure has ceased and may lead to other diseases including heart disease. Development of silicosis may increase the risk of lung cancer. To minimize the risk, caution should be taken whenever physical destruction of the ceramic ferrule causes the potential for airborne particulate or dust. The use of a properly fitted NIOSH/MSHA approved particulate respirator is recommended whenever airborne dust is expected.

Skin: Dust or occasional contamination on the skin will cause no ill effects.

Eye: Entry of dust or chips into the eye as a foreign body will cause local irritation.

Ingestion: Unlikely, but non-toxic if swallowed.

National Toxicology Program Report on Carcinogens

NPT- Yes **IARC Monographs- Yes** **OSHA regulated- Yes**

The dust generated from destruction or breakage of the ceramic ferrule may release Crystalline Silica, a known carcinogen and may lead to a condition known as silicosis in humans.

Section 12 – ECOLOGICAL INFORMATION

Ceramic ferrules do not present any ecological hazards.

Section 13 – DISPOSAL CONSIDERATIONS

Disposal: Not a RCRA (Resource Conservation and Recovery Act) hazardous waste. Dispose of per local, state, and federal requirements.

Section 14 – TRANSPORT INFORMATION

Ceramic Ferrules are not a US Department of Transportation (US DOT) regulated hazardous material requiring labeling or a placard.

Section 15 – REGULATORY INFORMATION

ACGIH Threshold Limit Values for Chemical Substance and Physical Agents, 2003

NIOSH Pocket Guide to Chemical Hazards, 2001

US DOT Emergency Response Guide to Chemical Hazards, 2001

29 CFR 1910 OSHA Standards for General Industry including Table Z-1 and Subpart 1000 (air contaminants); Subpart Q Welding, Cutting, and Brazing
Section .132 Personal Protection Equipment
Section .133 Eye and Face Protection

Section .134 Respiratory Protection
Section .151 Medical Services and First Aid
Section .1200 Hazard Communication

29 CFR 1915 OSHA Shipyard Standards

29 CFR 1926 OSHA Standards for the Construction Industry

49 CFR Parts 100-185 US Department of Transportation Hazard Materials Regulations

40 CFR 370 SARA Title III Section 302 Reportable Quantity, Section 311 Hazard Chemical Reporting, Subpart B Reporting Requirements, Section 312, Hazardous Chemical Reporting, Subpart D Inventory Forms, Section 313 Emissions Reporting Form R

Section 16 – OTHER INFORMATION

Not Applicable.