

SAFETY DATA SHEET (SDS)

Revised: May 2018

SECTION 1 – IDENTIFICATION

Trade Name: Vulcan MS-51
Emergency Telephone. No: (989)739-8050

Manufacturer: Vulcan Systems, LLC
 5740 F-41, Oscoda, MI 48750

SECTION 2 – HAZARDOUS IDENTIFICATION

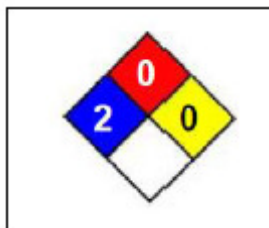
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

No Classification.

GHS Label elements, including precautionary statements:

None.

GHS Hazard Pictograms:



Other Hazards which do not result in GHS classification and Overview:

Electric shock can kill. Wear approved head, hand and body protection, which help to prevent injury from radiation, sparks and electrical shock. Welding arc and sparks can ignite combustibles or flammable materials. 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. Arc Rays can injure eyes and burn skin. Read and understand the

manufacturer's instructions and precautionary label on this product and your employer's safety practices. As shipped these are odorless, solid rods that are nonflammable, non-explosive, non-reactive and non-hazardous with a metallic luster. 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. Fumes may affect eyes, skin, respiratory system as well as pancreas and liver. 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 alloy is consumed, the fumes and gas decomposition products generated are different in percent and form from the ingredients listed elsewhere in this document. The composition of these fumes and gases are the concerning matter and not the composition of the alloy itself. Decomposition products include those originating from the volatilization, reaction, or oxidation of the ingredients in the alloy, plus those from the base metal, coating and the other factors noted above. Reasonable expected fume constituents of this product would include: Complex oxides or compounds of chromium, magnesium, manganese, silicon, copper, aluminum, titanium, zinc and zirconium may be present. (Other complex oxides may be present when using fluxes).

SECTION 3 – COMPOSITION AND INFORMATION ON INGREDIENTS

This information is protected by Trade-Secret

SECTION 4 – FIRST AID PROCEDURES

If overcome by smoke or fumes, remove the victim to fresh air and call for medical aid. Employ first aid techniques recommended by the Red Cross.

SECTION 5 – FIRE-FIGHTING MEASURES

Non-flammable. Welding arc and sparks can ignite combustible and flammable products.

Extinguishing Media – Co₂ or Dry Chemical Extinguisher.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Not Applicable as product cannot leak or be spilled.

SECTION 7 – HANDLING AND STORAGE

Read and understand manufacturer's instructions and the precautionary label on the product. See American National Standard z249.1 "Safety in Welding and Cutting" published by the American Welding Society. Maintain all exposure below the limits in section 8. Monitor the air to ensure that the levels are below the above mentioned limits. See AWS f1.1 "Methods for Sampling Airborne Particles Generated by Welding and Allied Procedures" and AWS f1.3 "Evaluating Constituents in the Welding Environment: A Sampling Strategy Guide."

Prevent waste from contaminating the surrounding environment, discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal, and local regulations.

SECTION 8 – EXPOSURE CONTROL/PERSONAL PROTECTION

This section covers the material from which this product is manufactured. The term "hazardous ingredients" should be interpreted as a term required and defined in OSHA hazard communication standard. This product contains toxic chemicals subject to the reporting requirements of section 313 of title III of SARA and CFR part 372.

Ingredients::

Chemical Identity Ingredients	CAS No.	EINECS#	Composition percent in Weight (%)
Aluminum	7429-90-5	231-072-3	Bal
Beryllium	7440-41-7	231-150-7	0.0003
Copper	7440-50-8	231-159-6	6.8
Manganese (Mn) (limits as fume) ⁽¹⁾	7439-96-5	231-105-1	1.0
Iron	7439-89-6	231-096-4	0.95
Silicon (Si)	7440-21-3	231-130-8	< 13.0
Titanium	7440-32-6	231-142-3	< 0.30
Magnesium (Mg)	7439-95-4	231-104-6	< 5.5
Zinc (Zn) Fume	7440-66-6	231-175-3	0.25

Exposure Limits:

Flux or other ingredients	CAS No.	EINECS#	Exposure Limit (mg/m ³)	
			OSHA PEL	ACGIH TLV
Iron (Fe) (limits as oxide fume)	7439-89-6	231-096-4	10	5 (Resp)
Manganese (Mn) (limits as fume) ⁽¹⁾	7439-96-5	231-105-1	1, 3.0**, 5*	0.02 (Resp) 0.1***
Silicon (Si)	7440-21-3	231-130-8	15 (dust) 5 (Resp)	WITHDRAWN
Copper (Cu) ^{(A)(1)}	7440-50-8	231-159-6	1 (dust) 0.1(fume)	1 (dust) 0.2 (fume)
Magnesium (Mg)	7439-95-4	231-105-1	15 (total particulate)	10
Zinc (Zn) Fume ⁽¹⁾	7440-66-6	231-175-3	5 mg/m ³ 5 mg/m ³ (Resp) 15 mg/m ³ (total dust)	2 (Resp)10**
Beryllium	7440-41-7	239-981-7	0.002, 0.005 Ceiling, 0.025 for 30 minutes	0.00005***
Aluminum (Al) ⁽¹⁾⁽²⁾	7429-90-5	231-072-3	15 (total dust) 5 (Resp)	10 (dust)1 (Resp)
Titanium (Ti) Oxide dust ⁽¹⁾⁽²⁾	7440-32-6	231-142-3	15(total particulate) 5 (Resp)	10, 20**

Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLVs (threshold limit values) in the workers' breathing zone and the general area. Train the welder to keep his head out of the fumes. Use respirable fume respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below the TLV.

Wear helmet or use a face shield with filter lens. Wear hand, head, and body protection, which help to prevent injury from radiation, sparks, and electrical shock. Train the welder not to touch live electrical parts and insulate himself from work and ground.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance	N/A
Upper/lower flammability or exposure limits	N/A
Odor	N/A
Vapor Pressure	N/A
Odor threshold	N/A
Vapor density	N/A
pH	N/A
Relative Density	N/A
Melting point/freezing point	N/A
Solubility	N/A
Initial boiling point and boiling range	N/A
Flash point	N/A
Evaporation rate	N/A
Flammability	N/A
Partition coefficient	N/A
Auto-ignition temperature	N/A
Decomposition temperature	N/A
Viscosity	N/A

SECTION 10 – STABILITY AND REACTIVITY

Not Applicable

SECTION 11 – TOXICOLOGICAL INFORMATION

Not Applicable

SECTION 12 – ECOLOGICAL INFORMATION

Not Applicable

SECTION 13 – DISPOSAL CONSIDERATIONS

Not Applicable

SECTION 14 – TRANSPORTATION INFORMATION

Not Applicable

SECTION 15 – REGULATORY INFORMATION

Not Applicable

SECTION 16 – OTHER INFORMATION

Vulcan Systems, LLC, believes this data to be accurate, but no warranty, expressed or implied, is made.