

## SAFETY DATA SHEET (SDS)

Revised: Nov 2016

**SECTION 1 – IDENTIFICATION**

**Trade Name:** Vulcan 4400-AS  
**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):**

Health, Skin corrosion/irritation, 1  
 Health, Specific target organ toxicity - Single exposure, 3  
 Health, Carcinogenicity, 1  
 Health, Specific target organ toxicity - Repeated exposure, 2

**GHS Hazard Statements:**

H314 - Causes severe skin burns and eye damage  
 H335 - May cause respiratory irritation  
 H350 - May cause cancer  
 H373 - May cause damage to organs through prolonged or repeated exposure  
 CGA-HG11 - SYMPTOMS MAY BE DELAYED.

**Hazards not otherwise classified (HNOC) or not covered by GHS:**

**Route of Entry:** Eyes; Skin

**Target Organs:** Throat; Nose, Respiratory system

**Inhalation:** Short term overexposure to welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of the nose, throat, lungs, and/or eyes.

**Acute Effects:** Irritating to the nose, throat and respiratory tract.

**Chronic Toxicity:** Chronic overexposure to welding fumes can result in: Chronic respiratory problems, iron build-up in the lungs, bone erosion, reduced pulmonary functions and nervous disorders.

**Eye Contact:** Fumes may be moderately irritating to the eyes. The bright light produced by the arc can damage the eyes.

**GHS Label elements, including precautionary statements:**

GHS Signal Word: **DANGER**

**GHS Hazard Pictograms:****GHS Precautionary Statements:**

P232 - Protect from moisture.  
 P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.  
 P271 - Use only outdoors or in a well-ventilated area.  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
 CGA-PG27 - Read and follow the Safety Data Sheet (SOS) before use.

**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. Refer to the Canadian standard "Safety in Welding and Cutting and Allied Procedures" for fire prevention and protection information during the use of welding and allied procedure. **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 5. 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.

**Exposure Limit (mg/m<sup>3</sup>)**

INGREDIENTS	CAS NUMBER	OSHA PEL	ACGIH-TLV	Percent Ingredients (bv weight)
Iron	7439-89-6	10 (as Fe)	5 (as Fe)	30 – 60
Chromium #	7440-47-3	1	0.5	15 – 40
Titanium Dioxide	13463-67-7	15	10	10 – 30
Nickel #	7440-02-0	1	0.2	7 – 13
Feldspar	68476-25-5	10	2	1 – 5
Calcium Carbonate	1317-65-3	5	10	1 – 5
Calcium Fluoride	7789-75-5	2.5 (as F)	2.5 (as F)	1 – 5
Sodium Silicate	1344-09-8	Not listed	Not listed	1 – 5
Potassium Silicate	1312-76-1	Not listed	Not listed	1 – 5
Lithium Aluminum Silicate (# Al)	12068-40-5	Not listed	5 (as Al fume)	1 – 5
Manganese #	7439-96-5	5 (ceiling)	0.1	0.5 – 1.5
Potassium Oxalate	6487-48-5	Not listed	5	0.5 – 1.5
Silicon Dioxide	14808-60-7	**	0.05	0.1 – 1

\*\* 10 mg/m<sup>3</sup> / (% SiO<sub>2</sub> + 2)

**CAS / EINECS NUMBER / HAZARD CLASSIFICATION FOR ABOVE INGREDIENTS**

INGREDIENTS	CAS NUMBER	EINECS NUMBER	Hazard Classification per ECD 67/548/EEC
Iron	7439-89-6	231-096-4	No
Chromium #	7440-47-3	231-157-5	No
Titanium Dioxide	13463-67-7	236-675-5	No
Nickel #	7440-02-0	231-111-4	Carc. Cat. 3; R40 - T; R48/23 - R43
Feldspar	68476-25-5	270-666-7	No
Calcium Carbonate	1317-65-3	215-279-6	No
Calcium Fluoride	7789-75-5	232-188-7	No
Sodium Silicate	1344-09-8	215-687-4	No
Potassium Silicate	1312-76-1	215-199-1	No
Lithium Aluminum -Silicate (# Al)	12068-40-5	235-098-6	No
Potassium Oxalate	6487-48-5	209-506-8	No
Manganese #	7439-96-5	231-105-1	No
Silicon Dioxide	14808-60-7	238-878-4	No

Welding fumes cannot be classified simply. The composition and quantity of both are dependent on the metal being welded, the process, procedures, and electrodes used. Other conditions which also influence the composition and quality of the fumes and gases to which workers may be exposed include coating on the metal being welded (such as paint, plating, or galvanizing), the number of welders, 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, and presence of contaminants in the atmosphere (ie, chlorinated hydrocarbon vapors from cleaning & degreasing activities). When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients in the electrode. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials in the electrode, plus those from the base metal and coating, etc.

The international agency for research on cancer (IARC) has indicated that nickel and certain nickel compounds are probably carcinogenic for humans, but that the specified compounds which may be carcinogenic cannot be specified precisely. Chromium has also been listed by IARC because of "sufficient evidence for the carcinogenicity of chromium and certain chromium compounds." The studies forming the basis for the conclusion were from operations different from the production or welding of nickel and chromium alloys. Recent studies of workers melting and working alloys containing nickel/chromium have found increased risk of cancer.

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	Solid; Non-volatile; flux-coating; No Odor; Not Water Soluble
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	>1800 Degrees F
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****EPCRA/SARA TITLE III 313 TOXIC CHEMICALS:**

The following metallic components are listed as SARA 313 “TOXIC CHEMICALS” and are potentially subject to annual SARA 313 reporting. See Section 3 for percent and if the ingredient is present.

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>DISCLOSURE THRESHOLD</u>
Chromium & chromium compounds	7440-47-3	1.0 % de minimis concentration
Chromium VI	Not listed	0.1 % de minimis concentration
Barium compounds	Not listed	1.0 % de minimis concentration
Cobalt	7440-48-4	0.1 % de minimis concentration
Copper	7440-50-8	1.0 % de minimis concentration
Manganese	7439-96-5	1.0 % de minimis concentration
Nickel	7440-02-0	0.1 % de minimis concentration
Aluminum (fume or dust)	7429-90-5	1.0 % de minimis concentration
Silver	7440-22-4	1.0 % de minimis concentration

**SECTION 16 – OTHER INFORMATION**

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