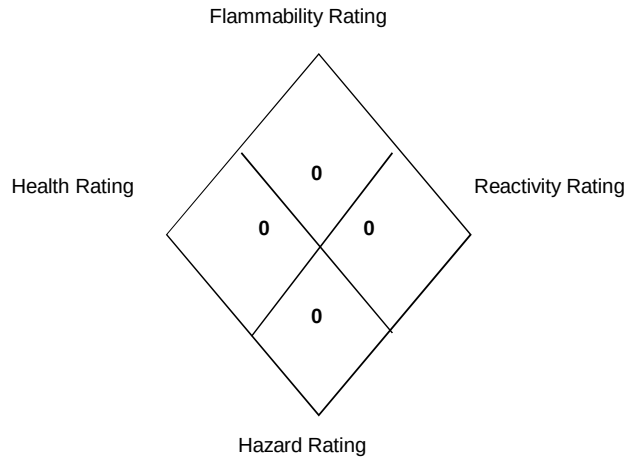
FLEXOVIT USA, INC.

MATERIAL SAFETY DATA SHEET

Used to comply with OSHA's Hazard

Communication Standard, 29 CFR 1910.1200



NFPA HAZARD RATING CODE

SECTION I - NAME AND PRODUCT

Company Name: Flexovit Abrasives

Address: 1305 Eden-Evans Road

Angola, NY 14006

Phone: 1-800-689-3539

Date Updated: 11/1/2011

Product: Carbide Burs

SECTION II - COMPOSITION

Ingredient		% By Weight	OSHA Regulate	Cas #	OSHA PEL	ACGIH TLV	Other Limits	Carcin-ogen
Head:								
Tungsten Carbide (limits for Tungsten dust)		41.0-97.0	N/A	N/A	5 mg/m^3	5 mg/m^3	N/A	No
Cobalt		3.0-30.0	N/A	N/A	0.1 mg/m^3	0.02 mg/m^3	N/A	Yes
Tantalum Carbide (limits for Tantalum dust)		0.0-52.0	N/A	N/A	5 mg/m^3	5 mg/m^3	N/A	No
Titanium Carbide (limits for Titanium dust)		0.0-20.0	N/A	N/A	5 mg/m^3	none established	N/A	No
Niobium Carbide (limits for Niobium dust)		0.0-20.0	N/A	N/A	5 mg/m^3	5 mg/m^3	N/A	No
Molybdenum Carbide (limits f/ Molybdenum dust)		0.0-10.0	N/A	N/A	15 mg/m^3	10 mg/m^3	N/A	No
Hafnium Carbide (limits for Hafnium dust)		0.0-10.0	N/A	N/A	0.5 mg/m^3	0.5 mg/m^3	N/A	No
Chromium Carbide (limits f/ Chromium (+3) dust)		0.0-5.1	N/A	N/A	0.5 mg/m^3	0.5 mg/m^3	N/A	Yes
Vanadium Carbide (limits for Vanadium dust)		0.0-2.0	N/A	N/A	none established	none established	N/A	No
Braze:								
Silver		N/A	N/A	7440-22-4	0.01 mg/m^3	0.1 mg/m^3	N/A	No
Copper	(limits for Copper fumes)	N/A	N/A	7440-50-8	0.1 mg/m^3	0.2 mg/m^3	N/A	No
	(limits for Copper dust)				1.0 mg/m^3	1.0 mg/m^3	N/A	
Zinc	(limits for Zinc Oxide fumes)	N/A	N/A	7440-66-6	5 mg/m^3	5 mg/m^3	N/A	No
	(limits for Zinc Oxide dust)				10 mg/m^3	10 mg/m^3	N/A	
Nickel		N/A	N/A	7440-02-0	0.1 mg/m^3	0.1 mg/m^3	N/A	Yes
Shank:	**Contaminant:**							
Iron	Iron Oxide Fumes	95.00	N/A	1309-37-1	10 mg/m^3	5 mg/m^3	N/A	No
Carbon	Carbon Oxide	0.38/0.43	N/A	7440-44-0	55 mg/m^3	N/A	N/A	No
	Carbon Black				3.5 mg/m^3	3.5 mg/m^3	N/A	
Manganese	Manganese Dust	0.75/1.00	N/A	7439-96-5	5 mg/m^3	5 mg/m^3	N/A	Yes
	Manganese Fumes				N/A	1.0 mg/m^3	N/A	
Phosphorus	Phosphorus (Yellow)	<0.25	N/A	7723-14-0	0.1 mg/m^3	0.1 mg/m^3	N/A	No
Sulfur	Sulfur	<0.25	N/A	7704-34-9	N/A	5 mg/m^3	N/A	No
Silicon	Respirable Dust	0.20/0.35	N/A	7740-21-3	N/A	5 mg/m^3	N/A	No
Nickel	Nickel	0.40/0.70	N/A	7740-02-0	1.0 mg/m^3	1.0 mg/m^3	N/A	Yes
Chromium	Chromium	0.40/0.60	N/A	7740-47-3	1.0 mg/m^3	0.5 mg/m^3	N/A	Yes
Molybdenum	Insoluble Compounds	0.20/0.30	N/A	7439-98-7	15 mg/m^3	10 mg/m^3	N/A	No
Copper	Dust	<0.35	N/A	7440-50-8	1.0 mg/m^3	1.0 mg/m^3	N/A	No
	Fumes				0.1 mg/m^3	0.2 mg/m^3	N/A	
Tin	Tin Oxide	<0.25	N/A	7440-31-5	10 mg/m^3	N/A	N/A	No
Vanadium	Dust	<0.35	N/A	1314-62-1	0.5 mg/m^3	0.5 mg/m^3	N/A	No
	Fumes as Vanadium Pentoxide				0.1 mg/m^3	0.5 mg/m^3	N/A	
Aluminum	Dust	0.01/0.20	N/A	7429-90-5	N/A	10 mg/m^3	N/A	No
	Fumes				N/A	5 mg/m^3	N/A	
Titanium	Titanium Dioxide	<0.25	N/A	13463-67-7	15 mg/m^3	5 mg/m^3	N/A	No
Columbium	Columbium	<0.25	N/A	7440-25-7	N/A	N/A	N/A	No
Petroleum Naptha	Naptha	N/A	N/A	6032-32-4	500 mg/m^3	100 mg/m^3	N/A	No
(Coating/Rust Preventative)								

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Head:					
Boiling Point		N/A	Specific Gravity	(H20=1)	11.0-15.5
Vapor Pressure	(mm Hg.)	N/A	Percentage Volatile by Volume		0
Vapor Density	(AIR=1)	N/A	Evaporation Rate		N/A
Solubility in Water		Insoluble	Appearance/Odor		Dark Gray Metal/No odor
			How Best Monitored		Air Sample
Braze:					
Melting Point		N/A			
Boiling Point		N/A	Specific Gravity	(H20=1)	3711-2
Vapor Pressure	(mm Hg.)	N/A	Percentage Volatile by Volume		N/A
Vapor Density	(AIR=1)	N/A	Evaporation Rate		N/A
Solubility in Water		No	Appearance/Odor		White metal, no odor
Shank:					
Melting Point		27500 C (50000 F)			
Boiling Point		High	Specific Gravity	(H20=1)	7.5-8.5
Vapor Pressure	(mm Hg.)	N/A	Percentage Volatile by Volume		None
Vapor Density	(AIR=1)	N/A	Evaporation Rate		N/A
Solubility in Water		Insoluble	Appearance/Odor		Solid, odorless metal
Coating/Rust Preventative:					
Melting Point		N/A			
Boiling Point		400^0 F	Specific Gravity	(H20=1)	0-1
Vapor Pressure	(mm Hg.)	<10mm Hg	Percentage Volatile by Volume		70
Vapor Density	(AIR=1)	5.0	Evaporation Rate		0.1
Solubility in Water		Negligible <0.1% solubility	Appearance/Odor		Amber colored liquid, hydrocarbon odor

SECTION IV - FIRE AND EXPLOSION DATA

Flash Point 1050 F (TCC) (Coating/Rust Preventative)

Special Fire Fighting Procedures For a powder fire confined to a small area use a respirator approved for toxic dusts & fumes. For a large fire, fire fighters should use self-contained breathing apparatus.

Extinguishing Media For powder fires, smother with dry sand, dry dolomite ABC type fire extinguisher, or flood with water. Also, dry chemical, foam, CO_2

Unusual Fire or Explosion Hazards N/A

SECTION V - REACTIVITY DATA

Stability Stable

Hazardous Polymerization Will not occur

Conditions to Avoid Contact with incompatible materials

Incompatibility Contact of dust with strong oxidizers may cause explosions. Also incompatable with acids.

Silver-Acetylene and ethylenimine form explosive compounds with silver. If silver is treated with nitric acid in the presence of ethyl alcohol, silver fulminate can be formed which can be detonated. Fine powder & hydrogen peroxide solutions may explode. Incompatible with oxalic & tartaric acid. Bromoazide explodes on contact with silver foil.

Copper-Ammonium nitrate, bromates, iodates, chlorates, ethylene oxide, hydrazoic acid, potassium oxide, dimethyl sulfoxide & trichloroacetic acid, hydrogen peroxide, sodium peroxide, sodium azide, sulfuric acid, hydrogen sulfide & air, lead azide & actylenic compaounds. Copper ignites on contact with chlorine, fluorine, chlorine trifluoride, and hydrazinium nitrate.

Nickel-May react with fluorine, ammonium nitrate, hydrogen and dioxane, performic acid, selenium, sulfur ammonia, hydrazine, phosphorous, titanium & potassium chlorate & antioxidants.

Hazardous Decomposition Products Metal fumes-Iron oxide, chromium, nickel, molybdenum, vanadium pentoxide, zinc oxides and other noxious gases may be produced during welding or burning operations. Oxides of carbon. Metal fumes/oxides produced from over-heating while melting or brazing can be toxic.

Materials to Avoid Strong acids, strong oxidizers

SECTION VI - HEALTH HAZARD DATA

Routes of Exposure: Grinding cemented carbide product or handling of grinding sludges will produce dust of potentially hazardous ingredients which can be inhaled, swallowed or come in contact with the skin or eyes. Steel products in their natural state do not present an inhalation, ingestion, or contact hazard. However, operations such as burning, welding, brazing, sawing, or grinding may result in the effects listed below if exposure exceeds the permissible levels (PEL'S) listed in section I. Exposure to the listed elements occurs primarily through the inhalation of dust or fumes; however, certain constituents of this product may possibly cause effects directly on contact with the skin or eyes. Medical conditions which may be aggravated by exposure to this product include: conjunctivitis of the eye, dermatitis of the skin, asthma and Medical conditions which may be aggravated by exposure to this product include: conjunctivitis of the eye, dermatitis of the skin, asthma, and respiratory diseases. These elements may also be harmful if swallowed. During subsequent welding or brazing operations the welding rods, brazing materials, flux, etc. should also be considered as potential sources of contaminant exposure. Please consult the MSDS from your suppliers of such products for additional information and safety instructions.

Effects of Overexposure:

Acute:

Iron (Iron Oxide) - Irritation of the eyes, nose, throat, metallic taste in the mouth, metal fume fever.

Manganese - Irritation of the eyes, nose, throat, metallic taste in the mouth, metal fume fever.

Chromium - Irritation of the eyes, nose, and lungs; dermatitis

Nickel - Irritation of the eyes, nose, and lungs; dermatitis; "Nickel Itch"; Inflammatory reactions around nickel-containing medical implants & prostheses may also occur.

Molybdenum - Slight irritation of the eyes, nose, and throat.

Vanadium Pentoxide - Irritation to conjunctive and respiratory tract (greenish-black discoloration of the tongue and shortness of breath).

Tin - Generally considered to exhibit a low order of toxicity, may cause irritation of the eyes, nose, throat, and skin.

Titanium Dioxide - Considered a nuisance particulate. High concentrations can cause irritation of the eyes, nose, and throat.

Copper - Fume or dust can cause irritation of the eyes, nose, and throat and a flu-like illness called "Metal Fume Fever". Symptoms include: fever, muscle aches, nausea, chills, cough, weakness, frontal headache, possible blurred vision, shallow respiration, throat dryness/irritation, a sweet or metallic taste, and chest tightness occuring over several hours. This condition may arise 4-12 hours after exposure & symptoms usually sunside within 24 hours.

SECTION VI - HEALTH HAZARD DATA. Con't.

Chronic:

Iron (Iron Oxide) - Pulmonary effects, siderosis.

Manganese -Bronchitis, pneumonitis, inflammation and/or ulceration of the upper respiratory tract, and possible cancer of the nasal passages & lungs.

Chromium - Ferrochrome alloys have been associated with lung changes in workers expose to these alloys.

Molybdenum - Pain in joints, hands, knees, and feet.

Vanadium Pentoxide - Repeated exposure may cause more severe irritation to the upper respiratory tract such as chronic bronchitis or possible allergic skin rash.

Nickel - Nickel and it's compounds have been reported to cancer of the lungs and throat.

Silver -Can result in argyria, a cosmetic condition characterized by a gray discoloration of the eyes and skin.

Inhalation Dust from grinding can cause irritation of the nose & throat. It also has the potential for causing transient or permanent respiratory disease, including occupational asthma & interstitial fibrosis in a small percentage of exposed individuals. It is reported that cobalt dust is the most probable cause of such respiratory diseases. Symptoms include coughing, wheezing, shortness of breath, chest-tightness & weight loss. Interstitial fibrosis (lung scarring) can lead to permanent disability or death. Certain pulmonary conditions may be aggravated by exposure.

Skin Contact Can cause irritation or an allergic skin rash due to cobalt sensitization. Certain skin conditions (I.e. dry skin) may be aggravated by exposure.

Skin Absorption Fume may be absorbed through the skin and block the sweat glands causing a rash to occur.

Eye Contact Can cause irritation.

Ingestion Reports outside the industry suggest that ingestion of significant amounts of cobalt has the potential for causing blood, heart & other organ problems.

Emergency & First Aid Procedures:

Inhalation — Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration.

If symptoms of pulmonary involvement develop (coughing, wheezing, shortness of breath, etc.) remove from exposure & seek medical attention.

Skin Contact — If irritation or rash occurs, thoroughly wash affected area with soap & water and isolate from exposure. If condition persists seek medical attention.

Skin Absorption — Remove from exposure. Wash thoroughly with water. If condition persists, seek medical attention.

Eye Contact — If irritation occurs, flush with copious amounts of water. If irritation persists, seek medical attention.

Ingestion — For dust or mists: If substantial quantities are swallowed, dilute with a large amount of water, induce vomiting & seek medical attention. Otherwise: May be toxic; If swallowed, DO NOT induce vomiting unless directed by a physician. Give a glass of water only if the person is conscious. Call a physician.

Carcinogenic Assessment (NTP Annual Report, IARC Monographs, others):

The International Agency for Research on Cancer (IARC) found there was inadequate evidence that metallic cobalt is carcinogenic to humans but that there is sufficient evidence that it is carcinogenic in animals. IARC concluded that metallic cobalt is possibly carcinogenic to humans (Substance Group 2B). Cobalt has not been classified as a known or suspected carcinogen by OSHA or the National Toxicology Program (NTP). Chromium is listed by IARC and NTP as a human carcinogen.

SECTION VII- STORAGE HANDLING AND USE PROCEDURES

Handling & Storage:	Maintain good housekeeping procedures to prevent dust accumulation during grinding. Avoid dust inhalation & direct skin contact with dust.
Other Precautions:	Clean up using methods which avoid dust generation such as vacuum (with appropriate filter to prevent airborne dust levels exceeding the PEL & TLV) or wet clean-up. If airborne dust is generated, use an appropriate NIOSH approved respirator. Wash hands thoroughly after handling, before eating or smoking. Wash exposed skin at the end of the work shift. Do not shake clothing, rags or other items to remove dust. Dust should be removed by washing or vacuuming (with the appropriate filters) the clothing, rags or other items. **Periodic medical examinations are recommended for individuals regularly exposed to dust or mist.
Steps To Be Taken in Case Material is Released or Spilled:	Ventilate area of spill. Clean up using methods which avoid dust generation such as vacuum (with the appropriate filters) or wet clean up. If airborne dust is generated, use an appropriate NIOSH approved respirator.
Waste Disposal Method:	Dispose of in accordance with the applicable government regulations. May be sold as scrap for reclamation.

SECTION VIII- CONTROL MEASURES

Protection	**Requirements and Referrals**
Respiratory	Use an appropriate NIOSH approved respirator if airborne dust concentrations exceed the applicable PEL or TLV. All requirements set forth in 29 CFR 1910.134 should be met.
Ventilation	Use adequate local exhaust ventilation to limit personal exposure to airborne dust to levels below the PEL or TLV. If such equipment is not available, use respirators as specified above. Refer to "Industrial Ventilation" by ACGIH for manual of recommended practices.
Protective Gloves	Protective gloves or barrier cream are recommended when contact with dust or mist is likely. Prior to applying the barrier cream or use of protective gloves, wash thoroughly. Leather gloves are recommended for welding or brazing.
Eye Protection	Safety Glasses with side shields or goggles are recommended. Eyewash equipment should be available & accessible at the workplace. Face shield is recommended. Welding shield is required for welding operations.
Personal Hygiene	Always wash hands and face before eating, drinking, or smoking. Provide safety shower in work area.
Other	Protective clothing should be worn if repeated or prolonged skin contact or contamination is likely.

COMPANY USE