SAFETY DATA SHEET

Issuing Date 20-Oct-2022 **Revision date** 20-Oct-2022 **Revision Number** 1

1. Identification

Product identifier

Product Name Vinculum MRO-Cast

Other means of identification

Product Code(s) 46030 (3/32) , 46031 (1/8)

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended use Covered Electrode for Shielded Metal Arc Welding (SMAW)

Restrictions on use No information available

Details of the supplier of the safety data sheet

Supplier Address
IBS, Inc. PO Box 1717, Auburn, WA 98071-1717

Emergency telephone number

Company Phone Number 800-678-1906

Emergency Telephone Velocity EHS: 1-888-255-3924

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin sensitization	Category 1
Carcinogenicity	Category 1A
Specific target organ toxicity (repeated exposure)	Category 1

Hazards not otherwise classified (HNOC)
Not applicable

Label elements

Danger

Hazard statements
May cause an allergic skin reaction
May cause cancer
Causes damage to organs through prolonged or repeated exposure

Appearance Coated electrode **Physical state** Solid **Odor** Odorless

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Contaminated work clothing must not be allowed out of the workplace
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
Specific treatment (see on this label)
IF ON SKIN: Wash with plenty of water and soap
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Other information
Very toxic to aquatic life with long lasting effects
When this product is used in a welding process, the hazards are mostly from electric shock, heat, radiation, fumes and gases. Electric shock can kill. Arc rays, spatter, and melting metals can severely injure eyes and burn skin. Welding arc and sparks can cause fire
Fumes and gases can be dangerous to your health. Certain medical studies have suggested that nervous system and/or lung damage can result from overexposure to welding fumes and gases
The welding fumes and gases produced from welding rod, coating flux, and base metal in a welding process may contain manganese and manganese compounds, nickel and nickel compounds, chromium (VI) and chromium compound, carbon dioxide, carbon monoxide, nitrogen dioxide, and ozone.
Overexposure to manganese and its compounds may cause metal fume fever and affect the central nervous system. Prolonged inhalation of nickel and chromium (VI) compounds above safe exposure limits can cause cancer

Unknown acute toxicity 97.0884 % of the mixture consists of ingredient(s) of unknown toxicity
8.41 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
94.9304 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
97.0884 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
97.0884 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
97.0884 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

3. Composition/information on ingredients

Substance

Not applicable.

Mixture

Chemical name	CAS No.	Weight-%	Trade secret
Nickel	7440-02-0	15-40	*
Diiron trioxide	1309-37-1	1-5	*
Natural Mineral Graphite	7782-42-5	1-5	*
Aluminum	7429-90-5	1-5	*
Limestone	1317-65-3	1-5	*
Calcium Fluoride	14542-23-5	1-5	*
Bentonite	1302-78-9	0.5-1.5	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention.

Inhalation Remove to fresh air.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

Symptoms Itching. Rashes. Hives.

Indication of any immediate medical attention and special treatment needed

Note to physicians May cause sensitization in susceptible persons. Treat symptomatically.

5. Fire-fighting measures

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical Product is or contains a sensitizer. May cause sensitization by skin contact.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away

from and upwind of spill/leak.

Other information Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment such as an air supplied respirator. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

8. Exposure controls/personal protection

Control parameters

Exposure Limits

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Nickel 7440-02-0	TWA: 1.5 mg/m³ inhalable particulate matter	TWA: 1 mg/m³ (vacated) TWA: 1 mg/m³	IDLH: 10 mg/m³ TWA: 0.015 mg/m³
Diiron trioxide 1309-37-1	TWA: 5 mg/m³ respirable particulate matter	TWA: 10 mg/m³ fume TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable fraction (vacated) TWA: 10 mg/m³ fume and total dust Iron oxide (vacated) TWA: 5 mg/m³ respirable fraction regulated under Rouge	IDLH: 2500 mg/m³ Fe dust and fume TWA: 5 mg/m³ Fe dust and fume
Natural Mineral Graphite 7782-42-5	TWA: 2 mg/m³ respirable particulate matter all forms except graphite fibers	TWA: 15 mg/m³ total dust synthetic TWA: 5 mg/m³ respirable fraction synthetic (vacated) TWA: 2.5 mg/m³ respirable dust natural (vacated) TWA: 10 mg/m³ total dust synthetic (vacated) TWA: 5 mg/m³ respirable fraction synthetic TWA: 15 mppcf natural	IDLH: 1250 mg/m³ TWA: 2.5 mg/m³ natural respirable dust
Aluminum 7429-90-5	TWA: 1 mg/m³ respirable particulate matter	TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable fraction (vacated) TWA: 15 mg/m³ total dust (vacated) TWA: 5 mg/m³ respirable fraction	TWA: 10 mg/m³ total dust TWA: 5 mg/m³ respirable dust
Limestone	No data available	TWA: 15 mg/m³ total dust	TWA: 10 mg/m³ total dust

1317-65-3		TWA: 5 mg/m³ respirable fraction (vacated) TWA: 15 mg/m³ total dust (vacated) TWA: 5 mg/m³ respirable fraction	TWA: 5 mg/m³ respirable dust
Calcium Fluoride 14542-23-5	TWA: 2.5 mg/m³ F	TWA: 2.5 mg/m³ F (vacated) TWA: 2.5 mg/m³	IDLH: 250 mg/m³ F TWA: 2.5 mg/m³ F
Bentonite 1302-78-9	TWA: 1 mg/m³ respirable particulate matter	-	-

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Hand protection Wear suitable gloves.

Skin and body protection Wear suitable protective clothing.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state Solid
Appearance Coated electrode
Color black
Odor Odorless
Odor threshold No information available

Property	Values	Remarks • Method
pH	No data available	None known
Melting point / freezing point	No data available	None known
Boiling point / boiling range	No data available	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Relative density	No data available	None known
Water solubility	No data available	None known
Solubility in other solvents	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information

Explosive properties	No information available
Oxidizing properties	No information available
Softening point	No information available
Molecular weight	No information available
VOC Content (%)	No data available
Liquid Density	No information available
Bulk density	No information available

10. Stability and reactivity

Reactivity No information available.

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions None under normal processing.

Conditions to avoid None known based on information supplied.

Incompatible materials None known based on information supplied.

Hazardous decomposition products None known based on information supplied.

11. Toxicological information

Information on likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Eye contact Specific test data for the substance or mixture is not available.

Skin contact May cause sensitization by skin contact. Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components).

Ingestion Specific test data for the substance or mixture is not available.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Itching. Rashes. Hives.

Acute toxicity

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	13,191.30 mg/kg
ATEmix (dermal)	6,770.10 mg/kg

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97.0884 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Nickel 7440-02-0	> 9000 mg/kg (Rat)	-	> 10.2 mg/L (Rat) 1 h
Diiron trioxide 1309-37-1	> 10000 mg/kg (Rat)	-	-
Natural Mineral Graphite 7782-42-5	-	-	> 2000 mg/m^3 (Rat) 4 h
Calcium Fluoride 14542-23-5	= 4250 mg/kg (Rat)	-	-
Bentonite 1302-78-9	> 5000 mg/kg (Rat)	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitization May cause sensitization by skin contact.

Germ cell mutagenicity No information available.

Carcinogenicity Classification based on data available for ingredients.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Nickel 7440-02-0	-	Group 2B	Reasonably Anticipated	X
Diiron trioxide 1309-37-1	-	Group 3	-	-
Calcium Fluoride 14542-23-5	-	Group 3	-	-

Legend

IARC (International Agency for Research on Cancer)
Group 2B - Possibly Carcinogenic to Humans
Group 3 - Not Classifiable as to Carcinogenicity in Humans
NTP (National Toxicology Program)
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure.

Target organ effects Respiratory system, Eyes, Skin, Central Vascular System (CVS), Lungs, Nasal Cavities.

Aspiration hazard No information available.

Other adverse effects No information available.

Interactive effects No information available.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Nickel 7440-02-0	EC50: =0.18mg/L (72h, Pseudokirchneriella subcapitata) EC50: 0.174 - 0.311mg/L (96h, Pseudokirchneriella subcapitata)	LC50: >100mg/L (96h, Brachydanio rerio) LC50: =1.3mg/L (96h, Cyprinus carpio) LC50: =10.4mg/L (96h, Cyprinus carpio)	-	EC50: >100mg/L (48h, Daphnia magna) EC50: =1mg/L (48h, Daphnia magna)
Diiron trioxide 1309-37-1	-	LC50: =100000mg/L (96h, Danio rerio)	-	-
Natural Mineral Graphite 7782-42-5	-	LC50: >100mg/L (96h, Danio rerio)	-	-
Bentonite 1302-78-9	-	LC50: =19000mg/L (96h, Oncorhynchus mykiss) LC50: 8.0 - 19.0g/L (96h, Salmo gairdneri)	-	-

Persistence and degradability No information available.

Bioaccumulation There is no data for this product.

Other adverse effects No information available.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products Dispose of waste in accordance with environmental legislation. Dispose of in accordance with local regulations.

Contaminated packaging Do not reuse empty containers.

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Nickel 7440-02-0	-	Included in waste streams: F006, F039	-	-

California Hazardous Waste Status This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical name	California Hazardous Waste Status
Nickel 7440-02-0	Toxic powder Ignitable powder
Aluminum 7429-90-5	Ignitable powder

14. Transport information

DOT Not regulated

TDG Not regulated

MEX Not regulated

ICAO (air) Not regulated

IATA	Not regulated
IMDG	Not regulated
RID	Not regulated
ADR	Not regulated
ADN	Not regulated

15. Regulatory information

International Inventories

TSCA	Contact supplier for inventory compliance status.
DSL/NDSL	Contact supplier for inventory compliance status.
EINECS/ELINCS	Contact supplier for inventory compliance status.
ENCS	Contact supplier for inventory compliance status.
IECSC	Contact supplier for inventory compliance status.
KECL	Contact supplier for inventory compliance status.
PICCS	Contact supplier for inventory compliance status.
AICS	Contact supplier for inventory compliance status.

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

CWA (Clean Water Act)
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Nickel 7440-02-0	-	X	X	-

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Nickel 7440-02-0	100 lb	-

US State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals:.

Chemical name	California Proposition 65
Nickel - 7440-02-0	Carcinogen
Silica, fused - 7631-86-9	Carcinogen
QUARTZ - 14808-60-7	Carcinogen

U.S. State Right-to-Know Regulations

US State Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Nickel 7440-02-0	X	X	X
Diiron trioxide 1309-37-1	X	X	X
Natural Mineral Graphite 7782-42-5	X	X	X
Aluminum 7429-90-5	X	X	X
Limestone 1317-65-3	X	X	X
Calcium Fluoride 14542-23-5	X	-	-
Manganese 7439-96-5	X	X	X
Silicon 7440-21-3	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPA **Health hazards** 2 **Flammability** 0 **Instability** 0 **Physical and chemical properties** -

HMIS **Health hazards** 2 * **Flammability** 0 **Physical hazards** 0 **Personal protection** X

Chronic Hazard Star Legend ** = Chronic Health Hazard*

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database

International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
RTECS (Registry of Toxic Effects of Chemical Substances)
World Health Organization

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Revision Note	No information available.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet