

SAFETY DATA SHEET

PRODUCT NAME: NEPTUNE M TIG

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Emergency Overview: These products are normally not considered hazardous as shipped. Avoid inhalation of dust or eye contact from these products. When these products are used in a welding process, the most important hazards are heat, radiation, electric shock and inhalation of welding fumes.

Classification of the Substance/Mixture

CLP/GHS Classification (1272/2008):

STOT SE 3

Aquatic Acute 1

EU Classification (67/548/EEC):

Labelling:

Symbols:



Signal Word: Danger

Hazard Statements:

H335 - May cause respiratory irritation.

H336 - May cause drowsiness or dizziness.

H372 - Cause damage to respiratory system, eyes, brain and nervous system through prolonged or repeated exposure.

H400 - Very toxic to aquatic life.

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Precautionary Statements:

P260 – Do not breathe dust/fume/gas/mist/vapors/spray.

P261 - Avoid breathing dust/fumes/gas/mist/vapors/spray.

P270 – Do not eat, drink or smoke when using this product.

P271 – Use only outdoors or in well-ventilated area.

P273 - Avoid release to the environment.

P304+P341 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P312 – Call a POISON CENTER or doctor/physician if you feel unwell.

P314 – Get medical advice/attention if you feel unwell.

P403+P233 – Store in a well-ventilated place. Keep container tightly closed.



P405 – Store locked up.

P501 – Dispose of contents/container in accordance with local/regional/national/international regulations.

Other Hazards: This product as shipped in massive form is inert and not hazardous to human health. Under normal conditions of use during welding, this product and its fumes pose separate hazards, outlined in this document. Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue and shortness of breath. Overexposure to manganese (component) fumes may affect the brain and central nervous system, resulting in poor coordination, difficulty speaking, and arm or leg tremor. This condition can be irreversible. Electric shock from welding equipment or electrodes may be fatal. Hot metal spatter and heat from electric arcs and welding fumes may cause burns to the hands and body or may cause fire if it comes into contact with combustible materials. UV, IR and light radiation from an electric arc or welding flame process may cause damage to unprotected eyes. Fumes and gases generated during the welding process can be harmful to your health. If dust is generated, the dust may be flammable solid, water reactive, and self-heating. Take appropriate precautions if dust is generated and ensure proper engineering controls.

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3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Identity	CAS #	Range %	OSHA PEL (mg/m3)	ACGIH-TLV (mg/m3)	Carcinogenicity	EU Classification (67/548/EEC)	CLP/GHS Classification (1272/2008)
Beryllium	7440-41-7	0.0002-0.0008	0.002	0.00005	IARC 1, A1	N/A	(H301)Acute Tox 3 (Oral) (H330) Acute Tox 2 (Inhale) (H315) Skin Irrit 2 (H319) Eye Irrit2A (H350) Carc 1 (H372) STOT RE 1
Magnesium	7439-95-4	>87	15	10	No	(F) R11 	(H315) Skin Irrit. 2 
#Copper	7440-50-8	1-11	0.1 (as fume)	0.2 (as fume)	No	(F) R11  (N) R50 	(H228) Flam. Sol. 2  (H400) Aquatic Acute 1 
#Manganese	7439-96-5	0-0.5	5	1	No	(Xn) R48 	(H373) STOT RE-2 
#Aluminum	7429-90-5	5-10	15	10	No	(F) R11-15 	(H228) Flam. Sol.1  (H261) Water-react. 3 
Zinc	7440-66-6	0-2.5	15	2	No		
Iron	7439-89-6	0.01-0.05	10 (as Fe2O3)	10 (as Fe2O3)	No	Not Dangerous	Not Hazardous
#Nickel	7440-02-0	<0.005	1	1	Yes	Carc. Cat. 3 (Xn) R40  (Xi) R43  (T) R48/23 	(H317) Skin Sens. 1  (H351) Carc 2  (H372) STOT SE 3 
Silicon	7440-21-3	0-0.05	15	Withdrawn	No	(F) R11 	(H228) Flam. Sol.1 

Important: This section covers the materials of which the products manufactured. The fumes and gases produced during normal use of this product are covered in section 10. The term "Hazardous" in "Hazardous Material" should be interpreted as a term required and defined in OSHA Hazard Communication Standard 29CFR 1910-1200 and it does not necessarily imply the existence of hazard. The chemicals or compounds reportable by Section 313 of SARA are marked by the symbol #.

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4. FIRST AID MEASURES

Inhalation: Remove to fresh air immediately or administer oxygen. Get medical attention immediately.

Skin: Flush skin with large amounts of water. If irritation develops and persists, get medical attention.

Eye: Flush eyes with water for at least 15 minutes. Get medical attention.

Ingestion: Do not induce vomiting unless directed by medical personnel. Obtain medical attention immediately if ingested.

Electric Shock: Disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live parts or wires. Immediately contact a physician.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Welding arcs and sparks can ignite combustible and flammable materials. Use the extinguishing media recommended for the burning material and fire situation.

Unsuitable Extinguishing Media: Do not use water on molten metal.

Explosion Hazards: Product is not explosive. Ensure proper welding procedures to avoid welding explosions.

Reactivity: None under normal conditions. Metallic dusts may ignite or explode.

Protective Equipment: Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Refer to section 8.

Environment Precautions: Refer to section 13.

Cleaning Measures: Solid objects may be picked up and placed into a container. Liquids or pastes should be scooped up and placed into a container. Wear proper protective equipment while handling these materials. Do not discard as refuse. Avoid generation of dust during clean-up of spills. Ventilate area. Use explosion proof vacuum during cleanup.

7. HANDLING AND STORAGE

Precautions for Safe Handling: Use proper ventilation and respiration apparatus; eye, hand, and body protections as necessary. Avoid exposure to dust. Do not ingest. Retain all warning and identity labels.

Conditions for Safe Storage: Store in dry place in closed packages. Keep separate from chemical substances like acids and strong bases, which could cause chemical reactions.

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8. EXPOSURE CONTROL/PERSONAL PROTECTION

Engineering Controls: Avoid exposure to welding fumes, radiation, spatter, electric shock, heated materials and dust. Ensure sufficient ventilation, local exhaust, or both, to keep welding fumes and gases from breathing zone and general area. Keep work place and protective clothing clean and dry. Train welders to avoid contact with live electrical parts and insulate conductive parts. Check condition of protective clothing and equipment on a regular basis.

Exposure limits: Use industrial hygiene equipment to ensure that exposure does not exceed applicable national exposure limits. The limits defined under section 3 can be used as guidance. Unless noted, all values are for 8 hour time weighted average. For information about welding fume analysis refer to section 10.

Biological limits: No available data

Personal protection:

Respiratory protection: Use an air purifying dust respirator when welding or brazing in a confined space, or when local exhaust or ventilation is not sufficient to keep exposure values within safe limits.

Hands protection: Wear appropriate gloves to prevent skin contact.

EN 12477: Protection gloves for welders

Requirements (EN Levels)	Type A	Type B
Abrasion (Cycles)	2 (500)	1 (100)
Cut (Factor)	1 (1.2)	1 (1.2)
Tear (Newton)	2 (25)	1 (10)
Puncture (Newton)	2 (60)	1 (20)
Burning Behavior	3	2
Contact Heat	1	1
Convective Heat	2	-
Small Splashes	3	2
Dexterity	1 (11)	4 (6.5)

Type B gloves are recommended when high dexterity is required as for TIG welding, while type A gloves are recommended for other welding processes. The contact temp (°C) is 100 and the threshold time (seconds) >15.

Eyes protection: Welder's helmet or face shield with color absorbing lenses. Shield and filter to provide protection from harmful UV radiation, infra red and molten metal approved to standard EN379. Filter shade to be a minimum of shade 9.

Skin protection: Heat-resistant protective clothing. Wear safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry. Clothing should be selected to suit the level, duration and purpose of the welding activity.

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Class 1	
Impact of Spatter	15 Drops
Heat Transfer (radiation)	RHTI 24 ≥ 7 seconds
Process	<p style="text-align: center;">Manual welding with light formation of spatter and drops</p> <ul style="list-style-type: none"> • Gas Welding • TIG Welding • MIG Welding • Micro plasma welding • Brazing • Spot Welding • MMA Welding (with rutile-covered electrode)
Environmental Conditions	<p style="text-align: center;">Operation of machines</p> <ul style="list-style-type: none"> • Oxygen cutting machines • Plasma cutting machines • Resistance welding machines • Machines for thermal spraying • Bench welding

Class 2	
Impact of Spatter	25 Drops
Heat Transfer (radiation)	RHTI 24 ≥ 16 seconds
Process	<p style="text-align: center;">Manual welding with heavy formation of spatter and drops</p> <ul style="list-style-type: none"> • MMA welding (with basic or cellulose-covered electrodes) • MAG welding (with CO₂ or mixed gases) • MIG Welding (with high current) • Self shielded flux core arc welding • Plasma cutting • Gouging • Oxygen cutting • Thermal spraying
Environmental Conditions	<p style="text-align: center;">Operation of machines</p> <ul style="list-style-type: none"> • In confined spaces • At overhead welding/cutting or in comparable constrained positions

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Solid.

Color: Silver-metallic rod/wire

Odor: Odorless

Odor Threshold: Not Available

pH Value: Not Available

Melting Point/Melting Range: 1112 Degrees F, 600 Degrees C

Freezing Point: Not Available

Boiling Point/Boiling Range: Not Available

Flash point: Not Available

Evaporation Rate: Not Available

Self-in flammability: Not Available

Explosion limits: Not Available

Vapor pressure: Not Available

Vapor density: Not Available

Density at 20°C: Not Available

Relative density: 6-9 g/cm³

Solubility: Insoluble in water.

Partition coefficient: Not Available

Auto-ignition temperature: Not Available

Decomposition temperature: Not Available

Other Information: No available data.

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10. STABILITY AND REACTIVITY

Chemical Stability: This product is stable under normal conditions.

Hazardous Reactions: None under normal conditions. If dust is formed Metallic dust may ignite or explode.

Conditions to Avoid: Incompatible materials. Uncontrolled exposure to extreme temperatures.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Halogens. Nitrogen oxides. Nitrogen dioxide. Hydrogen peroxide. Alcohols. Halogenated hydrocarbons.

Hazardous Decomposition Products: When this product is used in a welding process, hazardous decomposition product would include those from volatilization, reaction or oxidation of the material listed in section 3 and those from the base metal and coating. Metal oxides. Oxides of aluminum. Oxides of magnesium. Oxides of magnesium . Oxides of manganese. Oxides of copper. Oxides of zirconium. Oxides of titanium. Chromium oxides. Silicon oxides Vanadium oxides. Fluorides. Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in section 3. Manganese and nickel have low exposure limits, in some countries, which may be easily exceeded. Reasonably expect gaseous products would include carbon oxides, nitrogen oxides and ozone. Air contaminants around the welding area can be affected by the welding process and influence the composition and quality of fumes and gases produced.

11. TOXICOLOGICAL INFORMATION

Signs and Symptoms of Overexposure: Inhalation of welding fumes and gases can be dangerous to your health.

Classification of welding fumes is difficult because of varying base materials, coatings, air contaminants and processes. The Internal Agency for Research on Cancer has classified welding fumes as possible carcinogenic to humans (Group 2B).

Acute Effects: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes. Copper: Acute exposure to copper may cause capillary damage, headache, cold sweat, weak pulse, kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis and coma. Death may occur from shock or renal failure.

LD/LC50 Values that are relevant for classification

Manganese 7439-96-5

Oral	LD50, LCD50	9000 mg/kg (rat)
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LD/LC50 Values that are relevant for classification

Nickel 7440-02-0

Oral	LD50	>9000 mg/kg (rat)
Inhalation	LC50	>10.2 mg/L/1 hr. (rat)

LD/LC50 Values that are relevant for classification

Barium Carbonate 513-77-9

Oral	LD 50	418 mg/kg (rat)
	LC50	6950 mg/l (96h) (mosquito fish)

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LD/LC50 Values that are relevant for classification		
Iron 7439-89-6		
Oral	LD50	30000 mg/kg (rat)

LD/LC50 Values that are relevant for classification		
Copper 7440-50-8		
Oral	LD50	>2000 mg/kg (rat)
Inhalation	LC50	5.1 mg/L/4h. (rat)
Dermal	LD50	>2000 mg/kg (rat)

LD/LC50 Values that are relevant for classification		
Zinc 7440-66-6		
Dermal	LD50	300 mg/3 mild (human)
Inhalation	LC50	124 mg/m ³ /50 mins (human)

ACGIH-A1. IARC Group1 (Carcinogenic to humans)		
Beryllium 7440-41-7		

Chronic Effects: Overexposure to welding fumes may affect pulmonary function and eyes. Pre-existing pulmonary diseases (e.g., bronchitis, asthma) may be aggravated by inhalation exposure, particularly as fume. Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has led to hemolytic anemia and accelerates arteriosclerosis. Prolonged inhalation of nickel (Classified 2B by IARC and R by NTP) above safe exposure limits may cause cancer. Long term inhalation exposure to iron (oxide fume or dust) can cause siderosis.

12. ECOLOGICAL INFORMATION

Toxicity: Welding rods contain metals which are considered to be very toxic towards aquatic organisms. Finely divided welding rods are therefore considered harmful to aquatic organisms.

Persistence and Degradability: The welding rods consist of elements that can not degrade any further in the environment.

Bio accumulative Potential: Welding rods contain heavy metals which bio accumulates in the food chain. The following figures are the bio concentration factor (BCF) for the substances on their own.

BCF:

Nickel, BCF: 16

Iron, BCF: 140000

Copper, BCF: 29

Zinc, N/A

Mobility in Soil: Welding rods are not soluble in water or soil. Particles formed by working welding rods can be transported in the air.

Other Adverse Effects: In massive form, welding rods present no hazards to the aquatic environment.

Welding materials could degrade into components originating from the materials used in the welding process. Avoid exposure to conditions that could lead to accumulation in soils or groundwater. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

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Product: For product elimination, consult recycling companies or appropriate local authority.

USA RCRA: In their intended manner of use, this product should not be released into the environment and may cause long lasting harmful effects to aquatic life. Residue from welding consumables and processes could degrade and accumulate in soils and groundwater.

Package: May be disposed in approved landfills provided local regulations are observed.

14. TRANSPORT INFORMATION

UN-number: Welding rods are not classified as dangerous goods for transport and have no UN number.

UN proper shipping name: Welding rods are not classified as dangerous goods for transport and has no UN proper shipping name.

Transport hazard class: Welding rods are not classified as dangerous goods for transport.

Packing group: There are not any special precautions with which a user should or must comply or be aware of in connection with transport or conveyance either within or outside premises.

Environmental hazards: Welding rods are not environmentally hazardous according to the criteria of the UN Model Regulations (as reflected in the IMDG Code, ADR, RID and AND) and/or a marine pollutant to the IMDG Code.

Special precautions for users: There are not any special precautions which a user should or must comply or be aware of in connection with transport or conveyance either within or outside premises of the welding rod.

Transport in Bulk According to Annex III MARPOL 73/78 and the IBC Code: Welding rods in massive form do not subject under MARPOL 73/78 and the IBC Code. Not applicable – product is transported only in packaged form.

15. REGULATORY INFORMATION

Safety, health and environment regulations/legislation specific for the substance or mixture: Read and understand the manufacturer's instructions, your employer's safety practices and the health and safety instructions on the label. Observe any federal and local regulations. Take precautions when welding and protect yourself and others.

Warning: Welding fumes and gases are hazardous to your health and may damage lungs and other organs. Use adequate ventilation. Electric shock can kill. Arc rays and sparks can injure eyes and burn skin. Wear correct hand, head, eye and body protection.

Chemical safety assessment: No

USA: Under the OSHA Hazard Communication Standard, this product is considered hazardous. This product contains or produces a chemical known to the state of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code § 25249.5 et seq.) United States EPA Toxic Substance Control Act: All constituents of this product are on the TSCA inventory list or are excluded from listing.

EPCRA/SARA Title III Toxic Chemicals

The following metallic components are listed as SARA 313 "Toxic Chemicals" and potential subject to annual SARA reporting. See Section 3 for weight percentage.

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Ingredient Name	Disclosure Threshold
Aluminum	15 mg/m ³
Manganese	5 mg/m ³
Copper	0.1 mg/m ³ (as Fume)
Nickel	1 mg/m ³

16. OTHER INFORMATION

The information in this document is believed to be correct as of the date issued. However, no warranty is expressed to be implied regarding the accuracy or completeness of this information. This information and product are furnished on the condition that the person receiving them shall make his own determinations as to the suitability of the product for his particular purpose and on the condition that he assumes the risk of his use thereof.

This Material Safety Data Sheet complies with the EC directives 91/155/EEC and 93/112/EEC, including modifications 2001/58/EC.

Complies with OSHA Communication Standard 29 CFR 1910.1200 and Superfund Amendments and Reauthorization Act (SARA) of 1986 Public Law 99-499

Hazard Statements:

H335 – May cause respiratory irritation.

H336 - May cause drowsiness or dizziness.

H351 – Suspected of causing lung cancer.

H372 – Causes damage to organs through prolonged or repeated exposure.

H400 – Very toxic to aquatic life.

R-Phrases:

R20/22 - Harmful by inhalation and if swallowed.

R36/37/38 - Irritating to eyes, respiratory system and skin.

R48 - Danger of serious damage to health by prolonged exposure.

R48/20 - Harmful: danger of serious damage to health by prolonged exposure through inhalation.

R48/23 - Toxic: Danger of serious damage to health by prolonged exposure through inhalation.

R50 - Toxic to aquatic organisms.

S-Phrases:

S1/2 - Keep locked up and out of reach of children.

S15 – Keep away from heat.

S22 - Do not breathe dust.

S24/25 - Avoid contact with skin and eyes.

S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28 – After contact with skin, wash immediately with plenty of water.

S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection.

S45 - In case of accident or if you feel unwell, seek medical advise immediately (show the label where possible).

S61 - Avoid release to the environment.

End of the document.