Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT NAME: **Hi- Alloy 77**

MANUFACTURER: Inweld Corporation
3962 Portland Street
Coplay, PA 18037
USA Phone: 1-800-346-5368
Fax: 1-877-346-5368
E-mail: Sales@InweldCorporation.com

EMERGENCY TELEPHONE NUMBER: 1-800-424-9300

2. HAZARD IDENTIFICATION:

Emergency Overview: This product is normally not considered hazardous as shipped. Avoid eye contact or inhalation of dust from the product. When this product is used in a welding process, the most important hazards are welding fumes and heat.

Classification of the Substance/Mixture

CLP/GHS Classification (1272/2008):
Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

EU Classification (67/548/EEC):
This substance is not classified as dangerous according to Directive 67/548/EEC.

Labelling:
Symbols: Void
Signal Word: Void
Hazard Statements: Void
Precautionary Statements: Void

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)
#Zinc	7440-66-6	.40-2.5	5.0 (as Fume)	5.0 (as fume)	No	(N),R50/53	(H400) Aquatic Acute 1 (H410) Aquatic C. 1
#Aluminum	7429-90-5	1-11	15	10	No	(F) R11 – R15	(H228) Flam. Sol. 2 (H261) Water-react. 3
Magnesium	7439-95-4	85-95	15 (as Fume)	10 (as Fume)	No	(F) R15, R17	(H250) Pyr. Sol. 1 (H260) Water-react. 1
#Manganese	7439-96-5	.10-.50	1.0 (as Fume)	.2	No	(Xn) R48	(H373) STOT RE 2

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 #.

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: Obtain medical attention immediately if ingested.

5. FIRE-FIGHTING MEASURES:

Suitable Extinguishing Media: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction. Welding arcs and sparks can ignite combustible and flammable materials. Use the extinguishing media recommended for the burning material and fire situation. Smother burning magnesium by covering with an extinguishing powder approved for use on magnesium fires such as G1, MET-L-X, etc.

Unsuitable Extinguishing Media: Do not use water on molten metal. Large fires may be flooded with water from a distance. When heated in air to temperatures near its melting point, magnesium alloys will ignite and burn with a white flame. DO NOT pour water on burning magnesium as it will produce hydrogen gas and may cause explosion.

Specific Hazards Arising From Chemical: Aluminium oxides, Zinc/zinc oxides, Magnesium oxide, Manganese/manganese oxides.

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.

7. HANDLING AND STORAGE:

Precautions for Safe Handling: Handle with care to avoid stings or cuts. Wear gloves when handling welding consumables. Avoid exposure to dust. Do not ingest. Some individuals can develop an allergic reaction to certain materials. 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.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION:

Engineering Controls: The usual precautionary measures for handling chemicals should be followed. Keep away from food, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before break and at the end of the work. Store all protective clothing separately. Maintain an ergonomically appropriate working environment. Wear protective equipment. Keep unprotected persons away. Avoid causing dust.

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.

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 Behaviour	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 (ºC) is 100 and the threshold time (seconds) >15.

Eyes protection: Welder's helmet or face shield with colour 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.

Class 1	
Impact of Spatter	15 Drops
Heat Transfer (radiation)	**RHTI 24 ≥ 7 seconds**
Process	Manual welding with light formation of spatter and drops • Gas Welding • TIG Welding • MIG Welding • Micro plasma welding • Brazing • Spot Welding • MMA Welding (with rutile-covered electrode)
Environmental Conditions	Operation of machines • 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	Manual welding with heavy formation of spatter and drops • 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	Operation of machines • In confined spaces • At overhead welding/cutting or in comparable constrained positions

9. PHYSICAL AND CHEMICAL PROPERTIES:

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Appearance: Solid
Color: None
Odour: Odourless
Odour Threshold: Not Available
pH Value: Not Available
Specific Gravity: 1.82
Melting Point/Melting Range: 1100° F, 593° C
Freezing Point: Not Available
Boiling Point/Boiling Range (° F @ 760 mmHg): N/A
Flash point: Not Available
Evaporation Rate: Not Available
Self-in flammability: Not Available
Explosion limits: Not Available
Vapour pressure: (mm Hg): NA
Vapour density: (Air= 1): NA
Density at 20ºC: Not Available
Percent volatile by volume: Not Available
Bulk Density: Not Available
Relative density: Not Available
Solubility: Soluble in water
Reactivity in Water: Not Available
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: Contact with chemical substances like acids or strong bases cause generation of gas.
Conditions to Avoid: This product is stable under normal conditions.
Incompatible Materials: Strong acids and strong Alkalis.
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. The amount of fumes generated from this product varies with welding parameters and dimensions.
Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in section 3. Reasonably expected 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.

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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. Signs and symptoms of zinc exposure are central nervous system depression, cough, chest pain and difficulty breathing. Exposure to high airborne concentrations can cause anaesthetic effects.

LD/LC50 Values that are relevant for classification		
Zinc 7440-66-6		
Oral	LD50	630 mg/kg (rat)

LD/LC50 Values that are relevant for classification		
Manganese 7439-96-5		
Oral	LD50	9000 mg/kg (rat)

LD/LC50 Values that are relevant for classification		
Aluminum 7429-90-5		
Oral	LD50	>15900 mg/kg (rat)
Inhalation	LC50	>.888 mg/L/4 hr. (rat)
	LC50	.12 mg/l (96h) (rainbow trout)

Chronic Effects: Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait. Excessive inhalation of zinc oxide fumes may produce symptoms known as “Zinc Shakes” which are flu-like and usually cease when the individual is removed from the source. Prolonged or repeated exposure can cause vomiting, diarrhoea, lung irritation.

12. ECOLOGICAL INFORMATION:

Toxicity: No available data.
Persistence and Degradability: No available data.
Bio accumulative Potential: The following figures are the bio concentration factor (BCF) for the substances on their own.
BCF:
Aluminum, BCF: 18
Manganese, BCF: 59052
Mobility in Soil: No available data.
Other Adverse Effects: No available data.
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:

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

Ingredient Name	Disclosure Threshold
Aluminum	15 mg/m3
Manganese	1.0 (as Fume)
Zinc	5.0 (as Fume)

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:

H228 – Flammable solid.
H250 – Catches fire spontaneously if exposed to air.
H260 – In contact with water releases flammable gases which may ignite spontaneously.
H261 – In contact with water releases flammable gas.
H373 – May cause damage to organs through prolonged or repeated exposure.
H400 – Very toxic to aquatic life.
H410 –Very toxic to aquatic life with long lasting effects.

R-Phrases:

R11 – Highly flammable.
R15 – Contact with water liberates extremely flammable gases.
R17 – Spontaneously flammable in air.
R48 – Danger of serious damage to health by prolonged exposure.
R50/53 – Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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S-Phrases:
S7/8 – Keep container tightly closed and dry.
S16 – Keep away from sources of ignition – No smoking.
S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S43 – In case of fire, use fire-fighting equipment on basis class D.
S60 – This material and its container must be disposed of as hazardous waste.
S61 – Avoid release to the environment.

End of the document.