MAGNA 77F

FEATURES:

Magna 77F comes close to being the perfect universal oxyacetylene application maintenance alloy. It has an ideal combination of all properties. (This one alloy does everything usually requiring up to 8 rods to do). Some of its special features follow:

1. **Versatility.** Magna 77F can be used on nearly all metals including:
   Cast Iron All Steels Galvanized Iron Bronze Nickel Stainless Steel Brass Monel Aluminium Bronze
   It can be used for both joining and building up.

2. **High Physical Properties.** Has tensile strength double that of most ordinary brazing rods. The high strength gives great assurance that the braze will not fail.
   Tensile Strength: Up to 56 Kg/mm^2 (80,000 p.s.i.)
   150 - 220 Brinell Hardness

3. **Low Co-efficient of Friction.** The deposit has a 'self-lubricating' action. The deposit is very easy to machine, yet work hardens in service so that it actually outwears steel on frictional wear applications. When subjected to wear, the deposit becomes slick and the wearing part then tends to slip over the Magna 77F deposit so that neither part wears. It is this unique low co-efficient of friction that makes Magna 77F so outstanding for overlay and build-up work.

Magna 77F is especially appreciated in the maintenance department as a machinable over- lay alloy for building up such parts as:

Shafts	Bosses	Key Ways
Valves	Threaded Sections	Bearings
Gear Teeth	Sprockets	Elongated Holes

4. **Low Application Temperature.** Magna 77F has the flux extruded on the alloy. The flux is very special in that it will readily bond the deposit to dirty metal, rusty metal, and gives it special affinity for cast iron.

   The flux coating and the core wire are so formulated and calibrated that the alloy will bond at much lower temperatures than brazing rods. It can actually be applied at a black heat, whereas brazing rods usually require a cherry red heat in the base metal. This low application heat makes the job faster and prevents warpage, distortion and grain growth.

5. **Non-Peeling.** The amazing feature of Magna 77F is its ability to permeate grain boundaries and to hold tenaciously. It will not peel as some ordinary brazing rods do.

APPLICATION

Magna 77F will bond and give good results over dirty and rusty metal, however, prepare surface by cleaning where possible.

Larger and heavier sections will join and hold better if they are ground to form a 'V' joint, approximately 60°- 90° angle.

Set the oxyacetylene torch to a balanced neutral flame, a slight excess of oxygen is permissible, but do not use an excess of acetylene.

Extensive preheating is not necessary, just apply locally where weld is to commence. When a dull red colour is achieved begin to apply Magna 77F using a brazing technique. Direct inner tip of flame on to welding alloy and as each drop is transferred spread over base metal using the torch. Continue applying in this manner. For superior results ensure an even coating of welding alloy is applied over the entire surface, patchy or 'balling' deposits weaken the bond of Magna 77F.

Special Note:

When applying Magna 77F to bronze, copper, cast iron or crack sensitive high alloy steel, preheating over a wide area is required for optimum results. Where application will cause strain under restricted conditions, extensive preheating 420°C (800°F, to all areas is essential to prevent cracking.

Different applications using Magna Welding Alloys

For brazing stainless steel, use Magna 66F.

For thin flowing applications where wettability is paramount, use Magna 66F.

Where bronze deposit is required to be used with arc welding equipment, use Magna 210.

SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name: Magna 77F

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet

Supplier: EU importer:

Manufacturer:
ITW PP & F Korea Limited.
13th Fl., Unit B, PAX Tower
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Nasr City, 11586 Egypt
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info@trustengineering-eg.com
www.trustengineering-eg.com

1.4. Emergency telephone number

Emergency telephone: NHS: 111

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP: Carc. 2;H351
Skin Sens. 1;H317
STOT RE 2;H373
Aquatic Acute 1;H400
Aquatic Chronic 1;H410

2.2. Label elements

Solid metals and alloys do not require a hazard label if they do not present a danger to human health or the environment in the form in which they are placed on the market. The information which would have appeared on the label is shown here.

Danger

Contains: Nickel
Silver

H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
P201	Obtain special instructions before use.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P260	Do not breathe fume.
P280	Wear protective clothing and gloves.
P273	Avoid release to the environment.

2.3. Other hazards

Other: Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Only classified substances above threshold limits or substances with an exposure limit are shown.
All substances in the product are either registered or exempt from registration under REACH.

CLP:

%:	CAS-No.:	EC No.:	REACH Reg. No:	Chemical name:	Hazard classification:	Notes:
45-99	7440-50-8	231-159-6	-	Copper	-	#
0-45	7440-66-6	231-175-3	-	Zinc	-	
0-31	7440-02-0	231-111-4	-	Nickel	Carc. 2;H351 STOT RE 1;H372 Skin Sens. 1;H317	S; 7
0-16	7440-22-4	231-131-3	-	Silver	Aquatic Acute 1;H400 Aquatic Chronic 1;H410	
0-14	7439-96-5	231-105-1	-	Manganese	-	#
0-12	7429-90-5	231-072-3	-	Aluminium	Water-react. 2;H261 Flam. Sol. 1;H228	T
0-9	7440-31-5	231-141-8	-	Tin	-	#
0-8	7723-14-0	231-768-7	-	Phosphorus	Flam. Sol. 1;H228 Aquatic Chronic 3;H412	
0-6	7439-89-6	231-096-4	-	Iron	-	#
0-4	7440-21-3	231-130-8	-	Silicon	-	#
<0.1	7439-92-1	231-100-4	-	Lead	Repr. 1A;H360FD Lact.;H362	

Notes:

#: The substance has been assigned an exposure limit.
T: If the substance is marketed in a form not having one or more of the physical hazards indicated by the harmonised classification and tests shows that the substance does not exhibit the specific physical hazard(s), it shall be classified in accordance with the result(s) of the test(s).
7: Alloys containing nickel are classified for skin sensitisation, when the release rate of 0,5 µg Ni/cm2/week (EN 1811) is exceeded.
S: May not require a label.

References: The full text for all hazard statements is displayed in section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation: Inhalation of welding fumes: Move into fresh air and keep at rest. In case of persistent throat irritation or coughing: Seek medical attention and bring these instructions.

Skin contact: Remove contaminated clothes and rinse skin thoroughly with water.

Eye contact: Do not rub eye. If irritation occurs during dust-raising work, flush with plenty of water for at least 15 minutes.

Ingestion: Not likely, due to the form of the product.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects: See section 11 for more detailed information on health effects and symptoms.

4.3. Indication of any immediate medical attention and special treatment needed

Medical attention/treatments: Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

5.2. Special hazards arising from the substance or mixture

Specific hazards: During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Protective equipment for fire-fighters: Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Follow precautions for safe handling described in this safety data sheet.

6.2. Environmental precautions

Environmental precautions: The product should not be dumped in nature but collected and delivered according to agreement with the local authorities.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Not relevant.

6.4. Reference to other sections

References: For personal protection, see section 8.
For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe handling advice: When welding: Do not breathe fumes. Observe good chemical hygiene practices.

Technical measures: No special precautions.

Technical precautions: When welding: Mechanical ventilation may be required.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures for safe storage: No special precautions.

Storage conditions: Store in closed original container in a dry place.

7.3. Specific end use(s)

Specific use(s): Not relevant.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Occupational exposure limits:

CAS-No.:	Chemical name:	As:	Exposure limits:	Type:	Notes:	References:
7429-90-5	Aluminium metal, respirable dust	-	4 mg/m3	TWA	-	EH40
-	Nickel and water-insoluble nickel inorganic compounds (except nickel tetracarbonyl)	Ni	0.5 mg/m3	TWA	Sk; Carc; Sen	EH40
-	Manganese and its inorganic compounds, inhalable fraction	Mn	0.2 mg/m3	TWA	-	EH40
-	Manganese and its inorganic compounds, respirable fraction	Mn	0.05 mg/m3	TWA	-	EH40
-	Tin compounds, inorganic (except SnH4)	Sn	2 mg/m3	TWA	-	EH40
		-	4 mg/m3	STEL	15min	
-	Iron oxide, fume	Fe	5 mg/m3	TWA	-	EH40
		-	10 mg/m3	STEL	15min	
7439-92-1	Lead and lead compounds other than lead alkyls	Pb	0.15 mg/m3	TWA	-	EH40
7440-22-4	Silver, metallic	-	0.1 mg/m3	TWA	-	EH40
7440-21-3	Silicon, respirable dust	-	4 mg/m3	TWA	-	EH40
7440-21-3	Silicon, inhalable dust	-	10 mg/m3	TWA	-	EH40
7440-50-8	Copper, dusts and mists	Cu	1 mg/m3	TWA	-	EH40
		-	2 mg/m3	STEL	15min	
7440-50-8	Copper, fume	-	0.2 mg/m3	TWA	-	EH40
7429-90-5	Aluminium metal, inhalable dust	-	10 mg/m3	TWA	-	EH40

Notes:
Carc: Capable of causing cancer and/or heritable genetic damage.
Sk: Can be absorbed through skin.
Sen: Capable of causing occupational asthma.
EH40: EH40/2005.

8.2. Exposure controls

Engineering measures:	When welding: Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of dust and fumes.
Personal protection:	Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. When welding: Use special welding equipment for protection of eyes, skin and respiratory system.
Hygiene measures:	Wash hands after handling. Change contaminated clothing.
Environmental Exposure Controls:	Not available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	Solid rod.
Colour:	Metal
Odour:	Not available.
Odour threshold:	Not available.
pH:	Not available.
Melting point / freezing point:	630-1150°C
Boiling point:	2595°C
Flash point:	Not available.
Evaporation rate:	Not available.
Explosive limits	Not available.
Vapour pressure:	Not available.
Vapour density:	Not available.
Relative density:	8.3-8.9
Solubility:	Insoluble in water
Partition coefficient (n-octanol/water):	Not available.
Auto-ignition temperature (°C):	Not available.
Decomposition temperature (°C):	Not available.
Viscosity:	Not available.
Oxidising properties:	Not available.

9.2. Other information

Other data:	Not available.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Reactivity: Not reactive.

10.2. Chemical stability

Stability: Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

Hazardous Reactions: Contact with acids liberates very toxic gas.

10.4. Conditions to avoid

Conditions to avoid: None known.

10.5. Incompatible materials

Incompatible materials: Avoid contact with acids.

10.6. Hazardous decomposition products

Hazardous decomposition products: None under normal conditions.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute Toxicity (Oral):	Based on available data, the classification criteria are not met.
Acute Toxicity (Dermal):	Based on available data, the classification criteria are not met.
Acute Toxicity (Inhalation):	Based on available data, the classification criteria are not met.
Skin Corrosion/Irritation:	Based on available data, the classification criteria are not met.
Serious eye damage/irritation:	Based on available data, the classification criteria are not met.
Respiratory or skin sensitisation:	May cause an allergic skin reaction.
Germ cell mutagenicity:	Based on available data, the classification criteria are not met.
Carcinogenicity:	Suspected of causing cancer.
Reproductive Toxicity:	Based on available data, the classification criteria are not met.
STOT - Single exposure:	Based on available data, the classification criteria are not met.
STOT - Repeated exposure:	Causes damage to organs through prolonged or repeated exposure if inhaled.
Aspiration hazard:	Based on available data, the classification criteria are not met.
Inhalation:	Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.
Skin contact:	Prolonged or repeated contact may cause irritation.
Eye contact:	When welding: Irritating and may cause redness and pain.
Ingestion:	Not likely, due to the form of the product.
Specific effects:	Prolonged or repeated exposure to welding fumes may cause damage to the lungs and respiratory system.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity: Not regarded as dangerous for the environment.

12.2. Persistence and degradability

Degradability: The product solely consists of inorganic compounds which are not biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: Harmful to aquatic life with long lasting effects.

12.4. Mobility in soil

Mobility: No data available.

12.5. Results of PBT and vPvB assessment

PBT/vPvB: This product does not contain any PBT or vPvB substances.

12.6. Other adverse effects

Other adverse effects: None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Dispose of waste and residues in accordance with local authority requirements. Waste is classified as hazardous waste.

Waste from residues: EWC-code: 12 01 13

SECTION 14: TRANSPORT INFORMATION

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

UN-No: -

14.2. UN proper shipping name

Proper Shipping Name: -

14.3. Transport hazard class(es)

Class: -

14.4. Packing group

PG: -

14.5. Environmental hazards

Marine pollutant: -

Environmentally Hazardous substance: -

14.6. Special precautions for user

Special precautions: Not relevant.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk: Not relevant.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Special provisions: As a general rule, persons under 18 years of age are not allowed to work with this product. Users must be carefully instructed in the proper work procedure, the dangerous properties of the product and the necessary safety instructions.

National regulation: Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, with amendments.
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments.
The Control of Substances Hazardous to Health Regulations 2002 (S.I 2002 No. 2677) with amendments.
EH40/2005, Workplace exposure limits 2005, with amendments.
The Management of Health and Safety at Work Regulations 1999 (SI 1999 No. 3242), with amendments.
The List of Wastes (England) (Amendment) Regulations 2005. (SI 2005 No. 895).

15.2. Chemical Safety Assessment

CSA status: No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

The user must be instructed in the proper work procedure and be familiar with the contents of these instructions. For restrictions on use see section 15.

The following sections contain revisions or new statements: 1, 3, 9, 11, 12, 14, 15, 16.

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Abbreviations and acronyms used in the safety data sheet:	PBT = Persistent, Bioaccumulative and Toxic. vPvB = very Persistent and very Bioaccumulative.
Additional information:	Classification according to Regulation (EC) No. 1272/2008: Calculation method.
Wording of H-statements:	
H228	Flammable solid.
H261	In contact with water releases flammable gases.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H360FD	May damage fertility. May damage the unborn child.
H360Fd	May damage fertility. Suspected of damaging the unborn child.
H362	May cause harm to breast-fed children.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

The information on this data sheet represents our current data and is reliable provided that the product is used under the prescribed conditions and in accordance with the application specified on the packaging and/or in the technical guidance literature. Any other use of the product which involves using the product in combination with any other product or any other process is the responsibility of the user.

Made by DHI - Environment and Toxicology, Agern Allé 5, DK-2970 Hørsholm, Denmark.
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