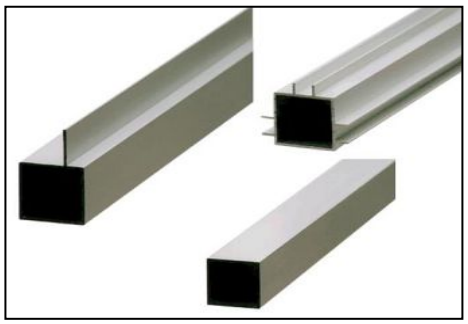
MAGNA 55

FEATURES

A Universal aluminum alloy specially formulated for maintenance applications having the following characteristics.

1. Ease of Application

Mechanics who usually experience difficulty repairing damaged aluminum equipment find it is easy to make the same repairs using Magna 55. This highly alloyed material can easily be applied without the base metal sagging, collapsing or even wrinkling. Magna 55, while being a perfect colour match, actually flows on aluminum much as a brazing rod does without damage to the base metal. Any mechanic, who can braze, can easily use Magna 55.

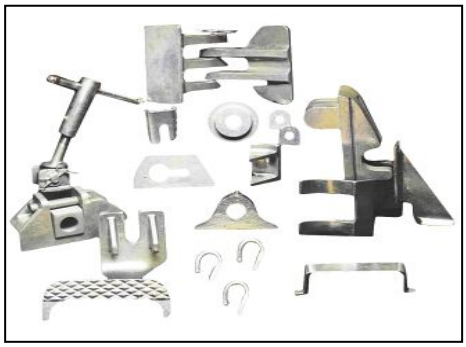


2. Unique Two Stage Melting Range

Magna 55, at a low base metal temperature, can be applied to aluminum using a brazing technique. In this way the alloy is 'mushy' and viscous and will build up easily. It can then be used to fill gaps, weld beveled parts and build up missing sections. At a higher temperature this unique alloy will flow thinly, much as silver solder does, by capillary action. It is used this way on thin parts, such as around tubing, spouts and other small parts of profile construction. The finished weld is smooth and requires little or no finishing.

3. Versatility

Most shops stock two to five different aluminum welding rods in order to cover a variety of types of aluminum welding. Magna 55 welds most types of aluminum, including sheet, cast, extruded and other wrought forms. The fact that one alloy covers most types of aluminum welding is an advantage in maintenance since it not only prevents guesswork but reduces inventory.



4. High Physical Properties

Magna 55 has a higher tensile strength than pure aluminum. Further, it does not have porosity or voids and feathers into the base metal at a low contact angle so that there are no inherent weaknesses or stress concentration points in the deposit as often happens with some ordinary aluminum welding rods.

Pure Aluminum Grade	Tensile Strength (Typical value)
1100-O	13,000 psi
1100-H12	16,000 psi
1100-H14	18,000 psi
1100-H16	21,000 psi
1100-H18	24,000 psi
Magna 55	26,000 psi

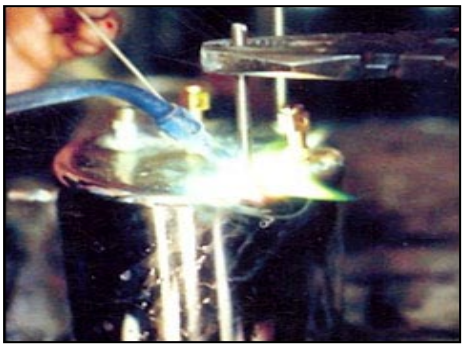
5. Magna 55 Flux

One of the reasons aluminum is considered difficult to weld is because of its high rate of oxidation when heated. Magna 55 flux is calibrated to work with Magna 55 alloy. It makes difficult to weld aluminum easy to weld. Magna 55 flux wets easily and contributes to the perfect results.

APPLICATION

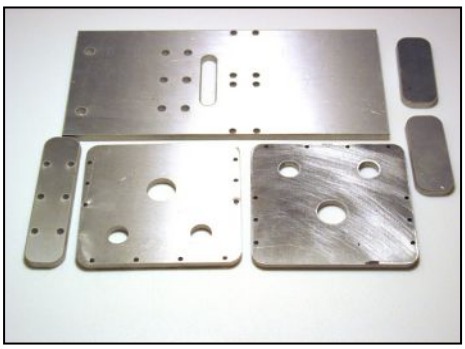
When welding aluminum previously the danger was always present of the base metal collapsing due to excessive preheating. However, Magna 55's unique two stage melting range reduces this danger and now provides perfect results when welding sections together or building up missing parts.

By fitting a large sized tip, at least one size bigger than you would normally use when welding steel, set the torch to burn pure acetylene and blacken surface of aluminum. Then adjust torch to a more neutral flame but still slightly excess acetylene and preheat over a wide area until blackness is burnt off. When this stage is reached remove torch from surface and scatter a small amount of Magna 55 Flux over heated metal. If the flux melts from the heat generated by the metal this is a good indication that there is sufficient preheating to commence the welding operation. This is a general rule of thumb that can be employed to judge the correct temperature for preheating. Once the desired preheat is reached, ensure the torch is focused onto alloy during welding operation to prevent further heat build up.



By using a larger sized rod this will protect base metal from additional heating.

When welding thin sheets use a smaller tip and reduced heat intensity. Shield work from extra heat when welding by holding torch at a low angle and protecting with welding alloy and apply heat only to alloy. Hold torch at a low angle in direction of work so heat is not being concentrated on one spot and is preparing metal ahead to receive welding alloy.



Welding Sections Together Using Oxyacetylene Torch

Preheat base metal as described above and dip heated tip of welding alloy into Magna 55 Flux and then place into flame. When flux becomes fluid apply filler alloy by melting off a 12 mm. (1/2") section at a time and distribute over base metal using the torch. As each 12 mm. (1/2") section is applied, lift torch from work and re-dip heated end of alloy into flux.

By removing torch from base metal between each application you reduce the risk of the base metal overheating and subsiding. After re-dipping alloy, melt another 12 mm. (1/2") section and flow through weld with torch. Repeat process until sufficient Magna 55 has been transferred.

Welding Using Magna 55 to Rebuild a Missing Part

Preheat and apply first coating as described previously. Then, holding torch at a low angle to base metal and directing heat to filler metal, lay welding alloy over area to be built up and melt off a section at a time. Repeat process and apply a light pressure to bond each layer together. Continue in this way until reaching desired height or shape.

Magna 55 rod can also be used as a TIG filler metal for joining Aluminum and Aluminum Alloys.

For TIG welding AC (preferably welding machine should be attached to high frequency unit) is normally recommended though DC electrode positive polarity can also be used for thin jobs upto 2.5mm, Argon or Argon - Helium gas mixtures is recommended depending on service condition.

Typical usability parameters (with Argon) :

Metric	Inches	Gauge	Current Range (ACHF)	Gas Flow Rate (Litre/min)
2.4mm	3/32	12	125-160 amps	7-10

(The current can vary based on application condition and size of tungsten electrode)

SAFETY DATA SHEET

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

1.1. Product identifier

Product name: Magna 55

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

Application: Gas Welding Material

1.3. Details of the supplier of the safety data sheet

Supplier: EU importer:

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Manufacturer: ITW PP & F Korea Limited.
13th Fl., Unit B, PAX Tower
609 Eonju-ro, Gangnam-gu
Seoul, Korea 06108
Tel:+82-2-2088-3560
Fax:+82-2-513-3567
magna@magnagroup.com
www.magnagroup.com

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info@trustengineering-eg.com
www.trustengineering-eg.com

Further information can be obtained from: magna@magnagroup.com

1.4. Emergency telephone number

Emergency telephone: Call a Poison Center, emergency number or doctor/physician.

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP: The product is not classified.

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.

Safety data sheet available on request.

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

The product contains: metal

CLP:

%:	CAS-No.:	EC No.:	REACH Reg. No:	Chemical name:	Hazard classification:	Notes:
60-90	7429-90-5	231-072-3	01-2119529243-45XXXX	Aluminium	Water-react. 2;H261 Pyr. Sol. 1;H250	T
5-10	7440-21-3	231-130-8	01-2119535442-45XXXX	Silicon	-	#
0-1	7440-50-8	231-159-6	01-2119480154-42XXXX	Copper	-	#
0-1	7439-95-4	231-104-6	01-2119537203-49XXXX	Magnesium	Water-react. 1;H260 Pyr. Sol. 1;H250	T
0-1	7439-96-5	231-105-1	01-2119449803-34XXXX	Manganese	-	#
0-1	7440-66-6	231-175-3	01-2119467174-37XXXX	Zinc	Aquatic Acute 1;H400 Aquatic Chronic 1;H410	

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).

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
7429-90-5	Aluminium metal, inhalable dust	-	10 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
7439-96-5	Manganese and its inorganic compounds	Mn	0.5 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

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:	Aluminium.
Odour:	None.
Melting point / freezing point:	573°C
Flash point:	Not available.
Flammability (solid, gas):	Not available.
Relative density:	Not available.
Solubility:	Insoluble in water

9.2. Other information

Other data:	None.

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: None known.

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:	Based on available data, the classification criteria are not met.
Germ cell mutagenicity:	Based on available data, the classification criteria are not met.
Carcinogenicity:	Based on available data, the classification criteria are not met.
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:	Based on available data, the classification criteria are not met.
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: No data available on bioaccumulation.

12.4. Mobility in soil

Mobility: No data available.

12.5. Results of PBT and vPvB assessment

PBT/vPvB: Not relevant.

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 regulated as dangerous goods under IMDG Code, IATA-DGR and ADR/RID.

14.1. UN number

UN-No: Not regulated.

14.2. UN proper shipping name

Proper Shipping Name: Not regulated.

14.3. Transport hazard class(es)

Class: Not regulated.

14.4. Packing group

PG: Not regulated.

14.5. Environmental hazards

Marine pollutant: Not regulated.

Environmentally Hazardous substance: Not regulated.

14.6. Special precautions for user

Special precautions: Not regulated.

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

Transport in bulk: Not regulated.

SECTION 15: REGULATORY INFORMATION

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

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 List of Wastes (England) (Amendment) Regulations 2005. (SI 2005 No. 895).

15.2. Chemical Safety Assessment

CSA status: Not relevant.

SECTION 16: OTHER INFORMATION

The user must be instructed in the proper work procedure and be familiar with the contents of these instructions.

The following sections contain revisions or new statements:

Magna Welding Alloys
13th Fl., Unit B, PAX Tower,
609, Eonju-Ro, Gangnam-Gu, Korea 06108
Tel : +82-2-2088-3560
Fax : +82-2-513-3567
Web site : www.magnagroup.com

Abbreviations and acronyms used in the safety data sheet: vPvB = very Persistent and very Bioaccumulative.
PBT = Persistent, Bioaccumulative and Toxic.

Wording of H-statements:

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 gases.
H400	Very toxic to aquatic life.
H410	Very toxic 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.
www.dhigroup.com.