# MAGNA 393 AC-DC

Magna 393 is an advanced, all-position alloy for stainless steel that offers high corrosion resistance and ease of welding.

## VERSATILITY:

Magna 393 can be used for the repair of virtually any type or grade of stainless steel. This superior degree of versatility makes Magna 393 the repair alloy to carry and stock in plants that use stainless equipment, such as food and beverage plants and chemicals processing factories.

Magna 393 is also a must in hotels and any eating establishment because this advanced alloy repairs all grades of stainless, from utensils to counter tops, sinks, cookware and freezer doors and cabinets.

## IMPROVED CORROSION RESISTANCE:

Magna 393 features superior resistance to corrosion over ordinary stainless welding alloys due to special alloying elements that improve the weldment's corrosion resistance to reducing media, such as urea. This particular feature makes Magna 393 the repair alloy of choice in fertilizer plants and factories.

## EASIER TO USE, EVEN AT LOW AMPERAGE:

In repair welding requiring vertical downhand applications, Magna 393 has no equal. Other welding rods fail this ease-of-use test when welding vertical downhand as the slag runs ahead of the weld.

Magna 393's special 'controlled slag' action enables even inexperienced weldors to make perfect vertical downhand welds on virtually any stainless steel repair. In addition, after welding, the slag blanket is easily removed.

Its superior AC weldability allows Magna 393 to be applied "on site" or in difficult access situations as even small, portable AC open circuit welding machines will give good results, using low amperage.

This good weldability at low amperage also helps minimize burn-through, collapse or stainless discoloration, when welding on thinner stainless pieces.

## **MECHANICAL PROPERTIES** (based on pure weld deposit)**:**

**Tensile strength : 86,000 p.s.i. (59 kg/mm$^2$)**

**Yield strength : 51,000 p.s.i. (35 kg/mm$^2$)**

**Elongation : 35%**

**Impact (ISO-V) : 52 ft./lbs. (70 joules) at room temperature**

## **APPLICATION**

Magna 393 can be applied using either AC current or DC reverse polarity. Steel surfaces to be welded should be thoroughly cleaned from dirt, grease oil etc. No other special preparation is required and pre-heating also is not required.

After setting welding machine within the range given below, tack weld the work piece every 25mm or so (about 1"). It is not necessary to weave the weld but try to maintain a close arc. Peen each pass.

You will find the slag is easily removed and thus should be done at the end of each pass. On vertical downhand applications, the arc transfer will remain even and no problems with the slag running ahead of the weld will be experienced.

Magna 393 will also weld perfectly "in situ",using even low amperage open-circuit AC welding machines, such as when repairs have to be made away from the workshop.

## **Recommended amperages are:**

| Metric | Imperial | Gauge | Welding Machine Setting |
|---|---|---|---|
| **2.0mm** | **5/64”** | **14** | **45-60 amps** |
| **2.4 mm** | **3/32”** | **12** | **60-80 amps** |
| **3.2 mm** | **1/8”** | **10** | **80-100 amps** |

# SAFETY DATA SHEET



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

### 1.1. Product identifier

Product name: Magna 393

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

Application: Manual metal arc welding electrode.

### 1.3. Details of the supplier of the safety data sheet

Supplier: EU importer:

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Manufacturer: ITW PP & F Korea Limited.
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### 1.4. Emergency telephone number

Emergency telephone: NHS: 111

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

CLP: Skin Sens. 1;H317
Carc. 2;H351
STOT RE 2;H373

### 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 |
| H317 | May cause an allergic skin reaction. |
| H351 | Suspected of causing cancer. |
| H373a | May cause damage to organs through prolonged or repeated exposure if inhaled. |
| 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. |
| P405 | Store locked up. |
| P501 | Dispose of contents/container in accordance with local regulations. |

### 2.3. Other hazards

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

Other: Risk of sensitisation to nickel. Prolonged or repeated exposure to welding fumes may cause damage to the lungs and respiratory system. 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

CLP:

| %: | CAS-No.: | EC No.: | REACH Reg. No: | Chemical name: | Hazard classification: | Notes: |
|---|---|---|---|---|---|---|
| 30-60 | 7439-89-6 | 231-096-4 | - | Iron | - | # |
| 10-20 | 7440-47-3 | 231-157-5 | - | Chromium | - | # |
| 5-10 | 7440-02-0 | 231-111-4 | - | Nickel | Carc. 2;H351<br>STOT RE 1;H372<br>Skin Sens. 1;H317 | S; 7 |
| 5-10 | 13463-67-7 | 236-675-5 | - | Titanium dioxide | - | # |
| 1-3 | 1332-58-7 | 310-194-1 | - | Kaolin | - | # |
| 1-3 | 7439-98-7 | 231-107-2 | - | Molybdenum | - | # |
| 1-3 | 1344-09-8 | 215-687-4 | - | Silicic acid, sodium salt | Met. Corr. 1;H290<br>Skin Corr. 1B;H314<br>Eye Dam. 1;H318<br>STOT SE 3;H335 | SCL |
| 1-3 | 1312-76-1 | 215-199-1 | - | Silicic acid, potassium salt | Met. Corr. 1;H290<br>Skin Corr. 1B;H314<br>Eye Dam. 1;H318<br>STOT SE 3;H335 | SCL |
| 1-3 | 1317-65-3 | 215-279-6 | - | Limestone | - | # |
| 1-3 | 7439-96-5 | 231-105-1 | - | Manganese | - | # |

Notes: SCL: Specific Concentration Limit
S: May not require a label.
7: Alloys containing nickel are classified for skin sensitisation, when the release rate of 0,5 µg Ni/cm2/week (EN 1811) is exceeded.
#: The substance has been assigned an exposure limit. See section 8.

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. In case of eczema or other skin disorders: Seek medical attention and bring these instructions.

Eye contact: Do not rub eye. Rinse with water. Contact physician if discomfort continues.

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

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

Symptoms/effects: Exposure to dust and fumes of some metal oxides may result in metal fume fever with flu-like symptoms occurring in 4-12 hours.

### 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: Avoid any exposure. When welding: 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: Collect spillage with shovel, broom or the like.

### 6.4. Reference to other sections

References: For personal protection, see section 8.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

Safe handling advice: Avoid prolonged and repeated contact.
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): Welding material

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

Occupational exposure limits:

| CAS-No.: | Chemical name: | As: | Exposure limits: | Type: | Notes: | References: |
|---|---|---|---|---|---|---|
| 13463-67-7 | Titanium dioxide, total inhalable dust | - | 10 mg/m3 | TWA | - | EH40 |
| 7440-47-3 | Chromium | - | 0.5 mg/m3 | TWA | - | EH40 |
| - | Chromium (VI) compounds | Cr | 0.05 mg/m3 | TWA | Carc; Sen | EH40 |
| - | Chromium (III) compounds | Cr | 0.5 mg/m3 | TWA | - | EH40 |
| - | Chromium (II) compounds | Cr | 0.5 mg/m3 | TWA | - | 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 |
| - | Molybdenum insoluble compounds | Mo | 10 mg/m3 | TWA | - | EH40 |
| | | - | 20 mg/m3 | STEL | 15min | |
| - | Molybdenum soluble compounds | Mo | 5 mg/m3 | TWA | - | EH40 |
| | | - | 10 mg/m3 | STEL | 15min | |
| - | Iron oxide, fume | Fe | 5 mg/m3 | TWA | - | EH40 |
| | | - | 10 mg/m3 | STEL | 15min | |
| 1332-58-7 | Kaolin, respirable dust | - | 2 mg/m3 | TWA | - | EH40 |
| 7440-21-3 | Silicon, respirable dust | - | 4 mg/m3 | TWA | - | EH40 |
| 1317-65-3 | Limestone, total inhalable dust | - | 10 mg/m3 | TWA | - | EH40 |
| 1317-65-3 | Limestone, respirable dust | - | 4 mg/m3 | TWA | - | EH40 |
| 13463-67-7 | Titanium dioxide, respirable dust | - | 4 mg/m3 | TWA | - | EH40 |

Notes: Carc: Capable of causing cancer and/or heritable genetic damage.
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: | Wire with a flux coating. |
| Odour: | Not available. |
| Odour threshold: | Not available. |
| pH: | Not available. |
| Melting point / freezing point: | 1000-1500°C |
| Boiling point: | Not available. |
| Flash point: | Not available. |
| Evaporation rate: | Not available. |
| Explosive limits | Not available. |
| Vapour pressure: | Not available. |
| Vapour density: | Not available. |
| Relative density: | 5-8 |
| 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

### 10.2. Chemical stability

Stability: Stable under normal temperature conditions and recommended use.

### 10.3. Possibility of hazardous reactions

### 10.4. Conditions to avoid

Conditions to avoid: None known.

### 10.5. Incompatible materials

Incompatible materials: Water, moisture. 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

Respiratory or skin sensitisation: May cause an allergic skin reaction.

Carcinogenicity: Suspected of causing cancer.

STOT - Repeated exposure: May cause damage to organs through prolonged or repeated exposure if inhaled.

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. Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Skin contact: May cause allergic skin disorders in sensitive individuals.

Eye contact: Particles/fumes in the eyes may cause discomfort/irritation.

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

Specific effects: Risk of sensitisation to nickel. 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

### 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

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

Waste from residues: EWC-code:

## 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

For restrictions on use see section 15.

The following sections contain revisions or new statements: 2, 3, 8, 12, 14, 15, 16.

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Wording of H-statements:

| | |
|---|---|
| H290 | May be corrosive to metals. |
| H314 | Causes severe skin burns and eye damage. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |
| H335 | May cause respiratory irritation. |
| H351 | Suspected of causing cancer. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| H373a | May cause damage to organs through prolonged or repeated exposure if inhaled. |

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.

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www.dhigroup.com.