

Material Safety Data Sheet

In accordance with European Commission Regulation 453/2010 (REACH)

1. Identification of the Substance and Company Undertaking

Product: Hardfacing solid welding wires for TIG/GTAW and MIG/GMAW. Individual product identification as in table below.

Product Use: Solid welding wires for professional use in industrial applications.

Manufacturer: I.A.Barnes & Co Ltd

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Trade name	EN ISO 14700	AWS A5.21
IBACO HF350	~SFe1	~ERFe1
IABCO HF600	SFe8	~ERFe3
IABCO HF650	SFe3	ERFe8
IABCO HF4	SFe3	~ERFe8
IABCO HF6	SFe4	~ERFe6

2. Hazards Identification

Solid wires in the supplied form are not classified as hazardous.

When this product is used in a welding process the following hazards are most important:

Heat: Spatter and hot, or molten, metals can cause burns and start fires.

Radiation: Arc rays can damage skin and eyes.

Electrical: Electric shock can kill.

Fumes: Overexposure to welding fumes may result in dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure may affect pulmonary function. Fume from this product contains substances that are suspected of being carcinogenic.

3. Composition/Information on Ingredients

These products are solid metal alloy wires:

Wire Composition	Weight % (Maximum)	CAS Number	EC Number	Hazard	TLV, mg/m ³
Mn	3	7439-96-5	231-105-1	-	0.2 (fume)
Ni	1	7440-02-0	231-111-4	R40, R43	1.5 (metal) 0.2 (insol)
Cr	10	7440-47-3	231-157-5	-	0.5 (metal)
Mo	9	7439-98-7	231-107-2	-	5 (sol)
Fe	95	7439-89-6	231-096-4	-	5 (oxide)
Nb	-	7440-03-1	231-113-5	-	10
Cu	1	7440-50-8	231-159-6	-	0.2 (fume)
W	2	7440-33-7	231-143-9	-	5 (insol)
V	2	7440-62-2	231-111-4	R36, R37, R38	0.05 (fume)
Si	4	7440-21-3	231-130-8	-	10

4. First Aid Measures

General: Move to fresh air and call for medical aid.

Inhalation: If breathing is difficult provide fresh air and call doctor.

Eye: For radiation burns due to arc flash seek medical attention.

Skin: For radiation burns seek medical attention.

5. Fire Fighting Measures

No specific requirements applicable.

6. Accidental Release Measures

Personal precautions: See section 8.

Environmental precautions: See section 12 and 13.

7. Handling and Storage

Handling: Do not ingest.

Storage: Keep separate from chemical substances such as acids and strong bases which could cause chemical reactions.

8. Exposure Controls and Personal Protection

Welding/brazing produces fumes that can affect human health and the environment; suitable evaluation should be carried out to assess the risk.

The degree of risk is dependent on the fume composition, fume concentration and duration of exposure. The fume composition is dependent on consumable, material being welded, any coating on the base material (eg. paint or galvanizing), contaminants on the base material (eg. oil), welding process, and welding procedure

The risk from welding fumes should be eliminated or minimised by suitable selection of: welding process, welding parameters, ventilation/extraction and finally PPE.

Ensure sufficient ventilation and exhaust at the arc to keep welding fumes and gases away from the welders breathing zone. Keep work area and protective clothing clean and dry. Insulate conductive parts and avoid contact with live electrical parts.

If sufficient ventilation cannot be provided suitable respiratory PPE should be worn.

Personal protective equipment: face shield with protective lens, safety boots, gloves, helmet, overalls, apron, arm and shoulder protection.

Fume control requirements (TLV, PEL etc) may vary per element as well as per country so local/national limits should be checked.

9. Physical and Chemical Properties

Solid, odourless, non-volatile wire of metallic appearance (copper coated). Wires supplied either on spools/drums or as straight cut lengths.

Density $\sim 7.8\text{g/cm}^3$ (typical value not part of specification).

Melting-solidification point $\sim 1400\text{-}1550^\circ\text{C}$ (typical value not part of specification).

10. Stability and Reactivity

General: This product is only intended for normal arc welding operations.

Stability: This product is stable under normal conditions.

Reactivity: Contact with acids or strong bases could generate gaseous decomposition products.

When this product is used in a welding process, decomposition products would include those from the volatilisation, reaction or oxidation of the materials in section 2; and those from the base material and any coating on the base material. Reasonably expected gaseous products when utilised with the MIG/GMAW or TIG/GTAW processes would include carbon oxides, nitrogen oxides and ozone. Particulate fume constituents would include metal oxides of eg. Fe, Cr, Ni etc.

11. Toxicological Information

Inhalation of welding fumes can be dangerous to your health. Classification of welding fumes is difficult because of varying base materials, coatings, air contamination and processes.

Acute toxicity: Overexposure to welding fumes may result in dizziness, nausea, dryness or irritation of the nose, throat or eyes.

Chronic toxicity: Overexposure may affect pulmonary function. Fume from this product contains substances that are suspected of being carcinogenic.

Dermatological toxicity: Nickel is classified as a skin sensitiser and may cause sensitisation in susceptible individuals.

12. Ecological Information

Welding consumables and materials could degrade into components originating from the consumables or from the materials used in the welding process. Avoid exposure to conditions that could lead to accumulation in soils or groundwater.

13. Disposal Considerations

Discard any product, residue, disposable container or liner in an environmentally acceptable manner in full compliance with local and national regulations. Use recycling procedures if available.

Following use dispose of waste in an appropriate manner: EWC number 120101 (ferrous metal scrap) and 120113 (welding waste).

14. Transport Information

No specific precautions or restrictions apply. Solid welding wires are not classified as dangerous goods for transport and have no UN number.

15. Regulatory Information

Read and understand the manufacturers instructions, your employer's safety practices and the health and safety instructions on the label. Observe local and national regulations.

Warning text on label:

WARNING: Protect yourself and others. Read and understand this label.

Take precautions when welding. Ask for your employer's safety practices which should be based on manufacturer's hazard data. Fumes and gases can be dangerous to your health. Arc rays can injure eyes and burn skin. Electric shock can kill. Read and understand the manufacturer's instructions and your employer's safety practices. Keep your head out of the fumes. Use enough ventilation, exhaust at the arc, or both, to keep fumes and gases from your breathing zone and general area. Wear correct eye, ear and body protection. Do not touch live electrical parts. See WMA publication 236 "Hazards from Welding Fumes" available from the manufacturer. DO NOT REMOVE THIS LABEL.

16. Other Information

- R36: Irritation to eyes.
- R37: Irritation to respiratory system.
- R38: Irritation to skin.
- R40: Limited evidence of a carcinogenic effect.
- R43: May cause sensitisation by skin contact.

American National Standard Z49.1 "Safety in welding, cutting and allied processes". ANSI/AWS, USA.

American Conference of Governmental Industrial Hygienists (ACGIH), "Threshold limit values for chemical substances and physical agents and biological exposure indices", ACGIH, USA.

Occupational Safety and Health Administration, "Code of Federal Regulations" OSHA, USA.

Health & Safety Executive, Guidance Note EH40 "Occupational Exposure Limits", published annually, HSE, UK.

Health & Safety Executive, Guidance Note EH54 "Assessment of exposure to fume from welding and allied processes", March 1990, HSE, UK.

Health & Safety Executive, Guidance Note EH55 "The control of exposure to fume from welding, brazing and similar processes", April 1990, HSE, UK.

Health & Safety Executive Information Document, 668/25, "Personal protective equipment for welding and allied processes: Practical guidance on assessment and selection", 1998, HSE, UK.

Health & Safety Executive, "Health and safety in arc welding", 2000, HSE, UK.

I.A.Barnes & Co Ltd requests the users of this product to read this MSDS and become aware of product hazards and safety information. The information given is based on the present level of our knowledge and experience. The information in this MSDS should be provided to any employee, agent or customer that uses this product.