

SAFETY DATA SHEET

BW 005 Bare Copper welding wire electrodes & Rods



Version number: 1
Replaces SDS: 2009-11-23
Issued: 2014-02-05

Not for sale in the USA

Section 1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1 Product identifier

Trade name BARE COPPER WELDING WIRE ELECTRODES AND WIRES
(Afrox Cuprofil, Afrox TIG Cu, Afrox Filmax Silicon Bronze R, Afrox TIG Silicon Bronze, Afrox Filmax CuAl-8, Afrox TIG CuAl-8, Afrox Filmax Aluminium Bronze, Afrox TIG Aluminium Bronze, Afrox Filmax Tin Bronze, Afrox TIG Tin Bronze)

Article-no	Product Packaging Data	Diameter (mm)	Pack Mass (kg)	Consumable Length (mm)	Item Number
	Afrox Cuprofil	1,0	15	-	W077730
		1,2	15	-	W033130
		1,6	15	-	W033131
	Afrox TIG Cu	1,6	5	-	W0775576
		2,4	5	-	W077576
	Afrox Filmax Silicon Bronze R (MIG)	0,8	15	-	W077614
		1,0	15	-	W033122
		1,0	15	-	W077616
		1,6	15	-	W033126
	Afrox TIG Silicon Bronze	1,6	5	1000	W077610
		2,4	5	1000	W077611
		3,2	5	1000	W077612
	Afrox Filmax CuAl-8	1,0	15	-	W077594
		1,2	15	-	W077595
		1,6	15	-	W077596
	Afrox TIG CuAl-8	2,4	5	1000	W077726
	Afrox Filmax Aluminium Bronze	1,2	15	-	W033142
		1,6	15	-	W077592
	Afrox TIG Aluminium Bronze	1,6	5	1000	W077585
		2,4	5	1000	W077587
	Afrox Filmax Tin Bronze	1,0	15	-	W077606
		1,2	15	-	W077607
		1,6	15	-	W077608
	Afrox TIG Tin Bronze	1,6	5	1000	W077600
		2,0	5	1000	W077601
		2,4	5	1000	W077602

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

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Article type	GMAW/GTAW Copper welding wire electrodes and Rods, Classification: AWS SFA 5.7
Use	Gas shielded arc welding

1.3 Details of the supplier of the safety data sheet

Supplier	Afrox
Street address	23 Webber Street, Selby Johannesburg, 2001 South Africa
Telephone	+27 (0) 11 490 0400
Fax	+27 (0) 860 020201
Email	Customer.service@afrox.linde.com

1.4 Emergency telephone number

Available outside office hours	Yes
Emergency phone number	0860 02 02 02

Other

Additional product information	Web site: www.afrox.co.za
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Section 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) 1271/2008 [CLP] applicable

2.2 Label elements

Not applicable

2.3 Other hazards

The fumes given off during the use of this product consists mainly of copper fume and oxides, and may contain quantities of manganese and nickel compounds. The exact amount of these compounds present in the fume depends on the grade of copper alloy and the shielding gas being used. In addition ozone and nitrogen dioxide will be produced in the surrounding air by the welding arc radiation.

- Harmful if inhaled
- May cause cancer
- Harmful if swallowed

Under certain conditions, overexposure or inhalation of excessive amounts of fume containing these compounds and gases can have the following effects:

Copper overexposure can cause metal fume fever

Manganese overexposure can affect the central nervous system, resulting in impaired speech and movement. This condition is considered irreversible.

Nickel overexposure may cause nasal or lung cancer, and is classified as a potential human carcinogen. It can also cause skin

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dermatitis.

Ozone and nitrogen dioxide overexposure can produce eye, respiratory and lung irritation, and can also produce longer term lung effects such as decreased lung capacity, chronic bronchitis.

Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

This product is a mixture and please refer to Section 3.2

3.2 Mixtures

AWS Specification	Cu %	Zn %	Sn %	Mn %	Fe %	Si %	Ni (+Co) %	Al %	Ti %
CAS Number	7440-50-8	7440-67-7	7440-31-5	7439-96-6	7439-89-6	7440-21-3	7440-02-0	7429-90-5	7439-89-5
A5.07/ ERCu	98 min	-	1.0	0.50	-	0.50	-	0.01	-
A5.07/ ERCuSi	Bal.	1.0	1.0	1.5	0.50	2.8-4.0	-	0.01	-
A5.07/ ERCUSn	Bal.	-	4.0-6.0	-	-	-	-	0.01	-
A5.07/ ERCuNi	Bal.	-	-	1.0	0.40-0.75	0.25	29.0-32.0	-	0.20-0.50
A5.07/ ERCuAl-X	Bal.	0.20	-	0.50	4.5	0.10	-	6.0-11.5	-
A5.07/ ERCuNiAl	Bal.	0.10	-	0.6-3.50	3.0-5.0	0.10	4.0-5.50	8.50-9.50	-
A5.07/ ERCuMnNiAl	Bal.	0.15	-	11.0-14.0	2.0-4.0	0.10	1.5-3.0	7.0-8.5	-

Section 4. FIRST AND MEASURES

4.1 Description of first aid measures

Inhalation	IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms occur.
Skin contact	Burns should be treated by a doctor.
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Burns from radiation, see doctor.
Ingestion	Contact a doctor if more than an insignificant amount has been swallowed.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation	Inhalation of vapours may cause irritation of the respiratory system in very susceptible persons.
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4.3 Indication of any immediate medical attention and special treatment needed

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Not applicable

Section 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media Carbon dioxide (CO₂), powder or diffuse jet of water. In case of major fire: Extinguish fire with diffuse jet of water or foam.

5.2 Special hazards arising from the substance or mixture

Not applicable

5.3 Advice for fire fighters

Special protective equipment for fire fighters Wear self contained breathing apparatus

Section 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

General ventilation and local fume extraction must be adequate to keep fume concentrations within safe limits. Use respiratory equipment when welding in a confined space. Wear protective clothing and eye protection appropriate to arc welding. Skin contact should be avoided to prevent possible allergic reactions.

6.2 Environmental precautions

Try to prevent the material from entering drains or water courses.

6.3 Methods and material for containment and cleaning up

Not applicable

6.4 Reference to other sections

Personal protection see section 8 and for disposal see section 13. Environmental precautions, paragraph 12. See also section 7 Precautions for safe handling.

Section 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Preventive handling precautions Ensure adequate ventilation for the welder and others. Use respiratory equipment when welding in a confined space. Wear protective clothing and eye protection appropriate to arc welding. Remove all flammable materials and liquids before welding.

General hygiene Wash hands before breaks and immediately after handling the product.

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7.2 Conditions for safe storage, including any incompatibilities

Store welding consumables inside a room without humidity. Do not store welding consumables directly on the ground or beside walls. Store away from chemical substances like acids which could cause chemical reactions.

7.3 Specific end use(s)

Welding process.

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Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Welding fume component	CAS No.	WEL 8hr TWA	STEL 15min TWA
Copper	7440-50-8	0.2	
Aluminium Oxides	1344-28-1		
Total inhalable dust		10	
Respirable dust		4	
Iron oxide fume (as Fe)	1309-37-1	5	10
Manganese and its inorganic compounds (as Mn)	7439-96-5	0.5	
Silica, amorphous (total inhalable dust)	-	6	
(respirable dust)		2.4	
Tin compounds, inorganic (as Sn)	7440-31-5	2	4
Nickel and its inorganic compounds	7440-02-0		
Water soluble		0.1	
Water insoluble		0.5	
Zinc oxide, fume	1314-13-2	5	10
Cobalt (balance of nickel)			
Carbon Dioxide	124-38-9	5000ppm	15000ppm
Carbon Monoxide	630-08-0	30ppm	200ppm
Nitrogen dioxide (NO ₂)	10102-44-0	0.5 ppm	0.95ppm
Ozone (O ₃)	10028-15-6		0.2ppm
Nitrogen monoxide (NO)	10102-43-9	0.5ppm	0.63ppm

8.2 Exposure controls

Environmental Exposure Controls – Refer to Section 6 of this SDS

Technical precaution measures	General ventilation and local fume extraction must be adequate to keep fume concentrations within safe limits.
Eye / face protection	Wear eye protection appropriate for welding.
Safety gloves	Skin contact should be avoided to prevent possible allergic reactions.
Other skin protection	Wear body protection which helps to prevent injury from radiation, sparks and electric shock.
Respiratory protection	Use respiratory equipment when welding in a confined space. Wear protective clothing and eye protection appropriate to arc welding.

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Section 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance, colour	Copper metallic colour
Appearance, physical state	Metal wire or Rod
Auto-ignition temperature	Not applicable
Auto-inflammability	Not auto-flammable
Decomposition temperature	Not applicable
Evaporation rate	Not applicable
Explosive properties	Not explosive
Flammability (solid gas)	Not applicable
Flash point	Not applicable
Form	Metal wire or rods.
Initial boiling point and boiling range	Not applicable
Melting point / Freezing point	Not applicable
Odour	Odourless
Odour threshold	Not applicable
Oxidising properties	Not applicable
Partition coefficient: n-octanol / water	Not applicable
pH value	Not applicable
Relative density	Not applicable
Solubility	Not applicable
Solubility in water	Insoluble
Upper / lower flammability or explosive limits	Not applicable
Vapour density	Not applicable
Vapour pressure	Not applicable
Viscosity	Not applicable

9.2 Other information

Not applicable

Other

Density	8.96g/cm ³
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Section 10. STABILITY AND REACTIVITY

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10.1 Reactivity

Not applicable

10.2 Chemical stability

Stable at normal conditions.

10.3 Possibility of hazardous reactions

Not applicable

10.4 Conditions to avoid

None under normal conditions

10.5 Incompatible materials

Not applicable

10.6 Hazardous decomposition products

Welding fumes and gases. Additional fume may arise from coatings and contaminants on the base material.

Welding fume component	CAS No.	Classification (67/548EEC)	CLP (1272/2008)		Concentration of classified fume components
Chromium III compounds (as Cr)	24613-89-6	R45: May cause cancer R35: Causes severe burns R43: May cause sensitisation by skin contact	Carc. 1B Skin Corr. 1A Skin Sens. 1	H350 H314 H317	0.1
Copper oxide (Cu)	1317-38-0	-	-	-	65.0 to 81.0
Iron oxide (Fe)	1332-37-2	-	-	-	0.2 to 5.0
Manganese (Mn)	7439-96-5	-	-	-	0.6 to 8.7

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Nickel (Ni)	7440-02-0	R40: Limited evidence of carcinogenic effect R43: May cause sensitisation by skin contact R48/23: Toxic danger of serious damage to health by prolonged exposure through inhalation R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment	Carc. 2 Skin sens 1 STOT RE 1	H351 H317 H372	0.1 to 0.3
Tin compounds (Sn)	7440-31-5	-	-	-	4.0

Classification	H phrase	Text
Carcinogenicity: Category 1B	H350	May cause cancer

The classification information above relates to the fume during use

Fume analysis: wt %

Al 3 to 6

Fe 0 - 8

Mn 2 to 3

Sn <1

Fume analysis: wt %

Ni <1

Si 2.0 to 8

Cu balance

Section 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Conditions to avoid: none in the form supplied

When welding, fumes and gases generated can be dangerous to health.

Acute toxicology Excessive exposures may affect human health, as follows: Aspiration may cause pulmonary

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	oedema and pneumonitis Short-term overexposure can cause dizziness, nausea and irritation of the nose, throat or eyes.
Irritation	Not applicable
Corrosive effects	Not applicable
Sensitisation	May cause sensitisation by skin contact
Mutagenicity	Not applicable
Carcinogenicity	Welding fumes are possibly carcinogenic to humans
Repeated dose toxicity	Not applicable
Reproductive toxicity	Not applicable

Section 12. ECOLOGICAL INFORMATION

12.1 Toxicity

The welding process can effect the environment if fume is released directly into the atmosphere. Residues from welding consumables could degrade and accumulate into soils and ground water.

12.2 Persistence and degradability

Not applicable

12.3 Bio accumulative potential

Not available

12.4 Mobility in Soil

Not applicable

12.5 Results of PBT and vPvB assessment

Not applicable

12.6 Other adverse effects

Not applicable

Section 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Disposal considerations Dispose of any product, residue or packing material according to national and local regulations. Spent fume extraction filters shall be disposed of as dangerous waste.

Other

Waste code (EWC) 12 01 13 – welding waste

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Section 14. TRANSPORT INFORMATION

14.1 UN number

Not applicable

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not applicable

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Other

Dangerous goods No

Section 15. REGULATORY INFORMATION

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

EU regulations The product does not need to be labelled in accordance with EC directives or respective national laws.

National regulations EH40/2005 Workplace exposure limits
The Waste Regulations 2011 No. 988
Local laws and regulations should be carefully observed.

15.2 Chemical safety assessment

Not applicable

Section 16. OTHER INFORMATION

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References to key literature and data sources	Regulation (EC) No 1907/2006 of the European Parliament and of the Council, (REACH). Regulation (EC) No 1272/2008 of the European Parliament and of the Council. EH40/2005 Workplace exposure limits. The Waste regulations 2011 No.988 C&L Inventory database Annex VI CLP Regulation (EC) 1272/2008
Phrase meaning	H350 – May cause cancer.
Other	
Manufacturer's notes	<i>Read this Safety Data Sheet carefully and become aware of hazards implied and the safety information.</i>

End of document

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