

Version number: 1 Replaces SDS: 2009-11-23 Issued: 2014-03-25

### Not for sale in the USA

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

#### 1.1 Product identifier

Trade name	CAST IRON C	OVERED ELE	CTRODES			
	(Afrox Ferroloi	d 1, Afrox Ferr	oloid 2, Afrox Fe	rroloid 3, Afrox	Ferroloid 4, Afro	ox Transcast
	55)					
Article-no						
	Product	Diameter	Electrode	Current	Pack Mass	Item Number
	Packaging	(mm)	Length	(A)	(kg)	
	Data		(mm)			
	Afrox	3.15	350	65-95	5,0	W075803
	Ferroloid 1	4,0	350	100-130	5,0	W075804
	Afrox	3,15	350	70-105	5,0	W075813
	Ferroloid 2	4,0	350	90-120	5,0	W075814
	Afrox	2,5	350	40-90	1,0	W072832
	Ferroloid 4	2,5	350	40-90	5,0	W075832
		3,15	350	60-105	1,0	W072833
		3,15	350	60-105	5,0	W075833
		4,0	350	90-135	5,0	W075834
		5,0	350	150-190	5,0	W075835
					Sleeve	
					(2electrodes)	
	Afrox	3,15	350	80-125	1,0	W072933
	Transcast	3,15	350	80-125	5,0	W072934
	55	3,15	350	80-125	5,0	W075933
		4,0	350	90-150		W075934

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

Article type SMAW Cast Iron covered electrodes ( non Barium containing) Classification: AWS SFA

A5.15 Use Electric arc welding

1.3 Details of the supplier of the safety data sheet



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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		

### Section 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

2.2 Label elements

Not applicable

### 2.3 Other hazards

This product contains: Nickel as classified as sensitising and limited evidence of carcinogenic effect. The form of this product does not contribute to a hazard classification of the product.

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

Overexposure to fumes and gases from welding can be dangerous to health.

Watch out for splatter, hot metal and slag. It may cause skin burn and cause fire.

Arc rays can injure eyes and burn skin. Electric shock can kill. Avoid touching live electrical parts.

## Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances						
This product is a m	ixture and ple	ease refer to S	Section 3.2			
3.2 Mixtures						
Alloy core wires	%C	%Si	%Mn	%Ni	%Cu	%Fe
CAS number	7440-44-0	7440-21-3	7439-96-5	7440-02-0	7440-50-8	7439-89-6
Ranges	0 to 0.25	0 to 0.25	0 to 1.0	0 to 99	0 to 35	balance



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rd ification 8/EC		Caro R40 S⊗(2
rd ification /2008		Carc2 Skin H
Flux coating	%	CAS No.
Aluminium powder Pyr Stab.	1-3	7429-90-5
Limestone and/or Calcium Carbonate	0 to 25	1317-65-3
Graphite (total inhalable dust) (respirable dust)	0 to 15	7440-44-0
Strontium Carbonate	0 to 35	1633-05-2
Cellulose (total inhalable dust) (respirable dust)	0 to 10	9004-34-6
Starch (total inhalable dust) (respirable dust)	0 to 15	9005-25-8
Inorganic Fluorides (as F)	0 to 25	16984-48-8
Nickel and its inorganic compounds (soluble, as Ni) (insoluble, as Ni)	0-15	7440-02-0
Iron powder	0 to 15	7439-89-6
Rutile/Titanium Dioxide (total inhalable dust) (respirable dust)	0 to 5	13463-67-7
Silicate Binders	0 to 35	1344-09-8

## 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			



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	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 effe	ects, both acute and delayed					
Inhalation Inhalation of vapours may cause irritation of the respiratory system in very susceptible						
	persons.					
4.3 Indication of any immediate medical attention and special treatment needed						
	Net applicable					

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 Wear self contained breathing apparatus fire fighters

### 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

For *Personal protection* see section 8. For *Disposal* see section 13. For *Environmental precautions* see section 12. For *Precautions* for safe handling see 7.1.

### 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.

### Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### 8.1 Control parameters

Welding fume component	CAS No.	WEL 8hr TWA	STEL 15min TWA	Hazard Classificati on 67/548/EC	Hazard Classificati on (GHS) 1272/2008
Iron oxide fume (as Fe)	1309-37-1	5	10		
Manganese and its inorganic compounds (as Mn)	7439-96-5	0.5		R20/R22	H332/H302 Acute Tox.4
Copper					
(fume)	7440-50-8	0.2			
(dust and mist)		1			
Nickel and its inorganic compounds (water soluble) (water insoluble)		0.1 0.5		R40/R43/ R49/R53	H350i/H351 Carc 2 /H317 Skin sens 1 /H413 Aquatic Ch.4
Silica, amorphous					
(total inhalable dust)	-	6			
(respirable dust)		2.4			
Titanium dioxide					
(total inhalable dust)	13463-67-7	10			
(respirable dust)		4			
Calcium Oxide	1305-78-8	2			
Calcium Silicate					
(total inhalable dust)	1344-95-2	10			
(respirable dust)		4			
Fluoride, inorganic (as F)	16984-48-8	2.5			
Carbon Monoxide	630-08-0	30ppm	200ppm		
Carbon Dioxide	124-38-9	5000ppm	15000ppm		
Nitrogen dioxide (NO <sub>2</sub> )	10102-44-0	0.5 ppm	0.95 ppm		
Ozone (O <sub>3</sub> )	10028-15-6		0.2 ppm		
Nitrogen monoxide (NO)	10102-43-9	0.5 ppm	0.63 ppm		

8.2 Exposure controls



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Environmental Exposure Control – Refer to section 6 of this SDS

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

### Section 9. PHYSICAL AND CHEMICAL PROPERTIES

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#### 9.1 Information on basic physical and chemical properties

Appearance, colour	Grey
Appearance, physical state	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 rod with flux covering
Initial boiling point and boiling	Not applicable
range	
Melting point / Freezing point	Not applicable
Odour	Odourless
Odour threshold	Not applicable
Oxidising properties	Not applicable
Partition coefficient: n-octanol /	Not applicable
water	
pH value	Not applicable
Relative density	Not applicable
Solubility	Not applicable
Solubility in water	Insoluble
Upper / lower flammability or	Not applicable
explosive limits	



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Vapour density	Not applicable
Vapour pressure	Not applicable
Viscosity	Not applicable
9.2 Other information	
	Not applicable
Other	
Density	7,98 g/cm <sup>3</sup>
Section 10. STABILITY AND R	EACTIVITY
10.4 Desetivity	
10.1 Reactivity	Notopoliophia
	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
Aluminium oxide (Al)	1344-28-1	-	-	-	<0.1 to 1.3
Barium (Ba)	7440-39-3	-	-	-	<0.1 to 0.4
Bismuth oxide (Bi)	12640-40-3	-	-	-	≤0.1
Calcium (Ca)	1305-78-8	-	-	-	0.8 to 23.3
Cobalt oxide (Co)	1307-96-6	R22: Harmful if swallowed	Acute tox 4 (oral)	H302	≤0.1
	1307-90-0	R43: May cause sensitisation by contact	Skin sens. 1	H317	



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		R45: May cause cancer	Carc. 1B	H350	≤0.1
Chromium III compounds (as Cr)	24613-89-6	R35: Causes severe burns R43: May cause	Skin Corr. 1A	H314	
compounds (as er)		sensitisation by skin contact	Skin Sens. 1	H317	
Copper oxide (Cu)	1317-38-0	-	-	-	<0.1 to 11.4
Iron oxide (Fe)	1332-37-2	-	-	-	1.1 to 29.6
Potassium (K)	7440-09-7	R34: Causes burns	Skin Corr. 1B	H314	0.4 to 11.3
Lithium (Li)	7439-93-2	R34: Causes burns	Skin Corr. 1B	H314	≤0.1
Magnesium oxide (Mg)	1309-48-4	-	-	-	0.1 to 4.0
Manganese (Mn)	7439-96-5	-	-	-	0.1 to 4.0
		Molybdenum trioxide	Molybdenum trioxide	H351	≤0.1
		R36/37: Irritating to eyes and respiratory system	Carc. 2	H319	
Molybdenum (Mo)	R40:	R40: Limited evidence of carcinogenic effect	Eye Irrit. 2	H335	
			STOT SE 3		
Sodium (Na)	7440-23-5	R34: Causes burns	Skin Corr. 1B	H314	0.1 to 23.4
		R40: Limited evidence of carcinogenic effect	Carc. 2	H351	0.1 to 10.3
		R43: May cause sensitisation by skin contact	Skin sens 1 STOT RE 1	H317 H372	
Nickel (Ni)	7440-02-0	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			
Lead (Pb)	7439-92-1	-	-	-	0.1
Silicon (Si)	7440-21-3	-	-	-	1.1 to 4.2
Titanium dioxide (Ti)	13463-67-7	-	-	-	<0.1 to 0.7
Vanadium (V)	7440-62-2	-	-	-	≤0.1
Zinc (Zn)	7440-66-6	-	-	-	<0.1 to 0.5
Fluoride (F-)	e (F-) 16984-48-8 -		-	-	0.6 to 12.3



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Classification	H phrase	Text
Skin corrosion/irritation: Category 1B	H314	Causes severe skin burns and eye damage
Skin sensitiser Category 1	H317	May cause an allergic skin reaction
Carcinogenicity: Category 1B	H350	May cause cancer
STOT Repeated Exposure Category 1	H372	Causes damage to organs through prolonged or repeated exposure

### The classification information above relates to the fume during use

Analysis wt %		
Al 0.1 to 1.3	Ni 0.1 to 10.3	
Ca 0.8 to 23.3		
Fe 1.1 to 29.6		
K 0.4 to 11.3		
Mg 0.1 to 0.4		
Na 0.1 to 23.4		

### 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		
	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		



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CarcinogenicityWelding fumes are possibly carcinogenic to humansRepeated dose toxicityNot applicableReproductive toxicityNot 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 asse	essment
	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

## **14. TRANSPORT INFORMATION**

14.1 UN number

Not applicable

14.2 UN proper shipping name



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	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. REGUATORY 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

References to key literature and	Regulation (EC) No 1907/2006 of the European Parliament and of the Council, (REACH).
data sources	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



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		Annex VI CLP Regulation (EC) 1272/2008		
Phrase meaning		H314	Causes severe skin burns and eye damage	
		H317	May cause an allergic skin reaction	
		H350	May cause cancer	
		H372	Causes damage to organs through prolonged or repeated exposure	
Other				
	Manufacturer's notes	Read this Safety Data Sheet carefully and become aware of hazards implied and t		

Read this Safety Data Sheet carefully and become aware of hazards implied and the safety information.

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