

Version number: 1

Replaces SDS: 2009-11-23

Issued: 2014-10-14

Not for sale in the USA

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

1.1 Product identifier

Trade name

Smootharc 12, Smootharc 16, Smootharc 18, Smootharc 24, Smootharc 13

Article-no

Product/Article	Diameter(mm)	Packaging (kg)	Part Number
SMOOTHARC 12	2.5	1	184133
SMOOTHARC 12	3.2	1	184134
SMOOTHARC 12	2.5	5	184135
SMOOTHARC 12	3.2	5	184136
SMOOTHARC 12	4.0	5	184137
SMOOTHARC 16	2.5	1	184143
SMOOTHARC 16	3.2	1	184144
SMOOTHARC 18	2.5	3.5	184155N
SMOOTHARC 18	3.2	3.5	184156N
SMOOTHARC 18	4.0	3.5	184157N
SMOOTHARC 18	5.0	5.5	184158
SMOOTHARC 16	2.5	3.5	186145N
SMOOTHARC 16	3.2	3.5	186146N
SMOOTHARC 16	4.0	3.5	186147N
SMOOTHARC 16	5.0	5.5	186148
SMOOTHARC 24	3.2	6	186166
SMOOTHARC 24	4.0	6	186167
SMOOTHARC 24	5.0	5.5	186168
SMOOTHARC 13	2.5	1	187143
SMOOTHARC 13	3.2	1	187144
SMOOTHARC 13	2.5	5	187145
SMOOTHARC 13	3.2	5	187146
SMOOTHARC 13	4.0	5	187147

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

Article type SMAW Un- and Low-alloyed electrodes Classification: AWS SFA 5.1/5.5 or other

Use Electric arc welding

1.3 Details of the supplier of the safety data sheet

Supplier BOC Limited BOC Limited

Street address 10 Julius Avenue 970-988 Great South Road

North Ryde NSW 2113 Penrose, Auckland

Australia New Zealand

Telephone 131 262 0800 111 333

Fax 132 427 0800 229 923

Email <u>contact@boc.com</u> <u>customer.servicenz@boc.com</u>



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1.4 Emergency telephone number

Available outside office hours Yes

Emergency phone number 1800 653 572 (Aus) or 0800 111 333 (NZ)

Other

Additional product information Web site: www.boc.com.au or www.boc.co.nz

Section 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

As shipped the product is:

Not Classified as Hazardous according to Australian, New Zealand and European regulations (refer Section 15 for references)

Not a Dangerous Good for Transport by road, rail, air or sea according to Australian, New Zealand, European, IMO, and IATA.

GHS Classification

Not Classified

2.2 Label Elements

Not Applicable

2.3 Other hazards

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

Overexposure to fumes and gases from welding released from the welding process may release products that are classified as hazardous and can be dangerous to health. Refer to Section 16 for more information.

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 mixture and please refer to Section 3.2

3.2 Mixtures

Mild steel core	Fe	Mn	Cr	Ni	Cu	Si
Typical	98-99	<0.6	<0.1	<0.1	<0.1	<0.2
Flux coating	High Cellulose E6010, 6011	Rutile E6012, 6013	Basic Low Hydrogen E7016, 7018	Rutile Iron Powder E7024	Basic Iron Powder E7028	Cas No.
Limestone and/or Calcium Carbonate	-	<10	20-30	<10	10-20	1317-65-3
Magnesite	5-10	<5	-	-	-	546-93-0



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Cellulose	25-60	<15	-	-	-	9004-34-6
Iron Oxides (as Fe)	<10	<10	<10	<10		1309-37-6
Inorganic Fluorides (as F)	-	<10	10-30	<10	5-15	16984-48-8
Iron powder	-	<10	10-35	10-60	10-60	7439-89-6
Manganese and its Inorganic compounds (as Mn)	5-15	5-15	<15	<15	<10	7439-96-5 and others
Rutile/Titanium Dioxide						
	10-35	15-60	<10	10-30	<10	13463-67-7
Silicon and Silicon Alloys, (as Si)	-	-	<5	<5	<5	7440-21-3
Silicate Binders	<5	<5	<5	<5	<5	1344-09-8
Mica	<5	<20	<5	<5	<5	12001-26-2
Quartz/Silica						
Respirable crystalline	<10	<15	5-60	<10	<5	14808-60-7
Kaolin	-	<20	-	<5	<5	1332-58-7
Other Mineral Silicates	5-30	5-30	5-10	5-30	5-10	1332-58-7

Section 4. FIRST AND MEASURES

4.1 Description of first aid measures

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.
Burns should be treated by a doctor. Wash affected areas with running water/soap. Seek
medical attention in event of irritation
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.
Contact a doctor if more than an insignificant amount has been swallowed.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation	Welding can generate fumes, mists, dust, vapours and gases, including ozone. The
	amounts and types of fumes produced vary greatly depending on the process involved and
	the materials being used such as metals, solvents, flux, paint and plastics. The health
	effects of exposure to fumes, dust, vapour and gases can vary. Effects can include irritation
	of the upper respiratory tract (nose and throat), tightness in the chest, asphyxiation, asthma,
	wheezing, metal fume fever, lung damage, bronchitis, cancer, pneumonia or emphysema.

^{4.3} Indication of any immediate medical attention and special treatment needed



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Acute effects include irritation of the eyes, nose and throat, shortness of breath Some individuals may develop skin irritation.

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

Avoid contact with strong acids or other substances which are corrosive to metals

5.3 Advice for fire fighters

Special protective equipment for

fire fighters

Wear self contained breathing apparatus as in a fire welding rods may decompose on heating and produce hazardous decomposition products

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

Spills to be cleaned up immediately using dry clean up methods and avoid dust generation Use appropriate PPE to prevent contact with skin

Ensure good hygiene practices following clean up

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.



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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.

7.2 Conditions for safe storage, including any incompatibilities

Store welding consumables inside a room with low 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.	TWA (mg/m³)	STEL ¹ 15min (mg/m³)	Hazard Classifi cation 67/548/ EC	Hazard Classifi cation (GHS) 1272/20 08
Welding fumes (not otherwise classified)	-	5			
Iron oxide fume (as Fe)	1309-37-1	5	10		
Manganese, fume (as Mn)	7439-96-5	1	3	R20/R22	H332/H3 02 Acute Tox.4
Nickel and its inorganic compounds Water soluble	7440-02-0	0.1		R40/R43 R49/R53	H351 Carc.2 H317skin sens 1/ H413 Aquatic Ch.4
Silica, amorphous Fume (thermally generated) (respirable dust)	-	6			
Aluminium					 -
Inhalable dust	1344-28-1	10			
Respirable dust		4			
Zinc oxide, fume	1314-13-2	5	10		



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Lead, inorganic dusts & fumes (as Pb)	7439-92-1	0.15			
Silica, crystalline Quartz (respirable dust)	14808-60- 7	0.1		R49	H350 Carc. 1
Kaolin (Inspirable dust)	1332-58-7	10			
Magnesium oxide (as Mg) (fume)	1309-48-4	10			
Titanium dioxide (inspirable dust)	13463-67- 7	10			
Calcium Oxide	1305-78-8	2			
Calcium Silicate (inspirable dust)	1344-95-2	10			
Fluoride, inorganic (as F)		2.5			
Nitrogen dioxide	10102-44- 0	5.6	9.4		
Nitrogen monoxide	10102-43- 9	31	0		
Ozone	10028-15- 6	0,2 peak limitation			
Carbon dioxide	124-38-9	9000	54000		
Carbon Monoxide	630-08-0	31			

^{1.} Extracted from Safework Australia, Hazardous Substances Information System (HSIS) & Worksafe New Zealand Table of workplace exposure standards

8.2 Exposure controls

Environmental Exposure Control - Refer to Section 12 of this SDS

concentrations within safe limits. Workers should always have their eyes, face and/or head protected whenever they are welding. For further information refer to: AS/NZS 1338: (series) Filters for eye protectors, AS/NZS 1338.1: Filters for eye protectors - Filters for protection against radiation generated in welding and allied operations and AS/NZS 1336: Recommended practices for occupational eye protection and AS/NZS 1337: Eye protectors for industrial applications. Hearing Protection Hearing Protection Gloves should be fire resistant and protect exposed skin on the hands and wrists. For further information refer to: AS/NZS 2161: (series) Occupational protective gloves.	Technical precaution measures	General ventilation and local fume extraction must be adequate to keep fume
welding. For further information refer to: AS/NZS 1338: (series) Filters for eye protectors, AS/NZS 1338.1: Filters for eye protectors - Filters for protection against radiation generated in welding and allied operations and AS/NZS 1336: Recommended practices for occupational eye protection and AS/NZS 1337: Eye protectors for industrial applications. Hearing Protection Ear plugs or ear muffs may be required to minimise the risks of noise. For further information refer to: AS/NZS 1270: Acoustics - Hearing protectors and AS/NZS 1269.3: Occupational noise management – Hearing protector program. Gloves should be fire resistant and protect exposed skin on the hands and wrists.		concentrations within safe limits.
For further information refer to: AS/NZS 1338: (series) Filters for eye protectors, AS/NZS 1338.1: Filters for eye protectors - Filters for protection against radiation generated in welding and allied operations and AS/NZS 1336: Recommended practices for occupational eye protection and AS/NZS 1337: Eye protectors for industrial applications. Hearing Protection Hearing Protection Ear plugs or ear muffs may be required to minimise the risks of noise. For further information refer to: AS/NZS 1270: Acoustics - Hearing protectors and AS/NZS 1269.3: Occupational noise management – Hearing protector program. Gloves should be fire resistant and protect exposed skin on the hands and wrists.	Eye / face protection	Workers should always have their eyes, face and/or head protected whenever they are
1338.1: Filters for eye protectors - Filters for protection against radiation generated in welding and allied operations and AS/NZS 1336: Recommended practices for occupational eye protection and AS/NZS 1337: Eye protectors for industrial applications. Hearing Protection Ear plugs or ear muffs may be required to minimise the risks of noise. For further information refer to: AS/NZS 1270: Acoustics - Hearing protectors and AS/NZS 1269.3: Occupational noise management – Hearing protector program. Gloves should be fire resistant and protect exposed skin on the hands and wrists.		welding.
welding and allied operations and AS/NZS 1336: Recommended practices for occupational eye protection and AS/NZS 1337: Eye protectors for industrial applications. Hearing Protection Ear plugs or ear muffs may be required to minimise the risks of noise. For further information refer to: AS/NZS 1270: Acoustics - Hearing protectors and AS/NZS 1269.3: Occupational noise management – Hearing protector program. Gloves should be fire resistant and protect exposed skin on the hands and wrists.		For further information refer to: AS/NZS 1338: (series) Filters for eye protectors, AS/NZS
Hearing Protection Ear plugs or ear muffs may be required to minimise the risks of noise. For further information refer to: AS/NZS 1270: Acoustics - Hearing protectors and AS/NZS 1269.3: Occupational noise management – Hearing protector program. Gloves should be fire resistant and protect exposed skin on the hands and wrists.		1338.1: Filters for eye protectors - Filters for protection against radiation generated in
Hearing Protection Ear plugs or ear muffs may be required to minimise the risks of noise. For further information refer to: AS/NZS 1270: Acoustics - Hearing protectors and AS/NZS 1269.3: Occupational noise management – Hearing protector program. Hand/Arm protection Gloves should be fire resistant and protect exposed skin on the hands and wrists.		welding and allied operations and AS/NZS 1336: Recommended practices for
For further information refer to: AS/NZS 1270: Acoustics - Hearing protectors and AS/NZS 1269.3: Occupational noise management – Hearing protector program. Hand/Arm protection Gloves should be fire resistant and protect exposed skin on the hands and wrists.		occupational eye protection and AS/NZS 1337: Eye protectors for industrial applications.
1269.3: Occupational noise management – Hearing protector program. Hand/Arm protection Gloves should be fire resistant and protect exposed skin on the hands and wrists.	Hearing Protection	Ear plugs or ear muffs may be required to minimise the risks of noise.
Hand/Arm protection Gloves should be fire resistant and protect exposed skin on the hands and wrists.		For further information refer to: AS/NZS 1270: Acoustics - Hearing protectors and AS/NZS
		1269.3: Occupational noise management – Hearing protector program.
For further information refer to: AS/NZS 2161: (series) Occupational protective gloves.	Hand/Arm protection	Gloves should be fire resistant and protect exposed skin on the hands and wrists.
		For further information refer to: AS/NZS 2161: (series) Occupational protective gloves.
Other skin protection Avoid clothing that has the potential to capture hot sparks and metals, for example in	Other skin protection	Avoid clothing that has the potential to capture hot sparks and metals, for example in



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pockets or other folds. Clothing should be made of natural fibres.

For further information refer to: AS/NZS 4502: (series) Methods for evaluating clothing for protection against heat and fire. Foot protection should be non-slip and be heat and fire resistant. Avoid using foot protection that has the potential to capture hot sparks and metal debris, for example in laces or in open style shoes.

For further information refer to: AS/NZS 2210: (series) Occupational protective footwear and AS/NZS 2210.1: Safety, protective and occupational footwear - Guide to selection, care and use

Respiratory protection

Respirators should be fitted for each person individually and if one is to be used by another operator, it must be disinfected and refitted before use. The tightness of all connections and the condition of the face piece, headbands and valves should be checked before each use. Air supplied respirators may be required in some situations, e.g. confined spaces.

For further information refer to: AS/NZS 1716: Respiratory protective devices and be selected in accordance with AS/NZS 1715: Selection, use and maintenance of respiratory protective equipment.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

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 wire with flux coating

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

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pH value Not applicable

Relative density Not applicable

Solubility Not applicable

Solubility in water Insoluble

Upper / lower flammability or Not applicable

explosive limits

Vapour density Not applicable

Vapour pressure Not applicable

Viscosity Not applicable

9.2 Other information

Not applicable

Other

Density 7.98g/cm³

Section 10. STABILITY AND REACTIVITY

10.1 Reactivity

Reactive with incompatible materials such as strong acids/corrosives

10.2 Chemical stability

Stable at normal conditions.

10.3 Possibility of hazardous reactions

Hazardous polymerisation will not occur

10.4 Conditions to avoid

None under normal conditions

10.5 Incompatible materials

Strong acids and corrosives

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	-	-	-	1.8 to 1.2



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Bismuth oxide (Bi) 12640-40-3	Barium (Ba)	7440-39-3	-	-	-	≤0.1
R22: Harmful if swallowed R43: May cause esensitisation by contact R45: May cause esensitisation by skin corn 1A R314 R350 Skin Corr. 1B R351 Skin Corr. 1B Skin Corr.	Bismuth oxide (Bi)	12640-40-3	-	-	-	≤0.1
Skin sens. 1	Calcium (Ca)	1305-78-8	-	-	-	0.1 to 11.6
R43: May cause sensitisation by contact R45: May cause cancer R5: Causes severe burns R43: May cause ensitisation by skin contact R45: May cause cancer R5: Causes severe burns R43: May cause ensitisation by skin contact R45: May cause cancer R5: Causes severe burns R43: May cause ensitisation by skin contact R45: May cause cancer R5: Causes severe burns R43: May cause ensitisation by skin contact R45: May cause cancer R5: Causes severe burns R43: May cause cancer R5: Causes severe burns R43: May cause cancer R5: Causes severe burns R3: May cause cancer R45: May cause cancer R45: Causes burns R411	Cobalt oxide (Co)	1307-96-6	swallowed	Acute tox 4 (oral)	H302	≤0.1
Chromium III Compounds (as Cr) 24613-89-6 R43: May cause sensitisation by skin contact Skin Corr. 1A H314 Skin Sens. 1 H317	Cobair oxide (Co)	1307 70 0				
Chromum III compounds (as Cr) 24613-89-6 R43: May cause sensitisation by skin contact Skin Sens. 1 H317				Carc. 1B	H350	≤0.1
Seinstation by Skin Skin Sens. 1 H317		24613-89-6		Skin Corr. 1A	H314	
Iron oxide (Fe) 1332-37-2 - - - 11.9 to 54.9 Potassium (K) 7440-09-7 R34: Causes burns Skin Corr. 1B H314 0.6 to 23.8 Lithium (Li) 7439-93-2 R34: Causes burns Skin Corr. 1B H314 0.1 to 0.8 Magnesium oxide (Mg) 1309-48-4 - - - 0.7 to 8.2 Manganese (Mn) 7439-96-5 - - - 0.7 to 8.2 Molybdenum (Mo) 7439-98-7 Molybdenum trioxide R36/37: Irritating to eyes and respiratory system R40: Limited evidence of carcinogenic effect 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 - - 0.1 to 1.8 Lead (Pb) 7439-92-1 - - - 0.1 to 1.8	compounds (as Cr)		sensitisation by skin	Skin Sens. 1	H317	
Detassium (K) 7440-09-7 R34: Causes burns Skin Corr. 1B H314 0.6 to 23.8	Copper oxide (Cu)	1317-38-0	-	-	-	≤0.1
Lithium (Li) 7439-93-2 R34: Causes burns Skin Corr. 1B H314 0.1 to 0.8	Iron oxide (Fe)	1332-37-2	-	-	-	11.9 to 54.9
Magnesium oxide (Mg) 1309-48-4 - - 0.1 to 5.3 Manganese (Mn) 7439-96-5 - - 0.7 to 8.2 Molybdenum trioxide R36/37: Irritating to eyes and respiratory system R40: Limited evidence of carcinogenic effect Molybdenum trioxide Carc. 2 H319 Sodium (Na) 7440-23-5 R34: Causes burns Skin Corr. 1B H314 0.5 to 8.7 R40: Limited evidence of carcinogenic effect Carc. 2 H351 0.1 to 0.2 Skin sens 1 H317 STOT RE 1 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 STOT RE 1 H372 Lead (Pb) 7439-92-1 - - - 0.1 to 1.8	Potassium (K)	7440-09-7	R34: Causes burns	Skin Corr. 1B	H314	0.6 to 23.8
(Mg) 1309-48-4 - - 0.7 to 8.2 Manganese (Mn) 7439-96-5 - - 0.7 to 8.2 Molybdenum trioxide R36/37: Irritating to eyes and respiratory system R40: Limited evidence of carcinogenic effect H351 H319 ≤0.1 Sodium (Na) 7440-23-5 R34: Causes burns Skin Corr. 1B H314 0.5 to 8.7 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 STOT RE 1 H372 Lead (Pb) 7439-92-1 - - - 0.1 to 1.8	Lithium (Li)	7439-93-2	R34: Causes burns	Skin Corr. 1B	H314	0.1 to 0.8
Molybdenum trioxide R36/37: Irritating to eyes and respiratory system R40: Limited evidence of carcinogenic effect H319	•	1309-48-4	-	-	-	0.1 to 5.3
Molybdenum (Mo) 7439-98-7 R36/37: Irritating to eyes and respiratory system R40: Limited evidence of carcinogenic effect STOT SE 3 Sodium (Na) 7440-23-5 R34: Causes burns 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 Lead (Pb) 7439-92-1 0.1 to 1.8	Manganese (Mn)	7439-96-5	-	-	-	0.7 to 8.2
Molybdenum (Mo) 7439-98-7 R36/37: Irritating to eyes and respiratory system R40: Limited evidence of carcinogenic effect STOT SE 3 Sodium (Na) 7440-23-5 R34: Causes burns R40: Limited evidence of carcinogenic effect R43: May cause sensitisation by skin contact R448/23: 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 - Carc. 2 H319 Eye Irrit. 2 H335 Carc. 2 H351 O.1 to 0.2 Skin sens 1 H372 STOT RE 1 H372 - 0.1 to 1.8			•		H351	≤0.1
R40: Limited evidence of carcinogenic effect STOT SE 3 Sodium (Na) 7440-23-5 R34: Causes burns 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 Lead (Pb) 7439-92-1 - Use Irrit. 2 STOT SE 3 H314 O.5 to 8.7 Carc. 2 Skin sens 1 H317 STOT RE 1 H372 H372 O.1 to 0.2 O.1 to 1.8	Molybdenum (Mo)	7439-98-7			H319	
Sodium (Na) 7440-23-5 R34: Causes burns Skin Corr. 1B H314 0.5 to 8.7 Carc. 2 K40: 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 Lead (Pb) 7439-92-1 - 0.1 to 1.8	morpodenam (mo)	7 137 70 7			H335	
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 Lead (Pb) 7439-92-1 - Carc. 2 Skin sens 1 H317 H372 H372 H372 - O.1 to 0.2 Skin sens 1 FTOT RE 1 H372 O.1 to 0.2 Skin sens 1 FTOT RE 1 H372 O.1 to 1.8						
Nickel (Ni) 7440-02-0 Nickel (Ni) 7440-02-0 Skin sens 1 Skin sens 1 SKin sens 1 SKin sens 1 STOT RE 1 H317 H372 H372 H372 H372 Lead (Pb) 7439-92-1 - 0.1 to 1.8	Sodium (Na)	7440-23-5				
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 Lead (Pb) 7439-92-1 - SKin sens 1 H317 H372 H372 - O.1 to 1.8				Carc. 2	H351	0.1 to 0.2
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 to 1.8			=	Skin sens 1	H317	
Nickel (Ni) 7440-02-0 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 to 1.8				STOT RE 1	H372	
cause long-term adverse effects in the aquatic environment Lead (Pb) 7439-92-1 0.1 to 1.8	Nickel (Ni)	7440-02-0	serious damage to health by prolonged exposure through inhalation			
			aquatic organisms, may cause long-term adverse effects in the aquatic			
Silicon (Si) 7440-21-3 2.1 to 16.3	Lead (Pb)	7439-92-1	-	-	-	0.1 to 1.8
	Silicon (Si)	7440-21-3	-	-	-	2.1 to 16.3



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Titanium dioxide (Ti)	13463-67-7	-	-	-	0.1 to 3.2
Vanadium (V)	7440-62-2	-	-	-	≤0.1
Zinc (Zn)	7440-66-6	-	-	-	0.1 to 3.5
Fluoride (F-)	16984-48-8	-	-	-	0.1 to 21.4

Elemental analysis of the fumes is shown below

Component	Wt%	Component	Wt%
Aluminium	0.1 to 1.2	Nickel	0.1 to 0.2
Calcium	0.1 to 11.6	Lead	0.1 to 1.8
Iron	11.9 to 54.9	Silicon	2.1 to 16.3
Potassium	0.6 to 23.8	Titanium	0.1 to 3.2
Lithium	0.1 to 0.8	Zinc	0.1 to 3.5
Magnesium	0.1 to 5.3	Fluoride	0.1 to 21.4
Sodium	0.5 to 8.7		

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 Welding operations may evolve fumes that may be irritating to the respiratory tract and harmful

if inhaled . Aspiration may cause pulmonary oedema and pneumonitis Short-term

overexposure can cause dizziness, nausea and irritation of the nose, throat or eyes.

Irritation Manganese fumes – Eye (rabbit) 500 mg/24hr Mild

- Skin (rabbit) 500 mg/24 hr Mild

Corrosive effects Not available

Sensitisation May cause sensitisation by skin contact

Mutagenicity Not available

Carcinogenicity Welding fumes are possibly carcinogenic to humans and have been classified by the IARC as

Group 2B: Possibly Carcinogenic to Humans

Repeated dose toxicity Not available Reproductive toxicity Not available



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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.

Acute fish toxicity LC50 Fish 96h:

Manganese: 2,91 mg/l

Aluminiumoxide: >100 mg/l Salmo trutta

Acute algae toxicity IC50 Algae 72h:

Manganese: 0,55 mg/l

Aluminiumoxide: >100 mg/l Selenastrum capricornatum (green algae)

Acute crustacean toxicity EC50 Daphnia 48h:

Manganese: 5,2 mg/l

Aluminiumoxide: >100 mg/l Daphnia magna (Water flea)

12.2 Persistence and degradability

Not available

12.3 Bio accumulative potential

Not available

12.4 Mobility in Soil

Not available

12.5 Results of PBT and vPvB assessment

Not available

12.6 Other adverse effects

Not available

Section 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Disposal considerations

Recycle packing materials. Dispose of any product, residue or packing material according to national and local regulations. Spent ;fume extraction filters shall be disposed of as hazardous

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

Not classified as a dangerous good for transport by air, land, or sea

Section 15. REGUATORY INFORMATION

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

EU reguations Dangerous Goods Regulations/2014 (IATA)

International Maritime Dangerous Goods/2012 (IMO)

Regulation (EC) No 1271/2008 [CLP]

Dangerous Substances Directive (67/548/EEC)

National regulations Model Work and Safety Regulations 2014 (Safework Australia)

Hazardous Substances [Classification] Regulations 2001 [New Zealand]

Australian Code for the transport of Dangerous Goods by Road and Rail Volume 7/2011

(NTC)

Land Transport Rule 45001/1 (New Zealand)

Local laws and regulations should be carefully observed.



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15.2 Chemical safety assessment

Not applicable

Section 16 O	TUED INIE/	

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.

Safework Australia: Hazardous Substances Information System (HSIS)

Worksafe New Zealand: Table of workplace exposure standards

Annex VI CLP Regulation (EC) 1272/2008

Safework Australia: Code of Practice: Welding Processes/2012

Other

Manufacturer's notes Read this Safety Data Sheet carefully and become aware of hazards implied and the safety

information.

Details of Hazards relating to As a result of intended normal use, decomposition products that are classified as Hazardous

fumes may be released.

GHS Classification Acute Toxicity - Inhalation (Hazard Category 4)

Sensitisation – Skin (Hazard Category 1)
Carcinogenicity (Hazard Category 2)
Chronic Aquatic Toxicity (Category 4)

Hazard statement(s) H332 – Harmful if inhaled

H317 - May cause an allergic skin reaction

H351 - Suspected of causing cancer

H413 - May cause long lasting harmful effects to aquatic life

Precautionary statements (s): <u>Prevention</u>

P201 -Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood.

P261 - Avoid breathing dust/fume/gas/mist/ vapours/spray P271 - Use only outdoors or in a well-ventilated area.

P272 - Contaminated work clothing should not be allowed out of the workplace.

P280 - Wear protective gloves

P201 - Obtain special instructions before use.

P281 - Use personal protective equipment as required.

P273 – Avoid release to the environment

Response

P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P311 - Call a POISON CENTER or doctor/physician.

P312 - Call a POISON CENTER or doctor/physician if you feel unwell.

P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention.

P308 + P313 - IF exposed or concerned: Get medical advice/attention.

P302 + P352 -IF ON SKIN: Wash with plenty of soap and water.

P321 - Specific treatment (refer label)

P363 - Wash contaminated clothing before reuse.



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<u>Storage</u>

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Disposal

P501 - Dispose of contents/container in accordance with local , state and national regulations.

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