

SAFETY DATA SHEET

6060

Product Name **SMOOTH-COR 811K2**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name BOC LIMITED (AUSTRALIA)
Address 10 Julius Avenue, North Ryde, NSW, AUSTRALIA, 2113
Telephone 131 262, (02) 8874 4400
Fax 132 427 (24 hours)
Emergency 1800 653 572 (24/7) (Australia only)
Web Site <http://www.boc.com.au/>
Synonym(s) 10811K212 - PART NUMBER • 10811K216 - PART NUMBER • 811K2 SMOOTH-COR • BOC SMOOTH-COR 811K2
Use(s) GAS ASSISTED FLUX CORED ARC WELDING (FCAW)
SDS Date 30 Nov 2011

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

RISK PHRASES

R40 Limited evidence of a carcinogenic effect.
R43 May cause sensitisation by skin contact.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

SAFETY PHRASES

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S45 In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

UN No. None Allocated **DG Class** None Allocated **Subsidiary Risk(s)** None Allocated
Packing Group None Allocated **Hazchem Code** None Allocated

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
NICKEL	Ni	7440-02-0	1-2%
MAGNESIUM	Mg	7439-95-4	Not Available
OZONE (EVOLVED)	O3	10028-15-6	Not Available
QUARTZ (SILICA CRYSTALLINE)	Si-O2	14808-60-7	Not Available
IRON	Fe	7439-89-6	>60%
MANGANESE	Mn	7439-96-5	2%
MAGNESIUM OXIDE	Mg-O	1309-48-4	Not Available
POTASSIUM TITANATE	Not Available	Not Available	Not Available
SILICON	Si	7440-21-3	Not Available
SODIUM TITANATE	Not Available	Not Available	Not Available

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
TITANIUM DIOXIDE	Ti-O2	13463-67-7	Not Available
WELDING FUME (EVOLVED)	Not Available	Not Available	Not Available

4. FIRST AID MEASURES

Eye	If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.
Inhalation	If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.
Skin	If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.
Ingestion	For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting. Ingestion is considered unlikely due to product form.
Special treatment	Treat symptomatically.
First aid facilities	Eye wash facilities should be available.

5. FIRE FIGHTING MEASURES

Special hazards	Non flammable. May evolve toxic gases/ fumes (metal oxides, fluorides, nickel oxides, ozone and nitrogen oxides) when heated to decomposition. May also evolve carbon oxides and nitrogen oxides when heated to decomposition. Additional fume may arise from coatings and contaminants on the base material.
Advice for firefighters	No fire or explosion hazard exists.
Extinguishing media	Prevent contamination of drains or waterways.
Hazchem Code	None Allocated

6. ACCIDENTAL RELEASE MEASURES

Spillage	If spilt, collect and reuse where possible.
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7. STORAGE AND HANDLING

Storage	Store in a cool, dry, well ventilated area, removed from oxidising agents, acids and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.
Precautions for safe handling	Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION**Exposure Stds**

Ingredient	Reference	TWA		STEL	
Iron oxide fume (Fe ₂ O ₃) (as Fe)	SWA (AUS)	--	5 mg/m ³	--	--
Iron salts, soluble, as Fe	SWA (AUS)	--	1 mg/m ³	--	--
Magnesium oxide (fume)	SWA (AUS)	--	10 mg/m ³	--	--
Manganese, dust & compounds (as Mn)	SWA (AUS)	--	1 mg/m ³	--	--
Manganese, fume (as Mn)	SWA (AUS)	--	1 mg/m ³	--	3 mg/m ³
Nickel, metal	SWA (AUS)	--	1 mg/m ³	--	--
Nickel, soluble compounds (as Ni)	SWA (AUS)	--	0.1 mg/m ³	--	--
Ozone	SWA (AUS)	0.1 ppm	0.2 mg/m ³	--	--
Silica, Crystalline Quartz	SWA (AUS)	--	0.1 mg/m ³	--	--
Silicon	SWA (AUS)	--	10 mg/m ³	--	--
Titanium dioxide (a)	SWA (AUS)	--	10 mg/m ³	--	--

WELDING FUME (EVOLVED)

Product Name**SMOOTH-COR 811K2**ES-TWA: 5 mg/m³ Welding fumes**Biological Limits** No biological limit allocated.**Engineering Controls** Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain dust / fume levels below the recommended exposure standard.**PPE** Wear a leather apron, leather boots, welding or leather gloves, a welding helmet and coveralls. Where an inhalation risk exists, wear: a Class P2 (Metal fume) respirator. If using product in a confined area, wear: an Air-line respirator.**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	FLUX CORED MILD STEEL WIRE ON SPOOL	Solubility (water)	INSOLUBLE
Odour	ODOURLESS	Specific Gravity	NOT AVAILABLE
pH	NOT AVAILABLE	% Volatiles	NOT AVAILABLE
Vapour Pressure	NOT RELEVANT	Flammability	NON FLAMMABLE
Vapour Density	NOT AVAILABLE	Flash Point	NOT RELEVANT
Boiling Point	NOT AVAILABLE	Upper Explosion Limit	NOT RELEVANT
Melting Point	1500°C (Approximately)	Lower Explosion Limit	NOT RELEVANT
Evaporation Rate	NOT RELEVANT	Decomposition Temperature	NOT AVAILABLE
Autoignition Temperature	NOT AVAILABLE	Viscosity	NOT AVAILABLE
Partition Coefficient	NOT AVAILABLE		

10. STABILITY AND REACTIVITY

Chemical stability	Stable under recommended conditions of storage.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources.
Material to Avoid	Incompatible with oxidising agents (eg. hypochlorites) and acids (eg. nitric acid).
Hazardous Decomposition Products	May evolve toxic gases/ fumes (metal oxides, fluorides, nickel oxides, ozone and nitrogen oxides) when heated to decomposition. May also evolve carbon oxides and nitrogen oxides when heated to decomposition.
Hazardous Reactions	Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Health hazard summary	Irritant - toxic fumes evolved during heating. Use safe work practices to avoid eye or skin contact and fume inhalation. Chronic exposure may result in discolouration of teeth; as well as lung, kidney, liver, ligament and bone (osteosclerosis, skeletal fluorosis) damage. Individuals with pre-existing respiratory impairment (eg asthmatics) or arthritic conditions are advised to avoid exposure. Nickel compounds are classified as carcinogenic to humans (IARC Group 1). Welding fume is classified as possibly carcinogenic to humans (IARC Group 2B).
Eye	Irritant. Where generated (eg. during welding operations), arc rays may injure eyes (delayed effect) and blindness may occur. Contact with hot material may result in thermal burns.
Inhalation	Irritant fumes. Over exposure may result in irritation of the nose and throat, coughing, ulceration, perforation of the nasal septum and sensitisation. Metal fumes may result in metal fume fever (flu-like symptoms): metallic taste, dry throat, coughing and tight chest. Effects may be delayed. Ozone may also be evolved which can cause pulmonary oedema and haemorrhaging.
Skin	Irritant fumes. Exposure to fumes may result in irritation, dermatitis with severe itching and possible sensitisation.
Ingestion	Ingestion is considered unlikely due to product form. However, ingestion may result in a metallic taste in the mouth, dry throat, thirst, nausea, vomiting and headache.
Toxicity Data	NICKEL (7440-02-0) LD50 (Intraperitoneal): 250 mg/kg (rat) LDLo (Ingestion): 5 mg/kg (guinea pig) LDLo (Subcutaneous): 7.5 mg/kg (rabbit) TCLo (Inhalation): 15 mg/m ³ /91W-I (guinea pig - tumors)

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TDLo (Ingestion): 158 mg/kg (rat - foetotoxic)
MAGNESIUM (7439-95-4)
LDLo (Ingestion): 230 mg/kg (dog)
OZONE (EVOLVED) (10028-15-6)
LC50 (Inhalation): 36 ppm/3 hours (rabbit)
LCLo (Inhalation): 50 ppm/30 minutes (human)
TCLo (Inhalation): 1 ppm (human)
QUARTZ (SILICA CRYSTALLINE) (14808-60-7)
LCLo (Inhalation): 300 ug/m³/10 years (human)
LDLo (Intratracheal): 200 mg/kg (rat)
LDLo (Intravenous): 20 mg/kg (dog)
TCLo (Inhalation): 16 000 000 particles/ft³/8 hours/17.9 years (human-fibrosis)
IRON (7439-89-6)
LD50 (Ingestion): 20000 mg/kg (guinea pig)
LDLo (Intraperitoneal): 20 mg/kg (rabbit)
TDLo (Ingestion): 77 mg/kg (child)
MANGANESE (7439-96-5)
LD50 (Ingestion): 9000 mg/kg (rat)
TCLo (Inhalation): 2300 ug/m³ (man - CNS)
MAGNESIUM OXIDE (1309-48-4)
TCLo (Inhalation): 400 mg/kg (human)
SILICON (7440-21-3)
LD50 (Ingestion): 3160 mg/kg (rat)
LDLo (Intraperitoneal): 500 mg/kg (rat)

12. ECOLOGICAL INFORMATION

Other adverse effects Limited ecotoxicity data was available for this product at the time this report was prepared. Ensure appropriate measures are taken to prevent this product from entering the environment.

13. DISPOSAL CONSIDERATIONS

Waste disposal Reuse where possible. No special precautions are required for this product.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Shipping Name	None Allocated			
UN No.	None Allocated	DG Class	None Allocated	Subsidiary Risk(s) None Allocated
Packing Group	None Allocated	Hazchem Code	None Allocated	

15. REGULATORY INFORMATION

Poison Schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

AICS All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Additional Information Additional information on welding safety can be obtained from: WTIA (Welding Technology Institute of Australia) Technical note 7 "Health and Safety in Welding".

WELDING (1): Due to the diversity of welding techniques, processes, materials used, nature of the surface being welded and the presence of contaminants, the fumes & gases associated with welding will vary in composition and quantity. When assessing a welding process, the toxic fumes generated may not only be associated with the parent metal, filler wire or electrode. The welding/cutting arc may generate nitrogen oxides, carbon monoxide & other gases, whilst UV radiation emitted from some arcs generates ozone. Ozone may irritate mucous membranes and cause pulmonary oedema & haemorrhage. Shielding gases (eg. carbon dioxide and inert gases i.e. argon and helium) in high concentrations, in confined spaces, may reduce oxygen in the atmosphere to dangerous levels, resulting in possible asphyxiation.

WELDING (2): In addition to complying with individual exposure standards for specific contaminants, where current manual welding processes are used, the fume concentration inside the welder's helmet should not exceed 5 mg/m³ (unless otherwise classified) when collected in accordance with Australian Standard AS 3853.1: Fume from welding and allied processes - Guide to methods for the sampling and analysis of particulate matter and AS

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3853.2: Fume from welding and allied processes - Guide to methods for the sampling and analysis of gases. Airway irritation and metal fume fever are the most common acute effects from welding fumes. Reported to cause reduced sperm quality in welders.

NICKEL EXPOSURE 1: NIOSH-USA recommend that workers exposed to Nickel and inorganic nickel compounds should have an initial medical exam including: 1. Comprehensive medical and work history with emphasis on skin conditions, allergies, upper and lower respiratory tract illnesses and smoking. 2. Complete physical exam with emphasis to upper respiratory tract and skin. 3. Specific clinical tests such as X-ray, pulmonary function and indicated sputum cytology and urine nickel analysis.

NICKEL EXPOSURE 2: 3. Judgement of employees ability to use positive or negative respiratory equipment. 4. Periodic medical exam performed annually, including same clinical and medical exams. 5. Employees with dermatitis must be counselled on risks, 6. Appropriate medical services and records available to employees suffering from nickel related exposure - with records to be maintained for at 40 years after last occupational exposure.

ABBREVIATIONS:

ACGIH - American Conference of Industrial Hygienists.

ADG - Australian Dangerous Goods.

BEI - Biological Exposure Indice(s).

CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.

CNS - Central Nervous System.

EC No - European Community Number.

HSNO - Hazardous Substances and New Organisms.

IARC - International Agency for Research on Cancer.

mg/m³ - Milligrams per Cubic Metre.

NOS - Not Otherwise Specified.

pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).

ppm - Parts Per Million.

RTECS - Registry of Toxic Effects of Chemical Substances.

STEL - Short Term Exposure Limit.

SWA - Safe Work Australia.

TWA - Time Weighted Average.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this ChemAlert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

Report Status

This document has been compiled by RMT on behalf of the manufacturer of the product and serves as the manufacturer's Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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SDS Date 30 Nov 2011

End of Report