BOC
A Member of The Linde Group

SAFETY DATA SHEET

Product Name **SMOOTH-COR 70C6**

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)	1070C612 - PART NUMBER · 1070C616 - PART NUMBER · 70C6 SMOOTH-COR · BOC SMOOTH-COR 70C6
Use(s)	GAS ASSISTED FLUX CORED ARC WELDING (FCAW)
SDS Date	26 April 2012

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

RISK PHRASES

R40	Limited evidence of a carcinogenic effect.

SAFETY PHRASES

S23	Do not breathe gas/fumes/vapour/spray (where applicable).
S36	Wear suitable protective clothing.

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

UN Number	None Allocated	**DG Class**	None Allocated
Packing Group	None Allocated	**Subsidiary Risk(s)**	None Allocated
Hazchem Code	None Allocated		

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Identification	Classification	Content
OZONE (EVOLVED)	CAS: 10028-15-6 EC: 233-069-2	Not Available	Not Available
IRON	CAS: 7439-89-6 EC: 231-096-4	Not Available	>60%
MANGANESE	CAS: 7439-96-5 EC: 231-105-1	Not Available	2 - 3%
SILICON	CAS: 7440-21-3 EC: 231-130-8	Not Available	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.

If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running

Skin 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.

Advice to Doctor Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flammability Non flammable. May evolve toxic gases/ fumes (iron oxide, ozone) during welding operation. Hot metal may cause fire in contact with combustible materials. May also evolve carbon oxides and nitrogen oxides when heated to decomposition. Additional fume may arise from coatings and contaminants on the base material.

Fire and Explosion No fire or explosion hazard exists.

Extinguishing Prevent contamination of drains or waterways.

Hazchem Code None Allocated

6. ACCIDENTAL RELEASE MEASURES

Spillage If spilt, collect and reuse where possible.

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.

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 Standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Iron oxide fume (Fe2O3) (as Fe)	SWA (AUS)	--	5	--	--
Iron salts, soluble, as Fe	SWA (AUS)	--	1	--	--
Manganese, dust & compounds (as Mn)	SWA (AUS)	--	1	--	--
Manganese, fume (as Mn)	SWA (AUS)	--	1	--	3
Ozone	SWA (AUS)	0.1	0.2	--	--
Silicon	SWA (AUS)	--	10	--	--
Welding fumes (not otherwise classified)	SWA (AUS)	--	5	--	--

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

Eye / Face Wear a welding helmet.

Hands Wear leather or welding gloves.

Body Wear coveralls and a leather apron and leather boots.

Respiratory 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
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	1500°C (Approximately)
Evaporation rate	NOT RELEVANT
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Specific gravity	NOT AVAILABLE
Solubility (water)	INSOLUBLE
Vapour pressure	NOT RELEVANT
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
% Volatiles	NOT RELEVANT

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 also evolve carbon oxides and nitrogen oxides when heated to decomposition.
Hazardous Reactions	Polymerization is not expected to occur.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary

Irritant. Toxic fumes (eg. ozone), radiation, an electric shock, hot metal and noise may present a hazard during the welding process. At high levels mixed dusts or fumes containing iron can lead to pneumoconiosis characterised by pulmonary fibrosis. Chronic exposure to iron dust may result in mottling of the lungs, a condition referred to as siderosis. Over exposure to welding fumes may result in a flu-like illness known as welding fume fever (symptoms may be delayed). Welding fume is classified as possibly carcinogenic to humans (IARC Group 2B). Manganese is reported to cause a decrease in pulmonary function, blood changes, irreversible CNS damage and kidney damage.

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 evolved may cause irritation and discolouration. Contact with hot material may cause skin burns. Contact may result in an electric shock which can result in death.

Ingestion

Ingestion is considered unlikely due to product form.

Toxicity Data

OZONE (EVOLVED) (10028-15-6)

LC50 (inhalation)	36 ppm/3 hours (rabbit)
LCLo (inhalation)	50 ppm/30 minutes (human)
TCLo (inhalation)	1 ppm (human)

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)

12. ECOLOGICAL INFORMATION

Environment 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

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
UN Number	None Allocated	None Allocated	None Allocated
Proper Shipping Name	None Allocated	None Allocated	None Allocated
DG Class/ Division	None Allocated	None Allocated	None Allocated
Subsidiary Risk(s)	None Allocated	None Allocated	None Allocated
Packing Group	None Allocated	None Allocated	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 Medicines and Poisons (SUSMP)

Inventory Listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

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/m^3 (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 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. The TLV for Manganese may be reached before the general limit for welding fumes is reached.

WELDING (3): Other gases and fumes associated with welding processes include :- Inert shielding gases (eg. argon, carbon dioxide, helium) which may reduce the atmospheric oxygen content in poorly ventilated areas. UV-radiation and Infra-Red radiation may decompose chlorinated degreasing agents to form highly toxic and irritating phosgene gas. This may occur if a metal has been degreased but inadequately dried or when vapours from a nearby degreasing bath enter the welding zone.

WELDING (4): Welding fumes may contain a wide variety of chemical contaminants, including oxides and salts of metals and other compounds which may be generated from electrodes, filler wire, flux materials and from the welded material eg. painted surfaces. Welding stainless-steel and its alloys generates nickel and chromium (VI) compounds. Welding fumes are retained in the lungs. Sparingly soluble compounds may be released slowly from the lungs. Welding fumes are classified as possibly carcinogenic to humans (IARC Group 2B).

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.

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.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
GHS	Globally Harmonized System
IARC	International Agency for Research on Cancer
mg/m^3	Milligrams per Cubic Metre
PEL	Permissible Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
REACH	Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
TLV	Threshold Limit Value
TWA/OEL	Time Weighted Average or Occupational Exposure Limit

Revision History

Revision	Description
1.0	Standard SDS Review.

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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End of SDS