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TECHNICAL BULLETIN
ISSUED: 2nd April 2011.
DOCUMENT: TB 005A

TECHNICAL BULLETIN
ETI FIRE SYSTEM – C02 CYLINDER.

PREAMBLE:
This document supersedes Technical Bulletin 005 – original issue 6 July 2006.

DETAIL
A small change will occur from April production for part RPCYLC02. This is the C02 pressure cylinder used to actuate ROP remote actuators such as PART – REMACTUATORB.

In line with discussions for Australian design registration, a stainless steel compliance plate will be permanently attached to the cylinder body. Below is the NSW WorkCover registration that this is in conjunction with. Copies of the actual certificate have already been supplied or are available on request.

REMOTE ACTUATOR ASSEMBLY AND C02 CYLINDER (SHOWN SEPARATE).

CYLINDER SPECIFICATIONS: PART RPCYLC02

Complies to AS 2030: For filling with Carbon Dioxide (CO2).

Cylinder Life : 5 Years – Maintained to AS2030.

CO2 Charge : 150g net

Cylinder Material : Carbon Steel

AUSTRALIAN DESIGN REGISTRATION
NSW WORKCOVER GC-6-145496/11.

The ETI actuator cylinder uses a frangible seal. After use the cylinder and 'O' ring must be discarded and replaced.

PART – RPCYLC02

Cylinders manufactured after April 2011 have the above style compliance plate. The cylinder is to be inspected and maintained in accordance with AS2030.
During servicing of the cylinder; it must be weighed to confirm gross mass to that stamped on the compliance plate. If the GROSS mass is less than 20 grams from that stamped the cylinder, it must be rejected for re-use. The age of the cylinder, must be checked for date compliance at installation and servicing.

I have also enclosed a copy of recent MSDS 003C which is the current Materials and safety document for this product.

Yours Sincerely

Bambang Isti Yudono
Technical Manager & Chief Engineer

SECTION 1 IDENTIFICATION

SUPPLIER

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MATERIAL

Carbon Dioxide compressed and liquefied- (C02)

PART NO: RPCYLC02
DESCRIPTION: CARBON DIOXIDE CYLINDER 150 GRAM
The ETI carbon dioxide cylinder is 51mm diameter by 200mm long. It contains 150 grams of liquefied Carbon Dioxide (C02). Each cylinder is manufactured to Australian Standard AS2469. Each cylinder contains a pressure relief device. Specification - Copper rupture disc, 0.5mm Copper over 5mm orifice.

- Other names – C02.
- Use – Compressed gas for fire system actuation.

SECTION 2 HAZARDS IDENTIFICATION

UN No: 1013 D.G. CLASS: 2.2

PACKING INSTRUCTION: NONE ALLOCATED

HAZCHEM CODE: 2RE EPG: 2C1

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT	FORMULA	CAS NO.	CONTENT
CARBON DIOXIDE	CO2	124-38-9	> 99%

SECTION 4 FIRST AID MEASURES

Eye Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention. Advice to Doctor, Treat for asphyxia and cold burns.

Inhalation If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Apply artificial respiration if not breathing. Give oxygen if available. Seek advice from a doctor.

Skin Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30°C) for 15 minutes. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.

Ingestion Due to product being a gas, ingestion is considered unlikely.

Advice to Doctor Treat for asphyxia and cold burns.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA – Not Applicable – Non Flammable.

HAZARDS FROM COMBUSTION - Pressurised cylinders exposed to fire may further elevate pressure and weaken the pressure vessel. ETI cylinders are provided with a copper rupture seal that will act a safety relief in the event that cylinders are exposed to fire.

PRECAUTIONS - Fire Fighters should wear normal personal protective equipment for fire fighting. As a minimum this should include a Helmet with visor, fire turnout clothing including gloves and protective footwear. Cylinders containing Carbon Dioxide which have been exposed to fire should be allowed to cool and should be handled with extreme care. Water may be used to assist cooling.

ADDITIONAL INFORMATION

HAZCHEM: 2RE

SECTION 6 ACCIDENTAL RELEASE MEASURES

SPILLAGE If the cylinder is leaking, inform manufacturer/supplier of leak. Use personal protective equipment. Carefully move material to a well ventilated safe area. Do not attempt to repair leaking valve or cylinder safety devices.

SECTION 7 HANDLING AND STORAGE

STORAGE Do not store near incompatible materials. Cylinders should be stored below 45°C in a secure area, upright and restrained to prevent cylinders from falling. Cylinders should also be stored in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits.

HANDLING Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Do not drag, drop, slide or roll cylinders. The uncontrolled release of a gas under pressure may cause physical harm.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION .

Exposure Stds

Ingredient	Reference	TWA		STEL	
		ppm	mg/m3	ppm	mg/m3
Carbon dioxide	ASCC (AUS)	5000	9000	30000	54000
Carbon dioxide in coal mines	ASCC (AUS)	12500	22500	30000	54000

Biological No biological limits apply.

Engineering Limits . Avoid inhalation Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

PPE Wear safety boots cotton or leather gloves and safety glasses. Where an inhalation risk exists, wear an Air-line respirator or self Contained Breathing Apparatus (SCBA).

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES .

Appearance COLOURLESS GAS **Solubility** (Water) 0.759 cm3/cm3
Odour ODOURLESS **Specific Gravity** NOT APPLICABLE
pH NOT APPLICABLE **% Volatiles** 100 %
Vapour Pressure 6300 kPa @ 25°C (Approximately)
Flammability NON FLAMMABLE **Vapour Density** NOT AVAILABLE
Flash Point NOT RELEVANT **Boiling Point** NOT AVAILABLE
Upper Explosion Limit NOT RELEVANT **Melting Point** NOT AVAILABLE
Lower Explosion Limit NOT RELEVANT **Evaporation Rate** NOT APPLICABLE
Critical Pressure 7,380 kPa (Approx) **Critical Temperature** 31°C (Approximately)
Cylinder Pressure 6300 kPa @ 25°C (Approximately)
Density 1.53 (Air = 1) **Sublimation Temperature** -78°C (Approximately)

SECTION 10 STABILITY AND REACTIVITY .

Describe reactivity hazards of the material in this section.

Provide specific test data for the product as a whole, where available. However, the information may also be based on general data for the class or family of chemical if such data adequately represents the anticipated hazard of the material.

10.1 CORE INFORMATION

Chemical stability Stable under recommended conditions of storage.

Conditions to avoid Shock friction heavy impact heat sparks open flames and other ignition sources

Incompatible materials. Moist carbon dioxide is corrosive hence acid resistant materials are required (stainless steel). Certain properties of some plastics and rubbers may be affected by carbon dioxide, ie. Embrittlement leaching of plasticisers, etc. Dust of aluminium, chrome and manganese ignite and explode when heated in carbon dioxide. Incompatible with acrylaldehyde, aziridine, metal acetylides, sodium peroxide. Corrosive when moist.

Hazardous decomposition products May evolve toxic gases if heated to decomposition.

Hazardous reactions. Polymerisation will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

SUMMARY Asphyxiant gas severe frost-bite burns may result from exposure to cold vapour or liquid. Carbon dioxide concentrations of 3-5 % in air cause increased respiration and headache. Concentrations of 8-15% cause headache, nausea and vomiting which may lead to unconsciousness if not moved to open air and given oxygen. Inhalation of a mixture containing no oxygen may result in unconsciousness from the first breath and death may follow in minutes. Adverse health effects to long term exposure to carbon dioxide have not been reported.

Eye Non irritant. However, direct contact with evaporating liquid may result in severe cold burns with possible permanent damage. Contact with dry ice powder could result in frostbite or cold burns.

Inhalation Non irritant Asphyxiant Effects are proportional to oxygen displacement.

Skin Non irritant However, direct contact with the liquefied material or escaping compressed gas may cause frostbite injury. Skin contact with dry ice powder could result in frostbite or cold burns.

Ingestion Ingestion is considered unlikely due to product form. Ingestion will cause severe cold burns to mouth and throat.

Toxicity Data CARBON DIOXIDE (124-38-9)
LC50 (Inhalation): 470000 ppm/30M (rat)
LCLo (Inhalation): 9 pph/5M (human)

SECTION 12 ECOLOGICAL INFORMATION

Environment Carbon Dioxide is a naturally occurring gas in the atmosphere and has no harmful effect.

SECTION 13 DISPOSAL CONSIDERATIONS

Waste Disposal Cylinders should be returned to the manufacturer or supplier for disposal of contents.

Legislation Dispose of in accordance with relevant local legislation.

SECTION 14 TRANSPORT INFORMATION

Transport Ensure cylinder is separated from driver and that outlet of relief device is not obstructed.
CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

UN No: 1013 D.G. CLASS: 2.2

PACKING INSTRUCTION: NONE ALLOCATED

HAZCHEM CODE: 2RE EPG: 2C1

SECTION 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).

SECTION 16 OTHER INFORMATION

Disclaimer:

This document has been compiled by ETI to serve as the manufacturer's Material Safety Data Sheet (MSDS). It is based on information concerning the product which has been provided to ETI by other manufacturers 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. While ETI has taken all due care to include accurate and up-to-date information in this MSDS, ETI in no manner whatsoever, expressly or implied, warrants this information to be accurate and disclaims all liability for its use. Any person utilising this document should seek competent professional advice to verify and assume responsibility for the suitability of this information to their particular situation.