

**Product Name**      **HYDROGEN COMPRESSED**

**1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER**

**Supplier Name**      **COREGAS PTY LTD**  
**Address**              66 Loftus Rd, Yennora, NSW, AUSTRALIA, 2161  
**Telephone**          (02) 9794 2223  
**Fax**                      (02) 9794 2221  
**Emergency**          1300 657 070  
**Email**                    info@coregas.com  
**Web Site**              http://www.coregas.com/  
  
**Synonym(s)**          20831002 - MSDS NUMBER  
  
**Use(s)**                  CALIBRATION GAS • INDUSTRIAL APPLICATIONS  
**MSDS Date**          05 Sep 2008

**2. HAZARDS IDENTIFICATION**

**NOT CLASSIFIED AS HAZARDOUS ACCORDING TO ASCC CRITERIA**

**CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE**

<b>UN No.</b>	1049	<b>DG Class</b>	2.1	<b>Subsidiary Risk(s)</b>	None Allocated
<b>Packing Group</b>	None Allocated	<b>Hazchem Code</b>	2SE	<b>EPG</b>	2A1

**3. COMPOSITION/ INFORMATION ON INGREDIENTS**

Ingredient	Formula	CAS No.	Content
HYDROGEN	H2	1333-74-0	100%

**4. FIRST AID MEASURES**

**Eye**                      None required.

**Inhalation**            If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Be aware of possible explosive atmospheres. Apply artificial respiration if not breathing. Give oxygen if available. For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor.

**Skin**                      None required.

**Ingestion**              Not considered a potential route of exposure.

**Advice to Doctor**    Treat symptomatically

**5. FIRE FIGHTING MEASURES**

**Flammability**          Highly flammable. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights, mobile phones etc. when handling. No hazardous decomposition product when heated to decomposition.

**Fire and Explosion**    Temperatures in a fire may cause cylinders to rupture and internal pressure relief devices to be activated. Cool cylinders or containers exposed to fire by applying water from a protected location. Do not approach cylinders or containers suspected of being hot. This material is capable of forming explosive mixtures in air.

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**Extinguishing**      Stop flow of gas if safe to do so, such as by slowly closing the cylinder valve. If the gas source cannot be isolated, do not extinguish the flame, since re-ignition and explosion could occur. Await arrival of emergency services or manufacturer's advisor. Drench and cool cylinders with water spray from protected area at a safe distance. If it is absolutely necessary to extinguish the flame, use only a dry chemical powder extinguisher. Avoid shock and bumps to cylinders.

**Hazchem Code**      2SE

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**6. ACCIDENTAL RELEASE MEASURES**

**Spillage**      If the cylinder is leaking, eliminate all potential ignition sources and evacuate area of personnel. Prevent spreading of vapours through drains and ventilation systems. Inform manufacturer/supplier of leak. Use personal protective equipment. Carefully move material to a well ventilated remote area, then allow to discharge. Do not attempt to repair leaking valve or cylinder safety devices.

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**7. STORAGE AND HANDLING**

**Storage**      Do not store near sources of ignition or 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 inhalation. Do not drag, drop, slide or roll cylinders. The uncontrolled release of a gas under pressure may cause physical harm. Use a suitable hand truck for cylinder movement. The uncontrolled release of a gas under pressure may cause physical harm. When handling gas cylinders, the use of appropriate mechanical handling devices is recommended.

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**8. EXPOSURE CONTROLS/ PERSONAL PROTECTION**

Exposure Stds	Ingredient	Reference	TWA		STEL	
			ppm	mg/m3	ppm	mg/m3
	Hydrogen	ASCC (AUS)	Asphyxiant			

**Biological Limits**      No biological limit allocated.

**Engineering Controls**      Provide suitable ventilation to minimise or eliminate exposure. Confined areas (eg. tanks) should be adequately ventilated or gas tested. Flammable/explosive vapours may accumulate in poorly ventilated areas. Vapours may also travel some distance to an ignition source and flash back.

**PPE**      Wear leather gloves, safety boots and safety glasses. Clothing should be cotton or wool rather than synthetic materials which can melt at flame temperatures. Where an inhalation risk exists, wear: self Contained Breathing Apparatus (SCBA) or an Air-line respirator.



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**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	COLOURLESS GAS	<b>Solubility (Water)</b>	INSOLUBLE
<b>Odour</b>	ODOURLESS	<b>Specific Gravity</b>	NOT AVAILABLE
<b>pH</b>	NOT AVAILABLE	<b>% Volatiles</b>	NOT AVAILABLE
<b>Vapour Pressure</b>	NOT AVAILABLE	<b>Flammability</b>	HIGHLY FLAMMABLE
<b>Vapour Density</b>	0.07 (Air = 1)	<b>Flash Point</b>	NOT AVAILABLE
<b>Boiling Point</b>	-253°C	<b>Upper Explosion Limit</b>	75 %
<b>Melting Point</b>	-259°C	<b>Lower Explosion Limit</b>	4 %
<b>Evaporation Rate</b>	NOT AVAILABLE		
<b>Autoignition Temperature</b>	571°C		

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## 10. STABILITY AND REACTIVITY

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<b>Chemical Stability</b>	Stable under recommended conditions of storage.
<b>Conditions to Avoid</b>	Avoid shock, friction, heavy impact, heat, sparks, open flames and other ignition sources.
<b>Material to Avoid</b>	Hydrogen is explosive with peroxides, oxidising agents and metal catalysts. Hydrogen can cause embrittlement of steels under special conditions and preference given to copper, bronze or stainless steel.
<b>Hazardous Decomposition Products</b>	No hazardous decomposition product when heated to decomposition.
<b>Hazardous Reactions</b>	Polymerization will not occur.

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## 11. TOXICOLOGICAL INFORMATION

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<b>Health Hazard Summary</b>	Asphyxiant gas. Symptoms of exposure are directly related to displacement of oxygen from air. As the amount of oxygen inhaled is reduced from 21-14% volume, the pulse rate will accelerate and the rate and volume of breathing will increase. The ability to maintain attention and think clearly is diminished, muscular co-ordination is somewhat disturbed. As oxygen decreases from 14-10% volume, judgement becomes faulty, severe injuries may cause no pain. Muscular effort may lead to rapid fatigue. Further reduction to 6% may cause nausea and vomiting. Ability to move may be lost. Permanent brain damage may result even after resuscitation from exposure to this low level of oxygen. Below 6% breathing is in gasps and convulsions may occur. Inhalation of a mixture containing no oxygen may result in unconsciousness from the first breath and death will follow in minutes.
<b>Eye</b>	Non irritant.
<b>Inhalation</b>	Asphyxiant. Effects are proportional to oxygen displacement.
<b>Skin</b>	Non irritant.
<b>Ingestion</b>	Ingestion is considered unlikely due to product form.
<b>Toxicity Data</b>	No LD50 data available for this product.

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## 12. ECOLOGICAL INFORMATION

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<b>Environment</b>	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.
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## 13. DISPOSAL CONSIDERATIONS

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<b>Waste Disposal</b>	Cylinders should be returned to the manufacturer or supplier for disposal of contents.
<b>Legislation</b>	Dispose of in accordance with relevant local legislation.

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## 14. TRANSPORT INFORMATION

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

<b>Shipping Name</b>	HYDROGEN, COMPRESSED			<b>Subsidiary Risk(s)</b>	None Allocated
<b>UN No.</b>	1049	<b>DG Class</b>	2.1	<b>EPG</b>	2A1
<b>Packing Group</b>	None Allocated	<b>Hazchem Code</b>	2SE		
<b>IATA</b>					
<b>Shipping Name</b>	HYDROGEN, COMPRESSED			<b>Subsidiary Risk(s)</b>	None Allocated
<b>UN No.</b>	1049	<b>DG Class</b>	2.1		
<b>Packing Group</b>	None Allocated				

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**IMDG**  
**Shipping Name**                      HYDROGEN, COMPRESSED  
**UN No.**                                  1049                      **DG Class**                      2.1                      **Subsidiary Risk(s)**    None Allocated  
**Packing Group**                      None Allocated

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## 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).

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## 16. OTHER INFORMATION

**Additional Information**              APPLICATION METHOD: Gas regulator of suitable pressure and flow rating fitted to cylinder or manifold with low pressure gas distribution to equipment.

ABBREVIATIONS:  
ADB - Air-Dry Basis.  
BEI - Biological Exposure Indice(s)  
CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.  
CNS - Central Nervous System.  
EINECS - European Inventory of Existing Commercial chemical Substances.  
IARC - International Agency for Research on Cancer.  
M - moles per litre, a unit of concentration.  
mg/m<sup>3</sup> - Milligrams per cubic metre.  
NOS - Not Otherwise Specified.  
NTP - National Toxicology Program.  
OSHA - Occupational Safety and Health Administration.  
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.  
TWA/ES - Time Weighted Average or Exposure Standard.

**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 Chem Alert 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 Chem Alert 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 Material Safety Data Sheet ('MSDS').

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 MSDS, 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 MSDS.

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MSDS Date: 05 Sep 2008

**End of Report**

CHEM ALERT

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Reviewed: 05 Sep 2008  
Printed: 27 Mar 2009