

## SECTION 1 : Identification : Product identifier and chemical identity

### 1.1 Product identifier

SDS Reference No: 401  
Product Form: Mixture  
Product Name: 112DA2GASSP105CH4

### 1.2 Other means of identification

No additional information available

### 1.3 Recommended use of the chemical and restrictions on use

No additional information available

### 1.4 Supplier's details

CAC Gas & Instrumentation Pty Ltd  
Unit 3, 36 Holbeche Road  
Arndell Park  
2148 - Australia  
cac@cacgas.com.au

### 1.5 Emergency phone number:

Emergency Number +61 2 8676 6500

## SECTION 2 : Hazard identification

### 2.1 Classification of the hazardous chemical

Classification according to the model Work Health and Safety Regulations (WHS Regulations)

Extremely flammable H320

Gases under pressure H280

Toxic to aquatic life with long lasting effects H411

### 2.2 Label elements

Hazard pictograms (GHS-AU)



Signal word (GHS-AU)

Danger  
H220 - Extremely flammable gas

Hazard statements (GHS-AU)

H280 - Contains gas under pressure; may explode if heated.  
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.  
No smoking.

Precautionary statements (GHS-AU)

P381 - Eliminate all ignition sources if safe to do so.  
P403 - Store in a well-ventilated place.  
P410+P403 - Protect from sunlight. Store in a well-ventilated place.

### 2.3 Other hazards

Other hazards not contributing to  
the classification

None

## SECTION 3 : Composition/Information on Ingredients

<b>Chemical Name</b>	<b>Conc %</b>	<b>Conc ppm</b>	<b>CAS NO</b>	<b>Classification according to the model Work Health and Safety Regulations</b>
Hydrogen sulfide		1000	7783-06-4	Flam. Gas 1, H220, Press. Gas (Liq.), H280 Acute Tox. 2, (Inhalation:gas), H330 Aquatic Acute 1, H400
Carbon dioxide	45.0		124-38-9	Press. Gas (Liq.), H280
Methane	54.9		74-82-8	Flam. Gas 1, H220 Press. Gas (Comp.), H280

## SECTION 4 : First aid measures

### 4.1 Description of first aid measures

First-aid measures after inhalation	Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Perform cardiopulmonary resuscitation if breathing stopped.
First-aid measures after skin contact	Adverse effects not expected from this product.
First-aid measures after eye contact	Adverse effects not expected from this product.
First-aid measures after ingestion	Ingestion is not considered a potential route of exposure.

### 4.2 Symptoms caused by exposure

Most important symptoms and effects, acute and delayed	Refer to section 11
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### 4.3 Indication of any immediate medical attention and special treatment needed

Other medical advice or treatment	None
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## SECTION 5 : Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media	Water spray or fog
Unsuitable extinguishing media	Carbon dioxide. Do not use water jet to extinguish.

### 5.2 Special hazards arising from the substance or mixture

General measures	Try to stop release. Evacuate area. Monitor concentration of released product. Consider the risk of potentially explosive atmospheres. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Eliminate ignition sources. Ensure adequate air ventilation. Act in accordance with local emergency plan. Stay upwind.
Hazardous combustion products	

### 5.3 Special protective equipment and precautions for fire-fighters

Hazchemcode	2SE
Special protective equipment for fire fighters	In confined space use self-contained breathing apparatus. Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters. Standard EN 137 - Self contained open-circuit compressed air breathing apparatus with full face mask. Standard EN 469 - Protective clothing for fire-fighters. Standard - EN 659: Protective gloves for fire-fighters. Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems. If possible, stop flow of product. Use water spray or fog to knock down fire fumes if possible. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire. Move containers away from the fire area if this can be done without risk.
Specific methods	

## SECTION 6 : Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

General measures	Try to stop release. Evacuate area. Monitor concentration of released product. Consider the risk of potentially explosive atmospheres. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Eliminate ignition sources. Ensure adequate air ventilation. Act in accordance with local emergency plan. Stay up-wind.
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#### 6.1.1 For non-emergency personnel

No additional information available

#### 6.1.2 For emergency responders

No additional information available

#### 6.2 Environmental precautions

Try to stop release

#### 6.3 Methods and material for containment and cleaning up

Methods and material for  
containment and cleaning up

Ventilate area

## SECTION 7 : Handling and storage, including how the chemical may be safely useds

### 7.1 Precautions for safe handling

#### Safe handling of the gas receptacle

Refer to supplier's container handling instructions. Do not allow back-feed into the container. Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Keep container valve outlets clean and free from contaminants particularly oil and water. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to transfer gases from one cylinder/container to another. Never use direct flame or electrical heating devices to raise the pressure of a container. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents. Suck back of water into the container must be prevented. Open valve slowly to avoid pressure shock.

#### Safe use of the product

The product must be handled in accordance with good industrial hygiene and safety procedures. Only experienced and properly instructed persons should handle gases under pressure. Consider pressure relief device(s) in gas installations. Ensure the complete gas system was (or is regularly) checked for leaks before use. Do not smoke while handling product. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Avoid suck back of water, acid and alkalis. Assess the risk of potentially explosive atmospheres and the need for explosion proof equipment. Purge air from system before introducing gas. Take precautionary measures against static discharge. Keep away from ignition sources (including static discharges). Consider the use of only non-sparking tools. Do not breathe gas. Avoid release of product into atmosphere. Ensure equipment is adequately earthed.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Conditions for safe storage, including any Containers incompatibilities

Observe all regulations and local requirements regarding storage of containers. Should not be stored in conditions likely to encourage corrosion. Container valve guards or caps should be in place. Containers should be stored in the vertical position and properly secured to prevent them from falling over. Stored containers should be periodically checked for general condition and leakage. Keep container below 50°C in a well ventilated place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible materials. Segregate from oxidant gases and other oxidants in store. All electrical equipment in the storage areas should be compatible with the risk of a potentially explosive atmosphere.

## SECTION 8 : Exposure controls/personal protection

### 8.1 Control parameters - exposure standard

Hydrogen sulfide	Australia	Local Name	Hydrogen sulfide
	China	OEL MAC	10mg/m3
	USA-ACGIH	Remark	URT iff: CNS impair
	USA-ACGIH	STEL	5ppm
	USA-ACGIH	TWA	1ppm
Carbon dioxide	Australia	Local Name	Carbon dioxide
	China	OEL STEL	18000mg/m3
	USA-ACGIH	OEL TWA	5000ppm
	USA-ACGIH	Remark	Asphyxiant
	USA-ACGIH	STEL	30000ppm
	USA-ACGIH	TWA(ppm)	5000ppm
Methane	Australia	Local Name	Methane

## 8.2 Monitoring

No additional information available

## 8.3 Appropriate engineering controls

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Product to be handled in a closed system. Systems under pressure should be regularly checked for leakages. Ensure exposure is below occupational exposure limits (where available). Gas detectors should be used when flammable gases/vapours may be released. Consider the use of a work permit system e.g. for maintenance activities.

## 8.4 Personal protective equipment

Personal protective equipment A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered. PPE compliant to the recommended EN/ISO standards should be selected.

Hand protection Wear working gloves when handling gas containers. Standard EN 388 - Protective gloves against mechanical risk.

Eye protection Wear safety glasses with side shields. Standard EN 166 - Personal eye-protection - specifications. Gas filters may be used if all surrounding conditions e.g. type and concentration of the contaminant(s) and duration of use are known. Use gas filter with full face mask, where exposure limits may be exceeded for a short-term period, e.g. connecting or disconnecting containers. Gas filters do not protect against oxygen deficiency. Standard EN 14387 - Gas filter(s), combined filter(s) and mask - EN 136.

Respiratory protection

Thermal hazard protection None in addition to the above sections.

Environmental exposure controls Refer to local regulations for restriction of emissions to the atmosphere. See Section 13 for specific methods for waste gas treatment.

Other information Consider the use of flame resistant anti-static safety clothing. Standard EN ISO 14116 - Limited flame spread materials. Standard EN ISO 1149-5 - Protective clothing. Electrostatic properties. Wear safety shoes while handling containers. Standard EN ISO 20345 - personal protective equipment - Safety footwear.

## SECTION 9 : Physical and chemical properties

Appearance	Gas
Molecular mass	Not applicable for gas mixtures.
Colour	Colourless
Odour	natural gas, pungent
Fat solubility	No data available.
Additional information	None

## SECTION 10 : Stability and reactivity

Reactivity	No reactivity hazard other than the effects described in sub-sections below.
Chemical stability	Stable under normal conditions.
Conditions to avoid	Keep away from heat/sparks/open flames/hot surfaces - No smoking. Avoid moisture in installation systems.
Incompatible materials	Air, Oxidisers. For additional information on compatibility refer to ISO 11114.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11 : Toxicological information

Acute toxicity (oral)	Not classified
Acute toxicity (dermal)	Not classified
Acute toxicity (inhalation)	Classified as non-toxic

Australian Dangerous Goods Code (ADG) Not Dangerous Goods

Globally Harmonised System (GHS) 1020254 ppm/1h Not DG

## SECTION 12 : Ecological information

### 12.1 Ecotoxicity

Ecology - general	Classification criteria are not met	
Acute/Chronic toxicity	Not classified	
Hydrogen sulfide	Log Kow	Not applicable for gas mixtures
	Log Pow	Not applicable for gas mixtures
Carbon dioxide	Log Kow	Not applicable for gas mixtures
	Log Pow	0.83
Methane	Log Kow	Not applicable for gas mixtures
	Log Pow	1.09

## 12.2 Persistence and degradability

Hydrogen sulfide	Persistence and degradability	Is readily biodegradable. Unlikely to persist
Carbon dioxide	Persistence and degradability	No ecological damage
Methane	Persistence and degradability	Is readily biodegradable. Unlikely to persist

### 12.3 Bioaccumulative potential

Hydrogen sulfide	Log Pow	See section 12.1 on ecotoxicology
	Log Kow	See section 12.1 on ecotoxicology
	Bioaccumulative potential	No data available
Carbon dioxide	Log Pow	See section 12.1 on ecotoxicology
	Log Kow	See section 12.1 on ecotoxicology
	Bioaccumulative potential	No data available
Methane	Log Pow	See section 12.1 on ecotoxicology
	Log Kow	See section 12.1 on ecotoxicology
	Bioaccumulative potential	No data available

## 12.4 Mobility in soil

Hydrogen sulfide	Log Pow	See section 12.1 on ecotoxicology
	Log Kow	See section 12.1 on ecotoxicology
	Ecology - soil	High volatility so ground or water pollution is unlikely as is partition into soil
Carbon dioxide	Log Pow	See section 12.1 on ecotoxicology
	Log Kow	See section 12.1 on ecotoxicology
	Ecology - soil	High volatility so ground or water pollution is unlikely as is partition into soil
Methane	Log Pow	See section 12.1 on ecotoxicology
	Log Kow	See section 12.1 on ecotoxicology
	Ecology - soil	High volatility so ground or water pollution is unlikely as is partition into soil

12.5 Other adverse effects

Hydrogen sulfide	Effect on the ozone layer	None
	Effect on global warming	May contribute to greenhouse effect if discharged in large quantities
	Flourinated greenhouse gases	False
	GWP 20 years	None
Carbon dioxide	GWP 100 years	None
	GWP 500 years	None
	Effect on the ozone layer	None
	Effect on global warming	May contribute to greenhouse effect if discharged in large quantities
	Flourinated greenhouse gases	False
Methane	GWP 20 years	May contribute to greenhouse effect if discharged in large quantities
	GWP 100 years	May contribute to greenhouse effect if discharged in large quantities
	GWP 500 years	May contribute to greenhouse effect if discharged in large quantities
	Effect on the ozone layer	None
	Effect on global warming	May contribute to greenhouse effect if discharged in large quantities
Methane	Flourinated greenhouse gases	False
	GWP 20 years	May contribute to greenhouse effect if discharged in large quantities
	GWP 100 years	May contribute to greenhouse effect if discharged in large quantities
	GWP 500 years	May contribute to greenhouse effect if discharged in large quantities

## SECTION 13 : Disposal considerations

Waste treatment methods	Contact supplier if guidance is required. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded. Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <a href="http://www.eiga.org">http://www.eiga.org</a> for more guidance on suitable disposal methods. Return unused product in original cylinder to supplier.
Additional information	External treatment and disposal of waste should comply with applicable local and/or national regulations.

## SECTION 14 : Transport information

### 14.1 UN number

UN-No. (ADG)	UN 1954	UN-No. for the mixture is
UN-No. (IMDG)	UN 1954	calculated in accordance with ISO
UN-No. (IATA)	UN 1954	10156 2017

### 14.2 Proper Shipping name - Addition

Proper Shipping Name (ADG)	COMPRESSED GAS, FLAMMABLE, N.O.S.
Proper Shipping Name (IMDG)	COMPRESSED GAS, FLAMMABLE, N.O.S.
Proper Shipping Name (IATA)	Compressed gas, flammable, n.o.s.

### 14.3 Transport hazard class(es)

#### ADG

Transport hazard class(es)	2.1
Danger labels	2.1



#### IMDG

Transport hazard class(es)	2.1
Danger labels	2.1



#### IATA

Transport hazard class(es)	2.1
Danger labels	2.1



#### 14.4 Packing group

Packing group (ADG)	Not applicable
Packing group (IMDG)	Not applicable
Packing group (IATA)	Not applicable

#### 14.5 Environmental hazards

Marine pollutant	None
Special precautions for user	
Specific storage requirement	No data available
Shock sensitivity	No data available

#### 14.6 Additional information

Other information	No supplementary information available
Special transport precautions	Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: - Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

##### Transport by road and rail

UN Number	UN 1954
Proper Shipping Name	COMPRESSED GAS, FLAMMABLE, N.O.S. Class 2
Transport Hazard Class(es)	Label(s) 2.1
Hazard No.	23
Tunnel restriction code	(B/D)
Emergency Action Code	2YE
Packing Group	P200

##### Transport by sea

UN Number	UN 1954
Proper Shipping Name	COMPRESSED GAS, FLAMMABLE, N.O.S. Class 2.1
Transport Hazard Class(es)	Label(s) 2.1 Ems No. : F-D, S-U

##### Air transport

UN Number	UN 1954
Proper Shipping Name	Compressed gas, flammable, n.o.s. Class 2.1
Transport Hazard Class(es)	Label(s) 2.1
Packing Group	
Environmental hazards	not applicable
Special precautions for user	
Passenger and cargo aircraft	Forbidden
Cargo aircraft only	Forbidden

#### 14.7 Hazchem or Emergency Action Code

Hazchemcode	2SE
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## SECTION 15 : Regulatory information

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

No additional information available

### 15.2 International agreements

No additional information available

## SECTION 16 : Any other relevant information

### Abbreviations and acronyms:

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road

ANSI - American National Standards Institute

ATE - Acute Toxicity Estimate

CAS# - Chemical Abstract Service number

CFR - Code of Federal Regulations

CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008

CSA - Chemical Safety Assessment EN - European Standard UN - United Nations

DOT - US Department of Transport

EINECS - European Inventory of Existing Commercial Chemical Substances

IATA - International Air Transport Association

IMDG code - International Maritime Dangerous Goods

LC50 - Lethal Concentration to 50 % of a test population

MSHA - Mine Safety and Health Administration is an agency of the United States Department of Labor

NFPA - National Fire Protection Association of the United States

OSHA - Occupational Safety and Health Administration is an agency of the United States Department of Labor

PBT - Persistent, Bio-accumulative and Toxic vPvB - Very Persistent and Very Bio-accumulative

PPE - Personal Protection Equipment

REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006

RID - Regulations concerning the International Carriage of Dangerous Goods by Rail

RMM - Risk Management Measures

STOT - RE : Specific Target Organ Toxicity - Repeated Exposure

STOT - SE : Specific Target Organ Toxicity - Single Exposure

WGK - Water Hazard Class

Revision date : 15/05/2023

**Other information:** Classification using data from databases maintained by the European Industrial Gases Association (EIGA). Classification in accordance with the calculation methods of Regulation (EC) 1272/2008 CLP.

### Classification:

Extremely flammable H320

Gases under pressure H280

### Full text of H-statements:

Acute Tox. 2 (Inhalation:gas)

Acute toxicity (inhalation:gas) Category 2

Aquatic Acute 1

Hazardous to the aquatic environment — Acute Hazard, Category 1

Aquatic Chronic 2

Hazardous to the aquatic environment — Chronic Hazard, Category 2

Asp. Tox. 1

Aspiration hazard, Category 1

Flam. Gas 1

Flammable gases, Category 1

Flam. Liq. 1

Flammable liquids, Category 1

Flam. Liq. 2

Flammable liquids, Category 2

Press. Gas (Comp.)

Gases under pressure : Compressed gas

Press. Gas (Liq.)	Gases under pressure : Liquefied gas
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H220	Extremely flammable gas.
H224	Extremely flammable liquid and vapour.
H225	Highly flammable liquid and vapour.
H280	Contains gas under pressure; may explode if heated.
H304	May be fatal if swallowed and enters airways.
H330	Fatal if inhaled.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effect.

*Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out. Details given in the document are believed to be correct at the time of SDS generation. Whilst proper care has been taken by competent individuals in the preparation of this document, no liability for injury or damage to property resulting from its use can be accepted.*