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## SDS – CARBON DIOXIDE (SOLID)

### SECTION 1 : IDENTIFICATION OF HAZARD CHEMICAL

#### 1.1 Product identifier

Trade name : Carbon Dioxide (Solid)  
Chemical description : Carbon Dioxide (Solid)  
CAS No :124-38-9  
EC No :204-696-9  
Index No: --  
Chemical formula :CO2  
Registration-No. :Listed in Annex IV / V REACH, exempted from registration.

#### 1.2 Other means of identification

SDS Nr : AGM/SDS/005

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

Relevant identified uses : Industrial and professional. Perform risk assessment prior to use.  
Cooling (Food Additive E209)  
Blast cleaning  
Metal cooling  
Contact supplier for more information on uses.

#### 1.4 Details of Principal Supplier

Company identification : Ace Gases Marketing Sdn Bhd  
3, Jalan Astaka U8/83,  
Bukit Jelutong Industrial Park,  
40150, Shah Alam,  
Selangor Darul Ehsan

#### 1.5 Emergency phone number

Emergency phone number : +03-7842 5696



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### SECTION 2: HAZARD IDENTIFICATION

#### 2.1 Classification of The Substance or Mixture and Any Nation or Regional Information

Hazard Class and Category Code Regulation EC 1272/2008 (CLP)  
: Not Regulated

Classification EC 67/548 or EC 1999/45  
: Not classified as dangerous substance / mixture.  
Not included in Annex VI.  
No EC labelling required.

#### 2.2 Label Elements

Labelling Regulation EC 1272/2008 (CLP)  
: None

#### 2.3 Other Hazards

: Refrigerated solidified gas. Contact with product may cause cold burns or frostbite. Asphyxiant in high concentrations.

### SECTION 3: COMPOSITION AND INFORMATION

Sustain Name	Contents	CAS No EC No Index No Registration no	Classification (DSD)	Classification (CLP)
Carbon Dioxide (Solid)	100 %	124-38-9 204-696-9 -		Not Classified (GHS)
		*1		

Contains no other components or impurities which will influence the classification of the product.

\* 1: Listed in Annex IV / V REACH, exempted from registration.

\* 2: Registration deadline not expired.

\* 3: Registration not required: Substance manufactured or imported < 1t/y.



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### SECTION 4: FIRST AID MEASURES

#### 4.1 Description of first aid measures

- Inhalation : Remove victim to uncontaminated area wearing self-contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
- Skin contact : In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.
- Eye contact : Adverse effects not expected from this product.
- Ingestion : Get immediate medical attention

Most important symptoms and effects, both acute and delayed

- In high concentrations may cause asphyxiation.
- Symptoms may include loss of mobility/ consciousness.
- Victim may not be aware of asphyxiation.
- Low concentration of CO<sub>2</sub> cause increased respiration and headache.

Indication of immediate medical attention and special treatment needed

- None.

### SECTION 5: FIRE-FIGHTING MEASURES

#### 5.1 Extinguishing media

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

#### 5.2 Special hazards arising from the chemical

- Specific hazards : None
- Hazardous combustion products : None.

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

- Specific methods: : 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. Use water spray or fog to knock down fire fumes if possible.



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### 5.4 Special protective equipment for fire

: Use self-contained breathing apparatus.

Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

Standard EN 469 - Protective clothing for firefighters. Standard - EN 659; Protective gloves for firefighters.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

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

: Use protective clothing. Evacuate area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation.

### 6.2 Environmental precautions

: Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous

### 6.3 Methods and material for containment and cleaning

: Ventilate area

### 6.4 Reference to other sections

: See also sections Expose Control and Personal Protection and Disposal Information



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### SECTION 7: HANDLING AND STORAGE

#### 7.1 Precautions for safe handling

Safe use of the product

:Refer to supplier's container handling instructions.

The substance must be handled in accordance with good industrial hygiene and safety procedures.

Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.

Do not smoke while handling product.

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

:Keep container below 50°C in a well-ventilated place.

Observe all regulations and local requirement regarding storage of containers.

#### 7.3 Specific end use(s)

: None.



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### SECTION 8: EXPOSE CONTROLS AND PERSONAL PROTECTION

#### 8.1 Control parameters

##### Occupational Exposure Limits

Carbon Dioxide (Solid) : VME - France [mg/m<sup>3</sup>]: 9000  
: VME - France [ppm]: 5000  
: TLV-TWA (Belgium) (ppm): 5000  
: TWA BE 8h [mg/m<sup>3</sup>]: 9131  
: TLV-STEL (Belgium) (ppm): 30000  
: STEL BE 15min [mg/m<sup>3</sup>]: 54784

#### 8.2 Appropriate engineering controls

##### Appropriate engineering controls

:Systems under pressure should be regularly checked for leakages.  
Avoid oxygen rich (>23,5%) atmospheres.  
Consider work permit system e.g. for maintenance activities.  
Gas detectors should be used when oxidising gases may be released.  
Provide adequate general and local exhaust ventilation.

##### Individual protection measures, such as personal protective equipment

Eye/face protection : Wear safety glasses with side shields.  
Standard EN 166 - Personal eye-protection.

Skin protection

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

Other : Wear safety shoes while handling containers.  
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.

Respiratory protection : Self-contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.  
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

Thermal hazards : Wear cold insulating gloves.  
Standard EN 511 – Cold insulating gloves



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### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1 Information on basic physical and chemical properties

Appearance Physical state at 20°C / 101.3kPa	: Gas.
Physical State	: Refrigerated Solidified Gas
Colour	: White.
Odour	: No odour warning properties.
Odour threshold	: Odour threshold is subjective and inadequate to warn for overexposure.
pH value	: Not applicable.
Molar mass [g/mol]	: 44
Melting point [°C]	: -78.5
Boiling point [°C]	: -56.6 (s)
Critical temperature [°C]	: 30
Flash point [°C]	: Not applicable for gases and gas-mixtures.
Evaporation rate (ether=1)	: Not applicable for gases and gas-mixtures.
Flammability range [vol% in air]	: Non flammable.
Vapour pressure [20°C]	: 57.3 bar
Relative density, gas (air=1)	: 1.52
Relative density, liquid (water=1)	: 1.03
Solubility in water [mg/l]	: 2000 Complete Soluble
Partition coefficient n-octanol/water [log Kow]	: 0.83
Auto-ignition temperature [°C]	: Not applicable.
Viscosity at 20°C [mPa.s]	: Not applicable.
Explosive Properties	: Not applicable.
Oxidising Properties	: None.

#### 9.2 Other information

Other data  
: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.



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### SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity	: None.
10.2 Chemical stability	: Stable under normal conditions.
10.3 Possibility of hazardous reactions	: None.
10.4 Conditions to avoid	: None under recommended storage and handling conditions (see section Handling and Storage).
10.5 Incompatible materials	: For additional information on compatibility refer to ISO 11114.
10.6 Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced..

### SECTION 11: ~~TEXICOLOGICAL INFORMATION~~

#### 11.1 Information on toxicological effects

Acute toxicity	: In high concentrations cause rapid circulatory insufficiency. Symptoms are headache, nausea and vomiting, which may lead to unconsciousness.
Skin corrosion/irritation	: No known effects from this product.
Serious eye damage/irritation	: No known effects from this product.
Respiratory or skin sensitization	: No known effects from this product.
Carcinogenicity	: No known effects from this product.
Germ cell mutagenicity	: No known effects from this product.
Reproductive toxicity	: No known effects from this product.
STOT-single exposure	: No known effects from this product.
STOT-repeated exposure	: No known effects from this product.
Aspiration hazard	: Not applicable for gases and gas-mixtures.

#### 11.2 Information on possible routes of exposure

Information on possible routes of exposure : Data is not available.

#### 11.3 Early onset symptoms related to exposure

Early onset symptoms related to exposure : Data is not available.

#### 11.4 Delayed and immediate effects from exposure

Delayed and immediate effects from exposure : Data is not available.

#### 11.5 Numerical measures of toxicity





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Numerical measures of toxicity : Data is not available.

### SECTION 12: ECOLOGICAL INFORMATION

- 12.1 Ecotoxicity** : No ecological damage caused by this product.  
**12.2 Persistence and degradability** : No ecological damage caused by this product.  
**12.3 Bioaccumulative potential** : No ecological damage caused by this product.  
**12.4 Mobility in soil** : No ecological damage caused by this product.  
**12.5 Results of PBT and vPvB assessment** : Not classified as PBT or vPvB.  
**12.6 Other adverse effects** : Can cause frost damage to vegetation.  
Effect on ozone layer : None.  
Global Warming Potential [CO<sub>2</sub>=1] : 1  
Effect on the global warming : When discharged in large quantities may contribute to the greenhouse effect.

### SECTION 13: DISPOSAL INFORMATION

- 13.1 Waste treatment methods**  
: Do not discharge into any place where its accumulation could be dangerous.  
Discharge to atmosphere in large quantities should be avoided.  
Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.org> for more guidance on suitable disposal methods.  
Consult supplier for specific recommendations
- List of hazardous wastes : 16 05 05: Gases in pressure containers other than those mentioned in 16 05 04.
- Additional information : None.



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### SECTION 14: TRANSPORTATION INFORMATION

UN number : 1845

#### Land transport (ADR/RID)

H.I. nr : -  
UN proper shipping name : UN1845 CARBON DIOXIDE, SOLID, , III  
Transport hazard class(es) : 9  
Classification code : M11 III  
Packing Group : III  
Environmental hazards : None.

#### Sea transport (IMDG)

Proper shipping name : CARBON DIOXIDE, SOLID  
Emergency Schedule (EmS) -Fire : F-C, S-V  
Emergency Schedule (EmS) -Spillage: S-V  
Packing instruction : P003  
IMDG-Marine pollutant : No

#### Air transport (ICAO-TI / IATA-DGR)

Proper shipping name (IATA) : CARBON DIOXIDE, SOLID  
Class : 9  
Passenger and Cargo Aircraft : Allowed.  
Packing instruction - Passenger and Cargo Aircraft : 954  
Packing instruction - Cargo Aircraft Only : 954

#### Special precautions for user

: 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 that containers are firmly secured.
- Ensure there is adequate ventilation.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable.



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### SECTION 15: REGULATORY INFORMATION

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

##### EU legislation

Restrictions on use : None.  
Seveso directive 96/82/EC : Not covered.

##### National legislation

National legislation : Ensure all national/local regulations are observed.

#### 15.2 Chemical safety assessment

: A CSA does not need to be carried out for this product

### SECTION 16: OTHER INFORMATION

##### Indication of changes

: Revised safety data sheet in accordance with commission OSHR 2013 (CLASS)

##### Training advice

: The hazard of asphyxiation is often overlooked and must be stressed during operator training.

##### Key literature references and sources for data used to compile the SDS

: This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national law.

##### Date of revision of the SDS

: Please refer to Header.

#### DISCLAIMER OF LIABILITY

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

Key or legend to the abbreviations and acronyms used in the SDS



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: STOT - specific target organ toxicity

Date of preparation of the SDS

: Please refer to Header



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## **SDS – CARBON DIOXIDE (SOLID)**

### **ANNEX 0: REVISION TABLE**



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