

Revised: 30 Jan 2015  
Version No. 1  
Revision No. 5  
Created: 31 Dec 2010

## **1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**

### **1.1 Product identifier**

Commercial substance name – *Carbon Dioxide* E290

Chemical substance name – Carbon Dioxide

Identification number – Not applicable

EC No. – 204-696-9

CAS No. – 124-38-9

REACH Registration No. – Not registered due to the fact that is classified as an exclusion according to Annex V to Regulation (EC) No. 1907/2006

### **1.2 Relevant identified uses of the substance or mixture and used advised against**

**1.2.1 Relevant identified uses:** *Used as a food additive according to Commission Regulation (EU) No. 231/2012 laying down specifications for food additives listed in Annexes II and III to Regulation (EC) No 1333/2008 of the European Parliament and of the Council applicable for production of carbonated beverages, beer and other drinks. Used for cooling, freezing and storage of foodstuffs. Also for technical applications*

**1.2.2 Uses advised against:** None

### **1.3 Details of the Supplier of the Safety Data Sheet:**

Manufacturer/Supplier: Gaschema Branch of AB Achema

Address: Jonalaukio k., Ruklos sen., LT55550

Country: Republic of Lithuania

Telephone: +370 349 56259

Website of the Manufacturer/Supplier: [www.gaschema.lt](http://www.gaschema.lt).

Competent person: Z. Andriulaitienė, [z.andriulaitiene@gaschema.lt](mailto:z.andriulaitiene@gaschema.lt)

### **1.4 Emergency telephone number**

Please contact: Poison Control and Information Service opened 24 hours-a-day by telephone: +370 (5) 2362052, General Emergency Service by telephone 112.

## **2. HAZARDS IDENTIFICATION**

### **2.1 Classification of the substance or mixture**

#### **2.1.1 Classification according to Regulation (EC) No. 1272/2008:**

Liquid gas, H280 (only for cylinders, cylinder bunches)

Refrigerated liquid gas, H281 (only for isothermal, cryogenic tanks and containers)

**2.1.2 Classification according to Directive 67/548/EEC:** Not classified as dangerous

#### **2.1.3 Additional information:**

Full text of hazard and precautionary statements is listed in Section 16

### **2.2 Label elements**

#### **2.2.1 Labelling according to Regulation (EC) No. 1272/2008:**



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Signal word **Warning**  
Hazard statements:  
H280 – Contains gas under pressure; may explode if heated (only for cylinders, cylinder bunches)  
H281 – Contains refrigerated gas; may cause cryogenic burns or injury (only for isothermal, cryogenic tanks and containers)

Precautionary statements:  
P410+P403 – Protect from sunlight. Store in a well-ventilated place (only for isothermal, cryogenic tanks and containers)  
P250 – Do not subject to shock  
P282 – Wear cold insulating gloves/face shield/eye protection (only for isothermal, cryogenic tanks and containers)  
P336 – Thaw frosted parts with lukewarm water. Do not rub affected area (only for isothermal, cryogenic tanks and containers)  
P315 – Get immediate medical advice/attention (only for isothermal, cryogenic tanks and containers)  
P403 – Store in a well-ventilated place (only for isothermal, cryogenic tanks and containers)

**2.3 Other hazards**  
As carbon dioxide is inorganic substance, neither PBT nor vPvB assessment has been carried out according to Annex XIII to Regulation (EC) No.1907/2006

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1 Substances**

The product is considered an elementary substance according to Regulation (EC) No. 1907/2006.

Identification of hazardous components

CAS No.	EC No.	REACH Registration No.	Percentage by Weight %	Substance Name	Classification according to Regulation (EC) No. 1272/2008: [CLP / GHS] requirements
124-38-9	204-696-9	Not registered due to the fact that is classified as an exclusion according to Annex V to Regulation (EC) No. 1907/2006	99.9-99.95	Carbon dioxide	Liquid gas, H280 (only for cylinders, cylinder bunches), Refrigerated liquid gas, H281 (only for isothermal, cryogenic tanks and containers)

CAS No.	EC No.	REACH Registration No.	Percentage by Weight %	Substance Name	Classification according to Directive 67/548/EEC
124-38-9	204-696-9	Not registered due to the fact that is classified as an exclusion according to Annex V to	99.9-99.95	Carbon dioxide	Not classified as dangerous.

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		Regulation (EC) No. 1907/2006			
<b>4. FIRST AID MEASURES</b>					
<b>4.1 Description of first aid measures</b> The substance may enter the body through the following ways: <b>After inhalation:</b> <i>Take the casualty exposed to carbon dioxide to fresh air, give oxygen, seek medical advice</i> <b>After skin contact:</b> <i>Dress the frostbitten parts with a sterile bandage. Seek medical advice</i> <b>After eye contact:</b> <i>Rinse thoroughly with water. Seek medical advice</i> <b>After ingestion:</b> <i>Not required</i>					
<b>4.2 Most important symptoms and effects, both acute and delayed</b> <i>No data on delayed effect available</i>					
<b>4.3 Indications of any immediate medical attention and special treatment needed</b> <i>None</i>					
<b>5. FIREFIGHTING MEASURES</b>					
<b>5.1 Extinguishing media</b> <b>Suitable extinguishing media:</b> <i>Carbon dioxide is non-flammable</i> <b>Extinguishing media not to be used for safety reasons:</b> <i>None</i> <b>Unsuitable extinguishing media:</b> <i>None</i>					
<b>5.2 Special hazards arising from the substance of mixture</b> <i>None</i>					
<b>5.3 Advice for fire-fighters</b> <i>Use insulating gas-masks</i>					
<b>6. ACCIDENTAL RELEASE MEASURES</b>					
<b>6.1 Personal precautions, protective equipment and emergency procedures</b> <b>For non-emergency personnel:</b> <i>Avoid contact with the substance. Use personal protective equipment, see Section 8</i> Environmental measures: <i>Not required</i> <b>For emergency responders:</b> <i>Avoid contact with the substance. Use personal protective equipment, see Section 8</i>					
<b>6.2 Environmental precautions</b> <i>Not required</i>					
<b>6.3 Methods and materials for containment and cleaning up</b> <i>None</i>					
<b>6.4 Reference to other sections</b> <i>Personal protection equipment: see Section 8. Disposal considerations: see Section 13</i>					
<b>7. HANDLING AND STORAGE</b>					
<b>7.1 Precautions for safe handling</b> <b>Usage requirements and recommendations:</b> <i>premises wherein liquid carbon dioxide is produced and stored shall be equipped with an inlet and exhaust ventilation system in compliance with the requirements of STR 2.09.02 Heating, Ventilation, Air Conditioning and with an emergency ventilation system.</i>					

**Storage requirements:** *Liquid carbon dioxide shall be stored in cylinders or isothermal tanks. Cylinders shall be stored in special warehouses or at enclosed sites under cover protecting cylinders against atmospheric fallout and direct sunlight*

Instructions on the limit quantity of the substance/preparation to be stored under the conditions specified: *Not regulated*

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

**Unsuitable (incompatible) substances to be stored separately:** *None*

**Requirements for containers of the substance/preparation:** *Cylinders, isothermal tanks shall be in compliance with the requirements of the Pressure Vessel Code*

**7.3 Specific end use(s)**

*Used as a food additive according to Commission Regulation (EU) No. 231/2012 laying down specifications for food additives listed in Annexes II and III to Regulation (EC) No. 1333/2008 of the European Parliament and of the Council applicable for production of carbonated beverages, beer and other drinks. Used for cooling, freezing and storage of foodstuffs. Also for technical applications*

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters**

Occupational exposure limit values: *Long-term occupational exposure limit (IPRVD) value is 9000 mg/m<sup>3</sup> CO<sub>2</sub> as specified in Lithuanian Hygiene Norm HN 23*

**8.2 Exposure controls**

**8.2.1 Appropriate engineering controls:** *Inlet and exhaust ventilation*

**8.2.2 Personal protective equipment:**

**Eye/face protection:** *Safety goggles, perspex visors*

**Skin protection:** *Work clothing*

**Hands protection:** *Gloves*

**Other protection:** *Dense cotton suit (jacket, trousers), special footwear*

**Respiratory protection:** *Not required*

**Protection against thermal hazards:** *Not required*

**8.2.3 Environmental exposure controls:** *Not required*

**9. PHYSICAL AND CHEMICAL PROPERTIES**

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

**Appearance:** *Odourless, colourless liquid*

**pH:** *Not applicable for liquid gas*

**Melting point / freezing point:** *-78.5 °C/ -57 °C*

**Initial boiling point and boiling range:** *-78.5°C*

**Flash point:** *Non-flammable*

**Flammability (gas):** *Non-flammable*

**Explosive properties:** *Non-explosive*

**Oxidising properties:** *Non-oxidising*

**Vapour pressure:** *569 mmHg*

**Relative density:** *761 kg/m<sup>3</sup>(21.1°C, pressure of 5.8MPa)*

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<b>Solubility in water:</b>	<i>1.45 kg/m<sup>3</sup></i>
<b>Partition coefficient n-octanol/water:</b>	<i>Does not apply to inorganic gaseous substances</i>
<b>Viscosity:</b>	<i>0.07 cP at -78 °C</i>
<b>Vapour density:</b>	<i>Not available</i>
<b>Evaporation rate:</b>	<i>No data available</i>
<b>Viscosity:</b>	<i>Does not apply to gas</i>
<b>9.2 Other information</b>	
None	
<b>10. STABILITY AND REACTIVITY</b>	
<b>10.1 Reactivity</b>	
<i>Under evaporation, liquid carbon dioxide (liquid carbonic acid gas) converts to gaseous carbon dioxide</i>	
<b>10.2 Chemical stability</b>	
<i>Under evaporation, liquid carbon dioxide (liquid carbonic acid gas) converts to gaseous carbon dioxide</i>	
<b>Need for stabilisers:</b> <i>Not required</i>	
<b>10.3 Possibility of hazardous reactions</b>	
<i>None</i>	
<b>10.4 Conditions to avoid</b>	
<i>Protect from sunlight, store in a well-ventilated place, do not subject to shock</i>	
<b>10.5 Incompatible materials</b>	
<i>None</i>	
<b>10.6 Hazardous decomposition products</b>	
<i>Gaseous carbon dioxide</i>	
<b>11. TOXICOLOGICAL INFORMATION</b>	
<b>11.1. Information on toxicological effects (of the substance):</b> Non-toxic	
<b>11.1.1. Acute toxicity:</b> Non-toxic	
<b>11.1.2. Skin corrosion / irritation:</b> Non-irritating	
<b>11.1.3. Respiratory or skin sensitisation:</b> Non-sensitising	
<b>11.1.4. Germ cell mutagenicity:</b> None	
<b>11.1.5. Carcinogenicity:</b> None	
<b>11.1.6. Reproductive toxicity:</b> Non-toxic	
<b>11.1.7. Specific target organ toxicity (STOT) (single exposure):</b> Non-toxic	
<b>11.1.8. Specific target organ toxicity (STOT) (repeated exposure):</b> Non-toxic	
<b>11.1.9. Aspiration hazard:</b> None	
<b>12. ECOLOGICAL INFORMATION</b>	
<b>12.1 Toxicity:</b> <i>Non-toxic</i>	
<b>12.2 Persistence and degradability:</b> <i>Natural substance does not degrade</i>	
<b>12.3 Bioaccumulative potential:</b> <i>No bioaccumulative properties</i>	
<b>12.4 Mobility in the soil:</b> <i>No data available</i>	

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<p><b>12.5 PBT and vPvB assesement results</b> Neither PBT nor vPvB assessment has been carried out according to Annex XIII to Regulation (EC) No.1907/2006</p>
<p><b>12.6 Other adverse effects:</b> None</p>
<p><b>13. DISPOSAL CONSIDERATIONS</b></p>
<p>Requirements: <i>Do not dispose waste into environment</i></p>
<p><b>13.1 Waste treatment methods</b> Disposal methods of waste and contaminated packages of the substance/preparation (incineration, recycling, disposal at a dumping site, etc.): <i>Not required</i></p>
<p><b>14. TRANSPORT INFORMATION</b></p>
<p><b>14.1 UN number</b> 1013 (only for cylinders, cylinder bunches) 2187 (only for isothermal, cryogenic tanks and containers)</p>
<p><b>14.2 UN proper shipping name</b> Carbon dioxide Carbon dioxide, refrigerated, liquid</p>
<p><b>14.3 Transport hazard class(es)</b> 2</p>
<p><b>14.4 Packing group</b> Not applicable</p>
<p><b>14.5 Environmental hazards:</b> 20 Carbon dioxide 22 Carbon dioxide, refrigerated, liquid</p>
<p><b>14.6 Special precautions for user</b> <i>Liquid carbon dioxide in cylinders and isothermal tanks can be transported by any transportation mode in compliance with the requirements applicable to the transportation mode under consideration.</i> <i>The cylinders with liquid carbon dioxide shall be transported in horizontal position with partitions between cylinders or in special containers in vertical position (necessarily with a guard protecting against possible falling over).</i> <i>When the quantity of the buyable liquid carbonic acid gas does not exceed 1,000 kg for a transport unit, the ADR requirements stipulated in subsection 1.1.3.6.3 of the restructured ADR edition as of 2001 shall be applied partially.</i></p>
<p><b>14.7 Transport in bulk according to Annex II of MARPOL 73/78 II and IBC Code</b> Not applicable</p>
<p><b>15. REGULATORY INFORMATION</b></p>
<p><b>15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture</b> Legal acts regulating the classification and labelling of the substance/preparation, restriction on its usage, requirements on personnel safety and health, limit values in work area, waste handling, etc.: - Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 published in Official Journal of the European Union No. L353, Vol. 51, 31 Dec 2008 - Regulation (EC) No. 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) - Commission Regulation (EU) No. 453/2010 amending Regulation (EC) No. 1907/2006 of the European</p>

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*Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)*

- *Regulation (EC) No. 852/2004 of the European Parliament and of the Council on the Hygiene of Foodstuffs*
- *Commission Regulation (EU) No. 231/2012 laying down specifications for food additives listed in Annexes II and III to Regulation (EC) No 1333/2008 of the European Parliament and of the Council*
- *Hygiene Norm HN 23 Limit Values of Impact of Chemical Substances on Occupation. General Requirements for Impact Measurement and Assessment*
- *Applicable Regulations on Protection of Workers from Exposure of Chemical Substances at Work and Regulations on Protection of Workers from the Risks Related to Exposure to Carcinogens or Mutagens at Work*
- *Hygiene Norm HN 36 Banned and Restricted Substances*
- *Applicable Law on Waste Management of the Republic of Lithuania*
- *Applicable Waste Management Rules*
- *Applicable Rules on Labelling of Items (Goods) Sold in the Republic of Lithuania and Indication of Prices*
- *Applicable Company Standard IST 156667399-27, Technological Regulation TR-796-06*
- *Applicable Provisional Usage Rules of Seamless Cylinders*
- *European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR)*
- *Regulations Concerning the International Carriage of Dangerous Goods by Rail (RID)*
- *International Maritime Dangerous Goods Code (IMDG)*

Additional information indicated on the label of the substance/preparation package (container):

- *Manipulation sign No.4 as per LST EN ISO 780*



**15.2 Chemical safety assessment** Chemical assessment of carbon dioxide has been not carried out as it is classified as an exclusion according to Annex V to Regulation (EC) No. 1907/2006 and is not registered.

**16. OTHER INFORMATION**

Abbreviations and acronyms:

*H280 – Contains gas under pressure; may explode if heated*

*H281 – Contains refrigerated gas; may cause cryogenic burns or injury*

*P410+P403 – Protect from sunlight. Store in a well-ventilated place*

*P250 – Do not subject to shock*

*P282 – Wear cold insulating gloves/face shield/eye protection*

*P336 – Thaw frosted parts with lukewarm water. Do no rub affected area*

*P315 – Get immediate medical advice/attention*

*P403 – Store in a well-ventilated place*

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

*RID – Regulations Concerning the International Carriage of Dangerous Goods by Rail*

*SMGS – Agreement on the International Goods Transport by Rail*

Information contained in this Material Safety Data Sheet shall be available for all persons work whereof is relevant to the substance/preparation. Data provided herein is in line with knowledge available for us and is intended to define the substance/preparation in terms of safety and health protection at work as well as in terms of environmental issues. Information contained in this Material Safety Data Sheet will be supplemented in case new data about the effect of the substance/preparation on health and environment as well as new data about prevention measures in order to decrease risk or to eliminate risk completely become available. Information contained herein reveals no other features of the substance/preparation.

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End of the Safety Data Sheet

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J. Kaminskas

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Leading Engineer, Experimental Research Laboratory

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