

**Committee of Experts on the Transport of Dangerous Goods
and on the Globally Harmonized System of Classification
and Labelling of Chemicals**

14 June 2018

**Sub-Committee of Experts on the
Transport of Dangerous Goods**

Fifty-third session

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Item 3 of the provisional agenda

Listing, classification and packing

Transport of barium carbonate as non-dangerous good

Transmitted by the expert from Spain

Introduction

1. Barium carbonate is a barium compound, and therefore by default classified as UN 1564, BARIUM COMPOUND, N.O.S, a UN number of Division 6.1.
2. Nevertheless, according to the information available, barium carbonate may not be toxic as can be shown by the information and tests provided in the annexes to this document.
3. To facilitate international trade and to avoid different interpretation of the applicable prescriptions for the transport of dangerous goods, it would be interesting to clearly exempt barium carbonates from the application of the UN Model Regulations, as has already been done for Barium sulphate by SP 177:

“177 Barium sulphate is not subject to these Regulations.”

Background

4. Barium carbonate is one of the most widely used products in the ceramic sector as well as in the production of tiles and bricks. Other applications are the manufacture of special types of glass, as a component of frits for glazing enamels, porcelains, and structural clay and to create barium ferrite powder that is used in certain magnets.
5. There is one European manufacturer of barium carbonate, whereas the other producers are principally Chinese and Indian. Barium carbonate is a manufactured product made from barite ore, through the following process:
 - (a) Barite ore (barium sulphate) is reduced to barium sulfide.
 - (b) Barium sulfide is dissolved in water and leached to remove impurities.
 - (c) The barium sulfide solution is reacted with carbon dioxide gas to produce, as a precipitate, barium carbonate.
 - (d) The barium carbonate precipitate is filtered to remove excess water and then dried.

6. As it is obtained as result of an industrial process, only small variations in between the different barium carbonates from different origins should exist.
7. Barium carbonate is commercialized under four forms, free-flowing barium carbonate, precipitated barium carbonate, liquid barium carbonate and granular barium carbonate, depending on the granulometry of the product and if it is mixed with water to achieve a liquid.

Test results

8. Annexed to this document is the following documentation:
 - UN Model Regulations Data Sheet (annex I)
 - Safety data sheet of barium carbonate (annex II)
9. Additionally, the information presented for classification of barium carbonate in ECHA (European Chemicals Agency) can be viewed under:
<https://www.echa.europa.eu/web/guest/registration-dossier/-/registered-dossier/15337/9>
10. The direct link to the information on toxicity of this dossier is:
<https://www.echa.europa.eu/web/guest/registration-dossier/-/registered-dossier/15337/7/3/2>
11. The test results for oral toxicity indicate that barium carbonate is toxic with an LD₅₀ of 1690 mg/kg, which is a much bigger dose than the upper limit for oral toxicity for packing group III (300 mg/kg), and therefore is not considered to be toxic, according to the classification criteria of the Model Regulations.

Proposal

12. According to this information, barium carbonate is non-toxic, and consequently should not be covered by the regulation on transport of dangerous goods.
13. Therefore, the expert from Spain suggests to study the possible modification of SP 177 to read as follows (new text **underlined and bold**, deleted text ~~stricken through and bold~~):
“177 Barium sulphate **and barium carbonate are** ~~is~~ not subject to these Regulations.”
14. Spain is looking forward to the comments and additional information that may be provided by the Sub-Committee and would be willing to prepare a reviewed formal document on this subject for the next session.



SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier: BARIUM CARBONATE

Barium carbonate

CAS: 513-77-9

EC: 208-167-3

Index: 056-003-00-2

REACH: 01-2119489177-25-XXXX

1.2 Relevant identified uses of the substance or mixture and uses advised against:

Relevant uses: Frit; enamel. For professional user/industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3

1.3 Details of the supplier of the safety data sheet:

CFM MINERALES S.A.
CAMINO DE PALOS S/N
12200 ONDA - CASTELLON - ESPAÑA
Phone.: +34 964776250 -
Fax: +34964605484
cfm@cfm-minerales.es
www.cfm-minerales.es

1.4 Emergency telephone number: 964776250

SECTION 2: HAZARDS IDENTIFICATION **

2.1 Classification of the substance or mixture:

CLP Regulation (EC) No 1272/2008:

Classification of this product has been carried out in accordance with CLP Regulation (EC) No 1272/2008.

Acute Tox. 4: Acute toxicity if swallowed, Category 4, H302

2.2 Label elements:

CLP Regulation (EC) No 1272/2008:

Warning



Hazard statements:

Acute Tox. 4: H302 - Harmful if swallowed

Precautionary statements:

P264: Wash thoroughly after handling

P270: Do not eat, drink or smoke when using this product

P301+P312: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell

P330: Rinse mouth

P501: Dispose of contents/container in accordance with regulations on hazardous waste or packaging and packaging waste respectively

2.3 Other hazards:

Product fails to meet PBT/vPvB criteria

** Changes with regards to the previous version

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance:

Chemical description: Carbonate/s

Components:



SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (continued)

In accordance with Annex II of Regulation (EC) No 1907/2006 (point 3), the product contains:

Identification	Chemical name/Classification		Concentration
CAS: 513-77-9 EC: 208-167-3 Index: 056-003-00-2 REACH: 01-2119489177-25-XXXX	Barium carbonate ATP CLP00		75 - <100 %
	Regulation 1272/2008	Acute Tox. 4: H302 - Warning	

To obtain more information on the hazards of the substances consult sections 8, 11, 12, 15 and 16.

3.2 Mixture:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures:

The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the SDS of this product.

By inhalation:

This product does not contain substances classified as hazardous for inhalation, however, in case of symptoms of intoxication remove the person affected from the exposure area and provide with fresh air. Seek medical attention if the symptoms get worse or persist.

By skin contact:

In case of contact it is recommended to clean the affected area thoroughly with water and neutral soap. In case of changes to the skin (stinging, redness, rashes, blisters,...), seek medical advice with this Safety data Sheet

By eye contact:

This product does not contain substances classified as hazardous for eye contact. Rinse eyes thoroughly for at least 15 minutes with lukewarm water, ensuring that the person affected does not rub or close their eyes.

By ingestion/aspiration:

Request medical assistance immediately, showing the SDS of this product. Do not induce vomiting, but if it does happen keep the head down to avoid aspiration. In the case of loss of consciousness do not administer anything orally unless supervised by a doctor. Rinse out the mouth and throat, as they may have been affected during ingestion. Keep the person affected at rest.

4.2 Most important symptoms and effects, both acute and delayed:

Acute and delayed effects are indicated in sections 2 and 11.

4.3 Indication of any immediate medical attention and special treatment needed:

Non-applicable

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media:

Product is non-flammable under normal conditions of storage, handling and use. In the case of combustion as a result of improper handling, storage or use preferably use polyvalent powder extinguishers (ABC powder), in accordance with the Regulation on fire protection systems. IT IS NOT RECOMMENDED to use tap water as an extinguishing agent.

5.2 Special hazards arising from the substance or mixture:

As a result of combustion or thermal decomposition reactive sub-products are created that can become highly toxic and, consequently, can present a serious health risk.

5.3 Advice for firefighters:

Depending on the magnitude of the fire it may be necessary to use full protective clothing and self-contained breathing apparatus (SCBA). Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit,...) in accordance with Directive 89/654/EC.

Additional provisions:

Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. Eliminate all sources of ignition. In case of fire, cool the storage containers and tanks for products susceptible to combustion, explosion or BLEVE as a result of high temperatures. Avoid spillage of the products used to extinguish the fire into an aqueous medium.



SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

Sweep up and shovel product or collect by other means and place in container for reuse (preferred) or disposal

6.2 Environmental precautions:

This product is not classified as hazardous to the environment. Keep product away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up:

It is recommended:

Sweep up and shovel product or collect by other means and place in container for reuse (preferred) or disposal

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A.- Precautions for safe manipulation

Comply with the current legislation concerning the prevention of industrial risks. Keep containers hermetically sealed. Control spills and residues, destroying them with safe methods (section 6). Avoid leakages from the container. Maintain order and cleanliness where dangerous products are used.

B.- Technical recommendations for the prevention of fires and explosions

Due to its non-flammable nature, the product does not present a fire risk under normal conditions of storage, handling and use.

C.- Technical recommendations to prevent ergonomic and toxicological risks

Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

D.- Technical recommendations to prevent environmental risks

It is recommended to have absorbent material available at close proximity to the product (See subsection 6.3)

7.2 Conditions for safe storage, including any incompatibilities:

A.- Technical measures for storage

Store in a cool, dry, well-ventilated location

B.- General conditions for storage

Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

7.3 Specific end use(s):

Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters:

Substances whose occupational exposure limits have to be monitored in the work environment

Identification	Environmental limits		
	IOELV (8h)	IOELV (STEL)	Year
Barium carbonate CAS: 513-77-9 EC: 208-167-3		0.5 mg/m ³	2018

Nuisance dust: Inhalable dust 10 mg/m³ // Respirable dust 4 mg/m³

DNEL (Workers):

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
Barium carbonate CAS: 513-77-9 EC: 208-167-3	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	41 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	6,9 mg/m ³	0,72 mg/m ³

DNEL (General population):



SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
Barium carbonate CAS: 513-77-9 EC: 208-167-3	Oral	Non-applicable	Non-applicable	3,5 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Inhalation	Non-applicable	Non-applicable	2,1 mg/m ³	0,12 mg/m ³

PNEC:

Identification				
Barium carbonate CAS: 513-77-9 EC: 208-167-3	STP	50,1 mg/L	Fresh water	227,8 mg/L
	Soil	207,7 mg/kg	Marine water	Non-applicable
	Intermittent	Non-applicable	Sediment (Fresh water)	792,7 mg/kg
	Oral	Non-applicable	Sediment (Marine water)	Non-applicable

8.2 Exposure controls:

A.- General security and hygiene measures in the work place

As a preventative measure it is recommended to use basic Personal Protective Equipment, with the corresponding <<CE marking>> in accordance with Directive 89/686/EC. For more information on Personal Protective Equipment (storage, use, cleaning, maintenance, class of protection,...) consult the information leaflet provided by the manufacturer. For more information see subsection 7.1.

All information contained herein is a recommendation which needs some specification from the labour risk prevention services as it is not known whether the company has additional measures at its disposal.

B.- Respiratory protection

The use of protection equipment will be necessary if a mist forms or if the occupational exposure limits are exceeded.

C.- Specific protection for the hands

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory hand protection	Protective gloves against minor risks			Replace gloves in case of any sign of damage. For prolonged periods of exposure to the product for professional users/industrials, we recommend using CE III gloves in line with standards EN 420 and EN 374.

D.- Ocular and facial protection

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory face protection	Panoramic glasses against splash/projections.		EN 166:2001 EN ISO 4007:2012	Clean daily and disinfect periodically according to the manufacturer's instructions. Use if there is a risk of splashing.

E.- Body protection

Pictogram	PPE	Labelling	CEN Standard	Remarks
	Work clothing			Replace before any evidence of deterioration. For periods of prolonged exposure to the product for professional/industrial users CE III is recommended, in accordance with the regulations in EN ISO 6529:2001, EN ISO 6530:2005, EN ISO 13688:2013, EN 464:1994.
	Anti-slip work shoes		EN ISO 20347:2012	Replace before any evidence of deterioration. For periods of prolonged exposure to the product for professional/industrial users CE III is recommended, in accordance with the regulations in EN ISO 20345 y EN 13832-1

F.- Additional emergency measures

Emergency measure	Standards	Emergency measure	Standards
 Emergency shower	ANSI Z358-1 ISO 3864-1:2002	 Eyewash stations	DIN 12 899 ISO 3864-1:2002

Environmental exposure controls:



SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. For additional information see subsection 7.1.D

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

For complete information see the product datasheet.

Appearance:

Physical state at 20 °C:	Solid
Appearance:	Not available
Colour:	Not available
Odour:	Not available
Odour threshold:	Non-applicable *

Volatility:

Boiling point at atmospheric pressure:	Non-applicable *
Vapour pressure at 20 °C:	Non-applicable *
Vapour pressure at 50 °C:	<300000 Pa (300 kPa)
Evaporation rate at 20 °C:	Non-applicable *

Product description:

Density at 20 °C:	4310 kg/m ³
Relative density at 20 °C:	4,31
Dynamic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 40 °C:	Non-applicable *
Concentration:	Non-applicable *
pH:	Non-applicable *
Vapour density at 20 °C:	Non-applicable *
Partition coefficient n-octanol/water 20 °C:	Non-applicable *
Solubility in water at 20 °C:	Non-applicable *
Solubility properties:	Non-applicable *
Decomposition temperature:	Non-applicable *
Melting point/freezing point:	787 °C
Explosive properties:	Non-applicable *
Oxidising properties:	Non-applicable *

Flammability:

Flash Point:	Non-applicable
Flammability (solid, gas):	Non-applicable *
Autoignition temperature:	Non-applicable *
Lower flammability limit:	Non-applicable *
Upper flammability limit:	Non-applicable *

Explosive:

Lower explosive limit:	Non-applicable *
Upper explosive limit:	Non-applicable *

9.2 Other information:

Surface tension at 20 °C:	Non-applicable *
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*Not relevant due to the nature of the product, not providing information property of its hazards.



SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)

Refraction index: Non-applicable *

*Not relevant due to the nature of the product, not providing information property of its hazards.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

No hazardous reactions are expected because the product is stable under recommended storage conditions. See section 7.

10.2 Chemical stability:

Chemically stable under the conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

10.4 Conditions to avoid:

Applicable for handling and storage at room temperature:

Shock and friction	Contact with air	Increase in temperature	Sunlight	Humidity
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

10.5 Incompatible materials:

Acids	Water	Combustive materials	Combustible materials	Others
Avoid strong acids	Not applicable	Not applicable	Not applicable	Avoid alkalis or strong bases

10.6 Hazardous decomposition products:

See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO₂), carbon monoxide and other organic compounds.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

The experimental information related to the toxicological properties of the product itself is not available

Dangerous health implications:

In case of exposure that is repetitive, prolonged or at concentrations higher than the recommended occupational exposure limits, adverse effects on health may result, depending on the means of exposure:

A.- Ingestion (acute effect):

- Acute toxicity : The consumption of a considerable dose can cause irritation in the throat, abdominal pain, nausea and vomiting.
- Corrosivity/Irritability: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

B- Inhalation (acute effect):

- Acute toxicity : Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for inhalation. For more information see section 3.
- Corrosivity/Irritability: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

C- Contact with the skin and the eyes (acute effect):

- Contact with the skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for skin contact. For more information see section 3.
- Contact with the eyes: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):



SECTION 11: TOXICOLOGICAL INFORMATION (continued)

- Carcinogenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for the effects mentioned. For more information see section 3.
- Mutagenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- Reproductive toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

E- Sensitizing effects:

- Respiratory: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous with sensitising effects. For more information see section 3.
- Cutaneous: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

F- Specific target organ toxicity (STOT) - single exposure:

Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

G- Specific target organ toxicity (STOT)-repeated exposure:

- Specific target organ toxicity (STOT)-repeated exposure: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

H- Aspiration hazard:

Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

Other information:

Non-applicable

Specific toxicology information on the substances:

Identification	Acute toxicity		Genus
	LD50 oral	LD50 dermal	
Barium carbonate	1690 mg/kg	Non-applicable	Rat
CAS: 513-77-9	Non-applicable	Non-applicable	
EC: 208-167-3	Non-applicable	Non-applicable	

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity:

Not available

12.2 Persistence and degradability:

Not available

12.3 Bioaccumulative potential:

Not available

12.4 Mobility in soil:

Not available

12.5 Results of PBT and vPvB assessment:

Product fails to meet PBT/vPvB criteria

12.6 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:

Code	Description	Waste class (Regulation (EU) No 1357/2014)



SECTION 13: DISPOSAL CONSIDERATIONS (continued)

It is not possible to assign a specific code, as it depends on the intended use by the user

Dangerous

Type of waste (Regulation (EU) No 1357/2014):

HP6 Acute Toxicity

Waste management (disposal and evaluation):

Consult the authorized waste service manager on the assessment and disposal operations in accordance with Annex 1 and Annex 2 (Directive 2008/98/EC). As under 15 01 (2014/955/EC) of the code and in case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-dangerous residue. We do not recommend disposal down the drain. See paragraph 6.2.

Regulations related to waste management:

In accordance with Annex II of Regulation (EC) No 1907/2006 (REACH) the community or state provisions related to waste management are stated

Community legislation: Directive 2008/98/EC, 2014/955/EU, Regulation (EU) No 1357/2014

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land:

With regard to ADR 2017 and RID 2017:



- 14.1 UN number:** UN1564
- 14.2 UN proper shipping name:** BARIUM COMPOUND, N.O.S. (Barium carbonate)
- 14.3 Transport hazard class(es):** 6.1
- Labels:** 6.1
- 14.4 Packing group:** III
- 14.5 Environmental hazards:** No
- 14.6 Special precautions for user**
 - Special regulations: 177, 274, 513, 587
 - Tunnel restriction code: D/E
 - Physico-Chemical properties: see section 9
 - Limited quantities: 5 kg
- 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code:** Non-applicable

Transport of dangerous goods by sea:

With regard to IMDG 38-16:



- 14.1 UN number:** UN1564
- 14.2 UN proper shipping name:** BARIUM COMPOUND, N.O.S. (Barium carbonate)
- 14.3 Transport hazard class(es):** 6.1
- Labels:** 6.1
- 14.4 Packing group:** III
- 14.5 Environmental hazards:** No
- 14.6 Special precautions for user**
 - Special regulations: 177, 223, 274
 - EmS Codes: F-A, S-A
 - Physico-Chemical properties: see section 9
 - Limited quantities: 5 kg
- 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code:** Non-applicable

Transport of dangerous goods by air:

With regard to IATA/ICAO 2017:



SECTION 14: TRANSPORT INFORMATION (continued)

14.1 UN number:	UN1564
14.2 UN proper shipping name:	BARIUM COMPOUND, N.O.S. (Barium carbonate)
14.3 Transport hazard class(es):	6.1
Labels:	6.1
14.4 Packing group:	III
14.5 Environmental hazards:	No
14.6 Special precautions for user	
Physico-Chemical properties:	see section 9
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code:	Non-applicable

SECTION 15: REGULATORY INFORMATION

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

Candidate substances for authorisation under the Regulation (EC) No 1907/2006 (REACH): Non-applicable

Substances included in Annex XIV of REACH ("Authorisation List") and sunset date: Non-applicable

Regulation (EC) No 1005/2009, about substances that deplete the ozone layer: Non-applicable

Article 95, REGULATION (EU) No 528/2012: Non-applicable

REGULATION (EU) No 649/2012, in relation to the import and export of hazardous chemical products: Non-applicable

Limitations to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII REACH, etc):

Non-applicable

Specific provisions in terms of protecting people or the environment:

It is recommended to use the information included in this safety data sheet as a basis for conducting workplace-specific risk assessments in order to establish the necessary risk prevention measures for the handling, use, storage and disposal of this product.

Other legislation:

The product could be affected by sectorial legislation

15.2 Chemical safety assessment:

The supplier has not carried out evaluation of chemical safety.

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) No 1907/2006 (Regulation (EC) No 2015/830)

Modifications related to the previous Safety Data Sheet which concerns the ways of managing risks.:

CLP Regulation (EC) No 1272/2008 (SECTION 2, SECTION 16):

- Precautionary statements

Texts of the legislative phrases mentioned in section 2:

H302: Harmful if swallowed

Texts of the legislative phrases mentioned in section 3:

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

CLP Regulation (EC) No 1272/2008:

Acute Tox. 4: H302 - Harmful if swallowed

Advice related to training:

Minimal training is recommended in order to prevent industrial risks for staff using this product and to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:



SECTION 16: OTHER INFORMATION (continued)

<http://echa.europa.eu>
<http://eur-lex.europa.eu>

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road
IMDG: International maritime dangerous goods code
IATA: International Air Transport Association
ICAO: International Civil Aviation Organisation
COD: Chemical Oxygen Demand
BOD5: 5-day biochemical oxygen demand
BCF: Bioconcentration factor
LD50: Lethal Dose 50
LC50: Lethal Concentration 50
EC50: Effective concentration 50
Log-POW: Octanol–water partition coefficient
Koc: Partition coefficient of organic carbon

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation at European and state level, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product, it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within our awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

Figure 1

**DATA SHEET TO BE SUBMITTED TO THE UNITED NATIONS
FOR NEW OR AMENDED CLASSIFICATION OF SUBSTANCES**

Submitted by..... Date

Supply all relevant information including sources of basic classification data. Data should relate to the product in the form to be transported. State test methods. Answer all questions - if necessary state "not known" or "not applicable" - If data is not available in the form requested, provide what is available with details. Delete inappropriate words.

Section 1. SUBSTANCE IDENTITY

- 1.1 Chemical name Barium Carbonate
- 1.2 Chemical formula BaCO₃
- 1.3 Other names/synonyms
- 1.4.1 UN number 1.4.2 CAS number 513-77-9
- 1.5 Proposed classification for the Recommendations
- 1.5.1 proper shipping name (3.1.2¹).....
- 1.5.2 class/division subsidiary risk(s)
packing group
- 1.5.3 proposed special provisions, if any
- 1.5.4 proposed packing instruction(s).....

Section 2. PHYSICAL PROPERTIES

- 2.1 Melting point or range.....°C decomposition at 1380 °C
- 2.2 Boiling point or range°C
- 2.3 Relative density at :
- 2.3.1 15 °C
- 2.3.2 20 °C4,31.....
- 2.3.3 50 °C
- 2.4 Vapour pressure at :
- 2.4.1 50 °Cn.a. kPa
- 2.4.2 65 °C kPa
- 2.5 Viscosity at 20 °C²n.a. m²/s
- 2.6 Solubility in water at 20 °C >= 0,0014 g/100 ml
- 2.7 Physical state at 20°C (2.2.1.1¹) solid/liquid/gas²--

¹ This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.

² See definition of "liquid" in 1.2.1 of the Model Regulations on the Transport of Dangerous Goods.

- 2.8 Appearance at normal transport temperatures, including colour and odour Barium carbonate is a white crystalline inorganic odourless solid at room temperature and under atmospheric pressure.
- 2.9 Other relevant physical properties
-
-

Section 3. FLAMMABILITY

- 3.1 Flammable vapour
- 3.1.1 Flash point (2.3.3¹)n.a...... °C oc/cc
- 3.1.2 Is combustion sustained? (2.3.1.3¹) yes/no
- 3.2 Autoignition temperature n.a...... °C
- 3.3 Flammability range (LEL/UEL)n.a...... %
- 3.4 Is the substance a flammable solid? (2.4.2¹) yes/no
- 3.4.1 ~~If yes, give~~ details Barium carbonate is stable at ambient temperature. This substance also does not contain any chemical groups that might lead to spontaneous ignition a short time after coming in contact with air at room temperature (circa 20°C). Furthermore, long-term industrial experience in handling shows that the substance does not ignite in contact with air.

Section 4. CHEMICAL PROPERTIES

- 4.1 Does the substance require inhibition/stabilization or other treatment such as nitrogen blanket to prevent hazardous reactivity? yes/no
- If yes, state:
- 4.1.1 Inhibitor/stabilizer used
- 4.1.2 Alternative method
- 4.1.3 Time effective at 55 °C
- 4.1.4 Conditions rendering it ineffective
- 4.2 Is the substance an explosive according to paragraph 2.1.1.1? (2.1¹) yes/no
- 4.2.1 ~~If yes, give~~ details This substance is void of any chemical structures commonly associated with explosive properties, such as metal peroxides, peroxy-acid-anions, azides, and halogen oxides.)
-
-

¹ This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.

- 4.3 Is the substance a desensitized explosive? (2.4.2.4¹) **yes/no**
4.3.1 If yes, give details
.....
.....
- 4.4 Is the substance a self-reactive substance? (2.4.1¹) **yes/no**
If yes, state:
4.4.1 exit box of flow chart
What is the self-accelerating decomposition temperature (SADT) for a 50 kg package? °C
Is the temperature control required? (2.4.2.3.4¹) **yes/no**
4.4.2 proposed control temperature for a 50 kg package °C
4.4.3 proposed emergency temperature for a 50 kg package °C
- 4.5 Is the substance pyrophoric? (2.4.3¹) **yes/no**
4.5.1 If yes, give details ~~Since barium carbonate represents the highest oxidised form of barium it is intrinsically not combustible and can safely be assumed not to be ignitable~~.....
.....
.....
- 4.6 Is the substance liable to self-heating? (2.4.3¹) **yes/no**
4.6.1 If yes, give details
.....
.....
- 4.7 Is the substance an organic peroxide (2.5.1¹) **yes/no**
If yes state:
4.7.1 exit box of flow chart
What is the self accelerating decomposition temperature (SADT) for a 50 kg package?..... °C
Is temperature control required? (2.5.3.4.1¹) **yes/no**
4.7.2 proposed control temperature for a 50 kg package °C
4.7.3 proposed emergency temperature for a 50 kg package °C
- 4.8 Does the substance in contact with water emit flammable gases? (2.4.4¹) **yes/no**
4.8.1 ~~if yes, give details Barium carbonate does not contain groups that might lead to a reaction with water or damp air, leading to the development of dangerous amounts of gas or gases which may be highly flammable. Furthermore, long-term industrial experience in practical handling of the substance shows that it does not react with water; and recent experimental testing for water solubility has also not reported any formation of gases~~.....

¹ This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.

- 4.9 Does the substance have oxidizing properties (2.5.1¹) yes/no
- 4.9.1 ~~if yes, give details~~ Barium carbonate does not contain a surplus of oxygen or any structural groups known to be correlated with a tendency to react exothermally with combustible material
-
-
- 4.10 Corrosivity (2.8¹) to:
- 4.10.1 mild steelmm/year at no data / not expected °C
- 4.10.2 aluminiummm/year at no data / not expected °C
- 4.10.3 other packaging materials (specify)
-mm/year at °C
-mm/year at °C
- 4.11 Other relevant chemical properties
-
-
-

Section 5. HARMFUL BIOLOGICAL EFFECTS

- 5.1 LD₅₀, oral (2.6.2.1.1¹)... 1690 mg/kg Animal species rat (Sprague-Dawley) male/female
- 5.2 LD₅₀, dermal (2.6.2.1.2¹)... no data mg/kg Animal species
- 5.3 LC₅₀, inhalation (2.6.2.1.3¹) ... n.a. mg/litre Exposure time --- hours
- or ml/m³ Animal species ---
- 5.4 Saturated vapour concentration at 20 °C (2.6.2.2.4.3¹) n.a. (solid) ml/m³
- 5.5 Skin exposure (2.8¹) results Exposure time --- hours/minutes
- Animal species ---
- 5.6 Other data Testing by the inhalation route with barium carbonate is not necessary since it was not possible to generate a stable testing atmosphere with an acceptable test concentration atmosphere (ideally 5.1 mg/L). Despite extensive effort, it was only possible to achieve a test item concentration of 0.2 mg/L. The test substance was pestled up to an MMAD below 4. Based on the technical properties of barium carbonate, the performance of an acute inhalation toxicity test is neither technically
- 5.7 Human experience feasible nor scientifically relevant for this type of compound. Due to the MMAD/GSD and the particle size which are much higher than the pestled substance used for the pre-study, the low mobility and the negligible volatility of barium carbonate, the test material can safely be assumed to have a very low potential for human inhalation hazard during handling or application

Section 6. SUPPLEMENTARY INFORMATION

- 6.1 Recommended emergency action
- 6.1.1 Fire (include suitable and unsuitable extinguishing agents) Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Special exposure hazards in a fire: Not combustible. Special protective equipment for fire-fighters: In the event of fire, wear self-contained breathing apparatus.
- 6.1.2 Spillage
- Personal precautions: Sweep up to prevent slipping hazard. Avoid dust formation.
- Methods for cleaning up: Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Keep in properly labelled containers. Keep in suitable, closed containers for disposal.

¹ This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.

- 6.2 Is it proposed to transport the substance in:
- 6.2.1 Bulk Containers (6.8¹) yes/no
 - 6.2.2 Intermediate Bulk Containers (6.5¹)? yes/no
 - 6.2.3 Portable tanks (6.7¹)? yes/no
- If yes, give details in Sections 7, 8 and/or 9.

Section 7. BULK CONTAINERS (only complete if yes in 6.2.1)

7.1 Proposed type(s)

Section 8. INTERMEDIATE BULK CONTAINERS (IBCs) (only complete if yes in 6.2.2)

8.1 Proposed type(s).....

Section 9. MULTIMODAL TANK TRANSPORT (only complete if yes in 6.2.3)

- 9.1 Description of proposed tank (including IMO tank type if known)
- 9.2 Minimum test pressure
- 9.3 Minimum shell thickness
- 9.4 Details of bottom openings, if any
- 9.5 Pressure relief arrangements
- 9.6 Degree of filling
- 9.7 Unsuitable construction materials

¹ This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.