

## SAFETY DATA SHEET

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product name                                      BARIUM CARBONATE

Product number                                   P3303

REACH registration number                  01-2119489177-25

CAS number                                      513-77-9

EC number                                        208-167-3

EU Index No:                                    056-003-00-2

Synonyms: Barium Carbonate Carbonic Acid, Barium Salt (1:1), Barium Monocarbonate.

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

Use of the substance/preparation:

General chemical production and processes. Reactive processing aid. Industrial use in manufacture of other barium substances or formulation of barium carbonate containing preparations. Glass. Ceramics and electro-ceramic materials or glazes, frits and enamels. Welding electrode coating. Preparation of slurry. Manufacture of pyrotechnical products. Welding in industrial / professional settings.

#### 1.3. Details of the supplier of the safety data sheet

Supplier                                              PotteryCrafts Ltd.,  
Campbell Road,  
Stoke-on-Trent  
Staffordshire,  
ST4 4ET  
Tel +44 (0)1782 745000  
[sales@pottery crafts.co.uk](mailto:sales@pottery crafts.co.uk)

#### 1.4. Emergency telephone number

Emergency telephone                      +44(0)1782 745000 Office Hours 10:00-15:30 Mon- Fri

### SECTION 2: Hazards identification

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

##### Classification

Physical hazards                                      Not Classified

Health hazards                                        Acute Tox. 4 - H302

Environmental hazards Not Classified

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC

Xn; R22

Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects  
HARMFUL IF INGESTED

## 2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 (CLP)

Hazard Pictogram (CLP)

GHS06

Signal word



Warning

Hazard statements

H302 Harmful if swallowed.

Precautionary statements

P270 - Do not eat, drink or smoke when using this product.  
P301+P312 - IF SWALLOWED: Call a POISON CENTER or  
doctor/physician if you feel unwell.  
P330 - Rinse mouth

Supplementary Precautionary Statements (CLP):

P264 - Wash contaminated skin thoroughly after handling  
P501 - Dispose of contents/containers in accordance with  
regional regulations.

## 2.3. Other hazards

This substance/mixture does not meet the PBT criteria of REACH, annex XIII.

This substance/mixture does not meet the vPvB criteria of REACH, annex XIII.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

Name: Barium Carbonate

Reach Registration number: 01-2119489177-25

CAS No.: 513-77-9

EC no: 208-167-3

EU Index No. 056-003-00-2

Composition Comments:

Purity >90 -<100% w/w

### 3.2. Mixtures

Not applicable

## **SECTION 4: First aid measures**

### **4.1. Description of first aid measures**

|                     |                                                                                                                                                                                               |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation</b>   | Remove victim to fresh air. If breathing is difficult, give oxygen. If breathing stops, perform cardiopulmonary resuscitation (CPR). Take to hospital.                                        |
| <b>Ingestion</b>    | If swallowed, DO NOT INDUCE VOMITING: seek medical advice immediately and show this container or label.                                                                                       |
| <b>Skin contact</b> | Wash immediately with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse. Seek medical attention if ill effect or irritation develops. |
| <b>Eye contact</b>  | In case of eye contact, immediately rinse with clean water for 10-15 minutes. Call a doctor.                                                                                                  |

### **4.2. Most important symptoms and effects, both acute and delayed**

HARMFUL IF SWALLOWED

### **4.3. Indication of any immediate medical attention and special treatment needed**

Follow advice given in 4.1.

## **SECTION 5: Firefighting measures**

### **5.1. Extinguishing media**

Use Suitable fire-extinguishing media, appropriate for surrounding materials.

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

#### **Specific hazards**

The product is non-combustible. If heated, harmful vapours may be formed.

#### **Hazardous combustion products**

The product is non-combustible

#### **Unusual Fire & Explosion Hazards:**

No unusual fire or explosion hazards noted.

### **5.3. Advice for firefighters**

#### **Protection during firefighting:**

Use of approved supplied air or self-contained breathing apparatus operated in positive pressure mode are satisfactory. Totally impervious protective suits, gloves, and boots must be worn.

## **SECTION 6: Accidental release measures**

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

Wear protective clothing as described in Section 8 of this safety data sheet. Avoid inhalation of dust. Avoid inhalation of vapours and contact with skin and eyes.

#### **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**

Prevent entry to sewers and soil. Notify authorities if product enters sewers or public waters.

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

Remove any spillage with a suitable vacuum cleaner. If not possible collect spillage with shovel, brush or the like. Collect in containers and seal securely.

### **6.4. Reference to other sections**

Reference to other sections      For waste disposal, see section 13. For personal protection, see Section 8.

## **SECTION 7: Handling and storage**

### **7.1. Precautions for safe handling**

**Precautions for safe handling:** Do not breathe dust. Avoid all contact with this substance  
Wash hands plentifully and other exposed areas with water after handling. Remove contaminated clothing and shoes.  
Wash clothing before reusing.

#### **Packaging's:**

Even those that have been emptied, will retain product residue. Always obey safety warnings and handle empty packaging's as if they were full. Avoid all contact with this substance.

#### **Hygiene measures:**

When using do not eat, drink or smoke. Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work. Remove contaminated clothing and shoes.

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

**Storage precautions**      Store in dry, cool, well-ventilated area. Keep away from food, drink and animal feeding stuffs.

### **7.3. Specific end use(s)**

No additional information available

## **SECTION 8: Exposure Controls/personal protection**

### **8.1. Control parameters**

| Name                                                                                 | STD | TWA – 8 Hrs           | STEL – 15 Min | Notes |
|--------------------------------------------------------------------------------------|-----|-----------------------|---------------|-------|
| BARIUM CARBONATE (hazardous for transport)                                           | WEL | 0.5mg/m3              |               | As Ba |
| DNEL                                                                                 |     |                       |               |       |
| industry – inhalation – Long Term – Local Effects                                    |     | 0.72mg/m3             |               |       |
| Consumer – inhalation – Long Term – Local Effects                                    |     | 0.14mg/m3             |               |       |
| PNEC (Water)                                                                         |     |                       |               |       |
| Freshwater                                                                           |     | 227.8mgBa/L{327.3}*   |               |       |
| STP                                                                                  |     | 50.1mgBa/L{72}        |               |       |
| Sediment (Freshwater)                                                                |     | 792.7mgBa.kg.dw{1138. |               |       |
| Soil                                                                                 |     | 207.7mgBa/kg.dw{298.4 |               |       |
| * {mgBaCo3/L}. PNEC values are derived using the information provided in section 12. |     |                       |               |       |

### **8.2. Exposure controls**

#### **Appropriate engineering controls:**

Use as far as possible in a closed system. Provide a regular control of the atmosphere. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Local exhaust and general ventilation must be adequate to meet exposure standards. Please refer to the annex (exposure scenarios).

#### **Hand protection:**

Use gloves resistant to chemical products corresponding to EN 374:3. Take advice to gloves' manufacturer.

#### **Eye protection:**

Wear safety glasses with side shields according EN 166.

#### **Skin and body protection:**

Wear closed protective clothing.

#### **Respiratory protection:**

Use respiratory protection mask according to EN 140 or EN 405 with filter type P3 according to EN 143:2000 or FFP3 according to EN 149:2001.

#### **Environmental exposure controls:**

Avoid release to the environment.

## **SECTION 9: Physical and Chemical Properties**

|                 |                |
|-----------------|----------------|
| Physical state  | Solid powder.  |
| Colour          | White.         |
| Odour           | Odourless.     |
| Odour threshold | Not applicable |

|                                               |                                                  |
|-----------------------------------------------|--------------------------------------------------|
| pH -Value, Conc.<br>Solution at 16mg/l (160C) | 7-8                                              |
| Relative evaporation rate<br>(butylacetate=1) | No data available                                |
| Melting point                                 | Not applicable                                   |
| Freezing point                                | No data available                                |
| Flash point                                   | Not flammable                                    |
| Self-ignition temperature                     | Not applicable                                   |
| Decomposition temperature                     | 1,3800C                                          |
| Flammability (solid, gas)                     | Not flammable                                    |
| Vapour pressure                               | Negligible.                                      |
| Relative vapour density at 20 °C              | 4.31g/cm3                                        |
| Bulk Density                                  | 350kg/m3                                         |
| Solubility in water                           | Soluble in water                                 |
| Solubility Value<br>(g/100g H2O@200C)         | More than or equal to 14mg/l @200C               |
| Viscosity, kinematic                          | Not applicable.                                  |
| Viscosity, dynamic                            | Not applicable.                                  |
| Explosive properties                          | Non oxidizing material according to EC criteria. |
| Oxidising properties                          | Non oxidising material according to EC criteria  |
| Explosive limits                              | Not applicable.                                  |

## 9.1. Other information

Mol. Weight      197.3g/mol

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Contact with acid liberates CO2

## 10.2. Chemical stability

**Stability** Stable under normal temperature conditions and recommended use.

## 10.3. Possibility of hazardous reactions

When barium carbonate decomposes it forms barium oxide.

## 10.4. Conditions to avoid

Avoid heat. Avoid dust formation. Avoid contact with acid.

## 10.5. Incompatible materials

Acids. Barium Carbonate is incompatible with bromine trifluoride or 2-furanperoxycarboxylic acids.

## 10.6. Hazardous decomposition products

Barium Oxide.

# SECTION 11: Toxicological information

## 11.1. Information on toxicological effects

### Acute Toxicity:

**Acute Toxicity (LD50 oral rat):** <284mg/kg. Test method(s) OECD 401.

Remarks on LD50 value: When reading across from barium chloride data to barium carbonate, initially an LD50 of  $\leq 284\text{mg/kg bw}$  can be calculated stoichiometrically. The proximity of this value to the thresholds for classification as toxic. ( $\leq 300\text{mg/kg bw}$  according to regulation EC 1272/2008 and  $>200\text{mg/kg bw}$  according to directive 67/548/EEC) and the more than 100-fold lower solubility of barium carbonate ( $3.7\text{g/L}$  at  $37^\circ\text{C}$ /media pH 1.5) compared to barium chloride ( $510.4\text{g/L}$  at  $37^\circ\text{C}$ /media pH 1.5) is taken as reasoning to propose classification of barium carbonate with "harmful if swallowed" with an LD50 of  $\leq 300\text{mg/kg bw}$

**Acute Toxicity (Dermal LD50):**  $>1,895\text{mg/kg}$ .

According to SIAR 2008 and in the NIAR report 2008 (based on Barium Carbonate)

**Acute Toxicity (Inhalation LC50):** Technically not feasible. Not classified.

### Skin Corrosion/Irritation:

Not irritating. Test method(s):- in vitro study, EU method B.46, reconstructed human epidermis Testing was carried out using a structural analogue.

### Serious eye damage/irritation:

Not irritating. Test method(s): OECD 405, Rabbit.

### Respiratory or skin sensitisation:

Not sensitising. Testing was carried out using a structural analogue.

Test method(s): OECD429.

### Skin sensitisation:

Local Lymph Node Assay (LLNA) Mouse.

Not sensitising Testing was carried out using a structural analogue.

Test methods(s): OECD 429.

**Germ cell mutagenicity:**

Negative. Testing was carried out using a structural analogue.

(i) Gene mutation (OECD 476, mouse lymphoma cells).

(ii) Bacterial reverse mutation assay (Ames test, OECD 471, S Typhimurium).

(iii) In vitro mammalian chromosome aberration test

(OECD 473, Chinese hamster ovary (CHO)).

**Carcinogenetic test:**

Oral rat. Testing was carried out using a structural analogue. 104-105 weeks.

This substance has no evidence of carcinogenic properties.

Based on available data the classification criteria are not met.

**Reproductive Toxicity:****Reproductive Toxicity – Fertility**

Fertility: NOAEL 179.5mg/kg Rat.

The units expressed in 'mg/ $\mu$ g' of: barium. The decision on classification and labelling will be postponed till the results from testing (two generation study and prenatal development study) are available. As test substance barium chloride will be used, read across to barium carbonate is envisaged. A NOAEL (=179.5 mgBa(2+) (kg) based on screening study conducted with barium chloride dihydrate (oral in drinking water) in rats could be derived for effect on fertility.

**Reproductive Toxicity – Development**

Not classified.

**Specific target organ toxicity – single exposure:**

STOT – Single exposure

Not classified.

**Specific target organ toxicity – repeated exposure:**

STOT – Repeated exposure

Not classified.

**Aspiration hazard:**

Viscosity

Not applicable.

**General information**

This substance does not fulfil the criteria for CMR Cat 1 and Cat 2 according to Regulation EC 1272/2008. The primary routes of human exposure to barium are from inhalation of aerosols and ingestion of food and drinking water containing barium. Testing was carried out using a structural analogue – Barium Chloride Dihydrate ( $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$ ) CAS Nr= 10326-27-9.

**SECTION 12: Ecological Information****12.1. Toxicity**

Conclusion on the environmental classification and labelling: The acute reference value (ARV) for  $\text{BaCO}_3$  is 20.8 mg/l, based on the ARV for Ba (ie 14.5 mgBa/L). This acute reference value exceeds solubility of the compound. Therefore, there is no acute classification for this compound. The chronic reference value is 4.17 mg  $\text{BaCO}_3$ /L, ie > 1 mg/L, and therefore no chronic classification is required.

Additionally, there is no evidence for bioaccumulation or biomagnification in the environment (see section 12.3). Consequently, BaCO<sub>3</sub> has no environmental classification.

## 12.2. Persistence and degradability

### Degradability

Not relevant

## 12.3. Bioaccumulative potential

### Bioaccumulative potential

Will not bio-accumulate.

BCF for fish: 37.6 - 99 L/kg w.w

### Partition coefficient

Not Applicable - Inorganic chemical.

## 12.4. Mobility in soil

### Mobility

Taking into account the relative low K<sub>d</sub> value for barium, the barium ions release by barium carbonate are leachable through normal soil and are mobil in sediment. The following typical log K<sub>d</sub>-values have been determined for different environmental compartments: (i) Sediment 3, 478 K<sub>d</sub> value (L/kg), 3.54 Log K<sub>d</sub> (Salminen et al. (2005 FOREGS data). (ii) Suspended particulate matter (spm) 5, 217 K<sub>d</sub> value (L/kg), 3.72 Log K<sub>d</sub> (Estimated data (ratio of 1.5 on K<sub>d</sub>, sediment). \* (iii) Soil 60.3 K<sub>d</sub> value (L/kg), 1.78 Log K<sub>d</sub> (Crommentuyn et al. (1997). \* The estimated value for spm value is supported by K<sub>d</sub> values that were reported for spm by Popp and Laquer (1980) for N-American Rivers (range of Log K<sub>d</sub>: 2.65 - 3.91) and the value derived by Li et al (1984) for the River Hudson (log K<sub>d</sub>: 3.78).

## 12.5. Results of PBT and vPvB assessment

Not Classified as PBT/vPvB by current EU criteria.

## 12.6. Other adverse effects

Toxicity to birds: Based on available literature elevated Ba levels in eggs may result in deformations of the feet and malpositioning of the embryo in the egg.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

#### General information

Waste to be treated as controlled waste. Disposal to licensed waste disposal site in accordance with local Waste Disposal Authority.

#### Disposal methods

Dispose of waste and residues in accordance with local authority requirements.

## SECTION 14: Transport information

### General

In accordance with ADR / RID / ADN / IMDG / ICAO / IATA

### 14.1. UN number

UN No. (ADR/RID/ADN) 1564

UN No. (IMDG) 1564

UN No. (ICAO) 1564

### 14.2. UN proper shipping name

Proper Shipping Name UN 1564 BARIUM COMPOUND, N.O.S (Barium Carbonate), 6.1, III, (E)

Proper Shipping Name      BARIUM COMPOUND, N.O.S

#### 14.3. Transport hazard class(es)

ADR/RID/ADN Class 6.1

ADR/RID/ADN Class      Class 6.1: Toxic substances.

ADR Label No. 6.1

IMDG Class 6.1

ICAO Class/Division 6.1



#### 14.4. Packing group

Packing group (UN): III Code tunnel : (E)

#### 14.5. Environmental hazards

Other information: No supplementary information available.

#### 14.6. Special precautions for user

EMS F-A, S-A

Emergency Action Code 2Z

Hazard No. (ADR) 60

Tunnel Restriction Code (E)

#### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

### SECTION 15: Regulatory information

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

##### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions

Contains no REACH candidate substance

Other regulations, restrictions and prohibition regulations: Not required.

##### 15.1.2. National regulations

Regional legislation: SUBSTANCE LISTED IN THE ANNEX I OF DIRECTIVE 2003/105/CE AMENDING DIRECTIVE 96/82/CE (CONTROL OF MAJOR - ACCIDENT HAZARDS INVOLVING DANGEROUS SUBSTANCES).

#### 15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

### SECTION 16: Other information

Indication of changes: according to Regulation (EC) No. 1907/2006 (REACH).

Data sources: Reach dossier.

Abbreviations and acronyms:

ADN: European Agreement concerning international carriage of Dangerous goods by Inland waterways

ADR: European Agreement concerning international carriage of Dangerous goods by Road

AF: Assessment factor

BCF: Bio-concentration factor

Bw: Body weight

CAS: Chemical Abstracts Service

CLP: Classification, labelling, packaging  
CSR: Chemical Safety Report  
DMEL: Derived maximum effect level  
DNEL: Derivative No effect Level  
EC: European Community  
ELV: Emission limit values  
EN: European Norm  
EUH: European Hazard Statement  
EWC: European Waste catalogue  
IATA: International Air Transport Association  
ICAO: International Civil Aviation Organization  
IMDG: International Maritime Dangerous Goods  
LC50: Median lethal concentration  
LD50: Median lethal dose  
NOAEL: No-observed-adverse-effect-level  
NOEC: No observed effect concentration  
NOEL: No observed effect level  
OEL: Operator exposure level  
PBT: Persistent, bio-accumulative, Toxic  
PEC: Predicted effect level  
PNEC: Predicted No effect Concentration  
REACH: Registration, evaluation and authorisation of chemicals  
RID: Regulations concerning the international carriage of dangerous goods by rail  
STEL: Short Term Exposure Limit  
TWA: Time weighted average  
vPvB: Very persistent, very bio-accumulative.

**Training advice:** None.

Full text of R-, H-, P and EUH-phrases:

|              |                                                                            |
|--------------|----------------------------------------------------------------------------|
| Acute Tox. 4 | Acute toxicity Category 4                                                  |
| H302         | Harmful if swallowed                                                       |
| R22          | Harmful if swallowed                                                       |
| P270         | Do not eat, drink or smoke when using this product.                        |
| P301+P312    | IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. |
| P330         | Rinse mouth                                                                |
| P264         | Wash contaminated skin thoroughly after handling                           |
| P501         | Dispose of contents/containers in accordance with regional regulations.    |

SDS EU (Reach Annex II)

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**SDS status** Approved.

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