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

1.1. Product identifier

Product form: Substance
Chemical name: Barium Carbonate
EC no: 208-167-3
CAS No.: 513-77-9
REACH registration No.: 01-2119489177-25
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

1.2.1. Relevant identified uses

Use of the substance/preparation:

1.2.2. Uses advised against

None
Full text of use descriptors: see section 16.

1.3. Details of the supplier of the safety data sheet

Simba Materials Ltd t/a CTM Potters Supplies.
Unit 7-8
Broomhouse Lane Industrial Estate
Broomhouse Lane
Edlington
Doncaster
South Yorkshire
DN12 1EQ
T +44 (0)1709 770801 - F +44 (0)1709 770803

doncaster@ctmpotterssupplies.co.uk – www.ctmpotterssupplies.co.uk - admin@ctmpotterssupplies.co.uk

Unit 10A
Millpark Industrial Estate
White Cross Road
Woodbury Salterton
nr Exeter
Devon
EX5 1EL
T +44(0)1395 233077 - F +44(0)1395 233905
### 1.4. Emergency telephone number

T +44 (0)1709 770801 (Office hours only) e doncaster@ctmpotterssupplies.co.uk

### SECTION 2: Hazards identification.

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

**Classification according to Regulation (EC) No. 1272/2008 [CLP]**

- Physical and Chemical Hazards: Not classified
- Human health: Acute Tox. 4 – H302
- Environment: 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 pictograms (CLP): GHS06
- Signal word (CLP): Warning
- Hazard statements (CLP): H302 - Harmful if swallowed
- Precautionary statements (CLP): 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.

3.1. Substances
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
First-aid measures after inhalation: Remove victim to fresh air. If breathing is difficult, give oxygen. If breathing stops, perform cardio pulmonary resuscitation (CPR). Take to hospital.
First-aid measures after skin contact: 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.
First-aid measures after eye contact: In case of eye contact, immediately rinse with clean water for 10-15 minutes. Call a doctor.
First-aid measures after ingestion: If swallowed, DO NOT INDUCE VOMITING: seek medical advice immediately and show this container or label.
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
Hazardous combustion products: The product is non-combustible
Unusual Fire & Explosion Hazards: No unusual fire or explosion hazards noted.
Specific Hazards: The product is non-combustible. If heated, harmful vapours may be formed.

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.
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 re-using.

Packagings: Even those that have been emptied, will retain product residue. Always obey safety warnings and handle empty packagings 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 conditions: 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

<table>
<thead>
<tr>
<th>Name</th>
<th>STD</th>
<th>TWA – 8 Hrs</th>
<th>STEL – 15 Min</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BARIUM CARBONATE (hazardous for transport)</td>
<td>WEL</td>
<td>0.5mg/m³</td>
<td></td>
<td>as Ba</td>
</tr>
<tr>
<td>DNEL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry – inhalation – Long Term – Local Effects</td>
<td>0.72mg/m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer – inhalation – Long Term – Local Effects</td>
<td>0.14mg/m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PNEC (Water)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshwater</td>
<td>227.8mgBa/L[327.3]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STP</td>
<td>50.1mgBa/L[72]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediment (Freshwater)</td>
<td>792.7mgBa.kg.dw[1138]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>207.7mgBa/kg.dw[298.4]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* (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.

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid Powder.</td>
</tr>
<tr>
<td>Colour</td>
<td>White.</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH-Value, Conc. Solution at 16mg/l (16°C)</td>
<td>7-8</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Self ignition temperature</td>
<td>1,380°C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Negligible.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>4.31g/cm³</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>350kg/m³</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>Soluble in water</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>More than or equal to 14mg/l @20°C</td>
</tr>
<tr>
<td>Solubility Value (g/100g H₂O@20°C)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>Non oxidizing material according to EC criteria.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Non oxidising material according to EC criteria.</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

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
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 ≤ 284mg/kg bw can be calculated stochiometrically. The proximity of this value to the thresholds for classification as toxic. (≤ 300mg/kg bw according to regulation EC 1272/2008 and >200mg/kg bw according to directive 67/548/EEC) and the more than 100-fold lower solubility of barium carbonate (3.7g/L at 37°C/media pH 1.5) compared to barium chloride (510.4g/L at 37°C/media pH 1.5) is taken as reasoning to propose classification of barium carbonate with “harmful if swallowed” with an LD50 of ≤300mg/kg bw.

Acute Toxicity (Dermal LD50): >1,895mg/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): OECD 429.

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).

Carcinogenity:
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/μg’ 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 (BaCl₂,2H₂O) CAS Nr= 10326-27-9.
SECTION 12: Ecocological information.

12.1. Toxicity

Conclusion on the environmental classification and labelling: The acute reference value (ARV) for BaCO₃ 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 BaCO₃/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, BaCO₃ 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 Kd value for barium, the barium ions release by barium carbonate are leachable through normal soil and are mobil in sediment. The following typical log Kd-values have been determined for different environmental compartments: (i) Sediment 3, 478 Kd value (L/kg), 3.54 Log Kd (Salminen et al. (2005 FOREGS data). (ii) Suspended particulate matter (spm) 5, 217 Kd value (L/kg), 3.72 Log Kd (Estimated data (ratio of 1.5 on Kd, sediment). * (iii) Soil 60.3 Kd value (L/kg), 1.78 Log Kd (Crommentuyn et al. (1997). * The estimated value for spm value is supported by Kd values that were reported for spm by Popp and Laquer (1980) for N-American Rivers (range of Log Kd: 2.65 - 3.91) and the value derived by Li et al (1984) for the River Hudson (log Kd: 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.

General information

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

13.1. Waste treatment methods

Dispose of waste and residues in accordance with local authority requirements.
SECTION 14: Transport information.

In accordance with ADR / RID / ADNR / 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

15.2. Chemical safety assessment
A Chemical Safety Assessment has been carried out.

SECTION 16: Other information.

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
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)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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