SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

Calcium-Bentonit EF, Powder

Date of issue 25.01.2017

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

Product identifier

Trade name	:	penergetic k
Product code	:	3800B – 3850B
Manufactured by	:	Penergetic Int. AG Romiszelgstrasse 1 CH- 8590 Romanshorn (Switzerland)
CAS-number	:	1302-78-9
EC-number	:	215-108-5

Product description

Substance name	:	Calcium Bentonite
Scope of application	:	Compost additive
Expiry date	:	5 years from date of manufacture

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

Relevant identified uses of the substance and mixture	:	Bentonite has a variety of uses. It can be used as a rheology modifier, binding agent, adsorbent, filler and other i.e for applications like: foundry, iron ore agglomeration, drilling, construction – civil engineering, filtration (i.e oil, wine, beer), pharmaceutical & cosmetics, cat litter, food and feed additives in human and animal nutrition.
Uses advised against	:	There are no uses advised against.

Details of the supplier of the safety data sheet

Company	:	Agrimont GmbH Mahlergasse 1 93326 Abensberg
Telephone	:	+49 9443 928 78 0
Fax	:	+49 9443 928 78 29
Contact	:	Mr.Schillok

2. Composition/Information on ingredients

Chemical characterization

Synonyms : Bentonite, sodian; Bentonite, calcian; Montmorillonite, Sodium-activated

Bentonite is a UVCB substance, sub-type 4. The purity of the product is 100 % w/w. Impurities are not applicable for a UVCB substance.

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3. Hazards identification

Classification of the substance or mixture Classification according CLP regulation (Regulation (EC) No. 1272/2008, as amended) : Not classified, Bentonite does not meet the criteria forclassification.

Classification according EC Directive (67/548/EEC or 1999/45/EC, as amended) : Not classified, Bentonite does not meet the criteria forclassification.

Label elements

Labelling according CLP regulation (Regulation (EC) No 1272/2008, as amended) according to CLP/GHS. : The product does not require classification and labeling as hazardous

Other hazards : The product contains less than 1% w/w RCS (respirable crystalline silica) as determined by the SWERF method. The respirable crystalline silica content can be measured using the "Size-Weighted Respirable Fraction – SWERF" method. All details about the SWERF method is available at www.crystallinesilica.eu

Depending on the handling and use (grinding, drying, bagging), airborne respirable dust may be generated. Dust contains respirable crystalline silica. Prolonged and or massive inhalation of respirable crystalline silica dust may cause lung fibrosis, commonly referred to as silicosis. Principal symptoms of silicosis are cough and breathlessness. Occupational exposure to respirable dust should be monitored and controlled. The product should be handled using methods and techniques that minimize or eliminate dust generation. The substance does not meet the criteria for PBT or vPvB substance.

4. First aid measures

Description of first aid measures

General information : No known delayed effects. Consult a physician for all exposures except for minor instances.

After inhalation	:	Remove to fresh air immediately. Get medical attention immediately.
After contact with skin	:	Wash off immediately with soap and plenty of water.
After contact with eyes	:	Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.
After ingestion	:	Clean mouth with water and drink afterwards plenty of water.
Most important symptoms and effects, both acute and delayed symptoms	:	There are no acute and delayed symptoms and effects observed.
Hazards	:	No information available.
Indication of any immediate medical attention and special treatment needed treatment	:	Treat symptomatically.

5. Firefighting measures

Extinguishing media

Suitable extinguishing media : The product itself does not burn.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Water spray jet Dry powder Foam
Carbon dioxide (CO2)

Extinguishing media that must not be used for safety reasons : No restrictions

Special hazards arising from the substance or mixture : The material is not flammable and it does not support fire. No hazardous thermal decomposition products.

Advice for firefighters
Special protective equipment for Firefighting: : In the event of fire, wear self-contained breathing apparatus. Special sliding risk through leaking of spilled product in connection with water.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures : Ensure adequate ventilation.
Avoid dust information Evacuate
personnel to safe areas
Avoid contact with skin, eyes and clothing. Wear
personal protective equipment.
Avoid breathing dust.
Use the indicated respiratory protection if the occupational exposure limit is exceeded and /or in case of product release (dust).
Special sliding risk through leaking of spilled product in connection with water.

Environmental precautions : No special environmental precautions required.

Methods and material for containment and cleaning up : Pick up and transfer properly labeled containers. If product is released from trucks in roads, place signposts and remove the spill using vacuum cleaning systems.

Reference to other sections : See point 8, 13
Additional information
Avoid dust formation; avoid dry sweeping Use
vacuum suction unit, or shovel into bags

7. Handling and storage

Precautions for safe handling
Advice on safe handling : Avoid dust formation.
Provide sufficient air exchange and/or exhaust in work rooms.
In case of insufficient ventilation, wear suitable respiratory equipment.
For personal protection see section 8.
Handle and open container with care.
If you require advice on safe handling techniques or specific uses, please contact your supplier or check the further information referred to in section 16.

Hygiene measures	Wash hands before breaks and at the end of workday.
Conditions for safe storage, including any incompatibilities	Minimize airborne dust generation and prevent wind dispersal during Requirements for storage areas and loading and unloading. Keep containers closed and store packaged products so as to prevent accidental bursting.
Advice on storage compatibility	No conditions to be specially mentioned
Storage stability	Stable under recommended storage conditions
Specific end use(s)	Not relevant

8. Exposure controls/personal protection

Control parameters

Exposure limit values : Bentonite (dust)

Regulatory basis / Regulatory list	Revision	Type of value	Values	Remarks
Nepsi (European Network on Silica)	1/2006	Exposure limit(s) Total dust	10 mg/m3	
Nepsi (European Network on Silica)	1/2006	Exposure limit(s) Respirable fraction	3 mg/m3	http://www.nepsi.eu/agreement-good-practice-guide/occupational-exposure-limits.aspx

DNEL/DMEL values : DNEL/DMEL values are not available.

PNEC values : PNEC values are not available.

Exposure controls

Appropriate engineering controls : Minimize airborne dust generation. Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below specified exposure limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne particles below the exposure limit. Apply organizational measures e.g. by isolating personnel from dusty areas. Remove and wash soiled clothing.

Respiratory protection : Local ventilation to keep levels below established threshold values is recommended. In case of prolonged exposure to airborne dust concentrations, a suitable particle filter mask that complies with the requirements of national legislation is recommended, depending on the expected exposure levels.

Hand protection	: Use a high fat protective cream after cleaning skin. Wear suitable gloves.
Eye protection	: Do not wear contact lenses. Safety glasses with side-shields ensure that eyewash stations and safety showers are close to the workstation location.
Body protection	: Long sleeved clothing

9. Physical and chemical properties

Information on basic physical and chemical properties	
Physical state	: solid
Form	: powder
Colour	: bright to earthy
Odour	: typical mineralogical, earthy
pH-value	: 6 – 11 (20° C) Method : Aqueous suspension For detailed information please refer to our physical & chemical data sheet.
Melting point/range A.1	: > 450 °C Method: EU
Boiling point/boiling range	: not applicable (solid with a melting point >450° C) Flash point
	: not applicable (solid with a melting point > 450° C)
Evaporation rate	: not applicable (solid with a melting point > 450° C)
Flammability EU A.10	: does not ignite Method :
Lower explosion limit associated with explosive properties)	: non explosive (void of any chemical structures commonly
Vapour pressure	: not applicable (solid with a melting point > 450 °C)
Vapour density relative to air	: not applicable
Solubility in water Method : Directive 84/449/EEC, A.6	: < 0,9 g/l (20 °C)
Octanol/water partition coefficient (log Pow)	: not applicable : inorganic

Self-ignition temperature	: Method : Directive 92/69/EEC, A.6 no relative self-ignition temperature below 400 °C
Thermal decomposition	: no decomposition if used as directed.
Viscosity (dynamic)	: not applicable (solid with a melting point > 450 °C)
Oxidizing properties	: no oxidizing properties (Based on the chemical structure, the substance does not contain a surplus of oxygen or any structural groups known to be correlated with a tendency to react exothermally with combustible material)

Other information

Density	: 2,6 g/cm3
Bulk density	: 500 - 1.100 kg/m3 For detail information please refer to our physical & chemical data sheet.

10. Stability and reactivity

Reactivity	: Stable under recommended storage conditions
Chemical stability	: The product is chermically stable. None
Possibility of hazardous	: known.
Conditions to avoid	: Forms slippery/greasy layers with water.
Incompatible materials	: Inert, not reactive Avoid storing together with materials that may be affected by dust.
Hazardous decomposition products	: Not relevant

11. Toxicological information

Information on toxicological effects
Information related to the product itself

Acute oral toxicity Acute	:	LD50 > 2 g/kg (rat) Method : OECD Test Guideline 420
dermal toxicity	:	No data available Bentonite is almost insoluble and has a low absorption through the skin.
Acute inhalation toxicity	:	No data available
Irritant effect on skin	:	Not irritant (rabbit) Method : OECD 404
Irritant effect on eyes	:	Not irritant (rabbit) Method : OECD 405
Sensitization	:	No data available Bentonite is considered not to be a skin sensitizer based on experience in handling and low absorption through the skin.
Genetic toxicity in vitro	:	Test type : In vitro gene mutation study in bacteria Restult : negative Method : OECD 471 Test type : In vitro chromosome aberration test Result : negative Method : OECD 473 Test type : In vitro gene mutation study in mammalian cells Result : negative Method : OECD 476
Carcinogenicity	:	Based on available data, the classification criteria are not met.
Toxicity to reproduction / fertility	:	Based on availability data, the classification criteria are not met.
Specific target organ toxicity (STOT) – single exposure		: No organ toxicity observed in acute tests. Based on available data, the classification criteria are not met.
Aspiration hazard	:	No aspiration toxicity classification
Remarks Specific symptoms in animal studies (likely route of exposure)	:	
In case of ingestion		: No acute or long term effects were seen in animal studies following oral exposure.

In case of skin contact	: No acute effects were seen in an animal study following acute dermal exposure. Bentonite acid leached is not a skin irritant
In case of inhalation	: No acute effects were seen in an animal study following acute inhalation exposure. Bentonite acid leached contains crystalline silica, which is a known cause of silicosis, a progressive, sometimes fatal lung disease. In a 1997 monograph (Volume 68, "Silica, Some Silicates, Coal Dust and Para-aramid Fibrils"), the International Agency for Research on cancer (IARC) has classified "inhaled crystalline silica from occupational sources" in Group 1as a substance "carcinogenic to humans". In making the overall evaluation, the IARC Working Group noted that carcinogenicity in humans was not detected in all industrial circumstances studied. Crystalline silica has also been classified by the German MAK Commission as a human carcinogen (Category A1). Although bentonite acid-leached contains quartz, an intratracheal study (Creutzenberg 2008) on the read across substance bentonite demonstrated significant differences in toxicity following administration of equivalent doses of quartz as either bentonite (15.2 mg of bentonite with 60% quartz) or reference quartz (10.5 mg of 87% quartz). The reference-quartz caused significant, self-perpetuating lung toxicity while bentonite demonstrated significantly less toxicity and partial recovery during the study period. The main effect of bentonite was slight fibrosis and inflammation of the lung. The study demonstrated that a simple bridging of toxicity data from quartz to bentonite acid- leached is not appropriate. Occupational exposure to respirable dust should be monitored and controlled.

12. Ecological information

Toxicity
Information related to the product itself

Fish toxicity	:	LC50 16 g/l (96 h, Oncorhynchus mykiss (rainbow trout)) LC50 2,8 – 3,2 g/l (24 h, Marine water fish)
Daphnia toxicity	:	EC50 > 100 mg/l (48 h, daphnia (magna)) Method : OECD 202 EC50 81,6 mg/l (96 h, Metacarcinus magister) EC50 24,8 mg/l (96 h, Pandalus danae)
Algae toxicity	:	EC50 > 100 mg/l (72 h, Scenedesmus subspicatus) 84,4
Toxicity to terrestrial plants	:	mg/kg (Phaseolus vulgaris) No effect on the growth was observed. 84,4 mg/kg (Zea mays) No effect on the growth was observed.

Persistence and degradability
Information related to the product itself

Biodegradability	:	The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulative potential
Information related to the product itself

Bioaccumulation

Mobility in soil Information related to the product itself	:	Not relevant for inorganic substances

Transport and distribution between environmental compartments

Results of PBT and vPvB asssessment Information related to the product itself	:	(Soil) Bentonite is almost insoluble and thus presents a low mobility in most soils.

Other adverse effects Information related to the product itself

Additional ecotoxicological remarks

The substance does not meet the criteria for PBT or vPvB substance.

13. Disposal considerations

Waste treatment methods

Product	:	Can be disposed of as solid waste in a suitable installation subject to the Environmental Protection (Duty of Care) Regulations. Avoid dust formation. Where possible recycling is preferred to disposal or incineration. No
Uncleaned packaging	:	specific requirements.

14. Transport information

ADR	:	Not restricted
ADN	:	Not restricted
RID	:	Not restricted
IATA	:	Not restricted
IMDG	:	Not restricted
Special precautions for user	:	See sections 6 to 8 of this Data Sheet.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code (International Bulk Chemicals Code)	:	No transport as bulk according IBC-Code.

15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture Water Hazard Class (Ger.)	:	not water endangering
Other regulations	:	Bentonite is not a SEVESCO substance, not an ozone depleting substance and not a persistent organic pollutant. The product (bentonite) is not a separately classified by the Occupational Health and Safety Administration (OSHA). The product has not been classified as a human carcinogen by OSHA, the international Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP).
Chemical safety assessment	:	A hazard assessment has been conducted under the umbrella of the European Bentonite Association (EUBA) and the outcome was that bentonite is not a hazardous substances. Therefore, in absence of identified hazard, the substance is safe and presents no risk.

16. Other Information

Sources of the key data used to compile the Safety Data Sheet : Creutzenberg O, Hansen T, Ernst H & Muhle H (2008) Toxicity of a quartz with occulated surfaces in a 90 day intratracheal instillation study in rats; Inhalation toxicology. 20: 995-1008

This safety data sheet (SDS) is based on the legal provisions of the REACH Regulation (EC 1907/2006; article 31 and Annex II), as amended. Its contents are intended as a guide to the appropriate precautionary handling of the material. It is the responsibility of recipients of this SDS to ensure that the information contained therein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. Information and instructions provided in this SDS are based on the current state of scientific and technical knowledge at the date of issue indicated. It should not be construed as any guarantee of technical performance, suitability for particular applications, and does not establish a legally valid contractual relationship. This version of the SDS supersedes all previous versions.

Legend

ADN European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways ADR European Agreement concerning the International Carriage of Dangerous Goods by Road
AOX Adsorbable organic bound halogens CAS
Chemical Abstracts Service
DMEL Derived Minimal Effect Level (genotoxic substances)
DNEL Derived No Effect Level
EC50 Half maximal effective concentration
GHS Globally Harmonized System

IATA International Air Transport Association
IMDG International Maritime Dangerous Goods
LC50 Lethal Concentration 50%
LD50 Lethal Dose 50%
MARPOL International Convention for the Prevention of Pollution From Ships
NOAEC No Observed Adverse Effect Concentration
NOAEL No Observed Adverse Effect Level
NOEC Non Observed Effect Concentration
OEL Occupational Exposure Limit
PBT Persistent, Bioaccumulative, Toxic
PEC Predicted Environmental Concentration
PNEC Predicted No Effect Concentration
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals
RID International Rule for Transport of Dangerous Substances by Railway
SVHC Substances of Very High Concern
vPvB very Persistent and very Bioaccumulative