



# PRODUCT SAFETY DATA SHEET

According to Regulation (EG) No. 1907/2006,  
Regulation (EG) No. 1272/2008 and Regulation (EU) 2015/830

 <p><b>KERAMOST</b> akciová společnost</p>	<p>PRODUCT NAME:</p> <p><b>Activated bentonite</b></p>	 <p>ISO 9001 ISO 14001 OHSAS 18001 CERTIFIED <b>ZUS</b> 553/2016</p>
<p><b>Date of publication:</b> December 1, 2008</p>	<p><b>Date of printing:</b> October 31, 2017</p>	<p><b>Date of revision:</b> August 8, 2017</p>
<b>SECTION 1: IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY</b>		
<p><b>1.1 Product identifier:</b> Soda activated bentonite <b>CAS number:</b> 1302-78-9 <b>EG number (EINECS):</b> 215-108-5 <b>REACH Registration number:</b> Exempted in accordance with Annex V.7</p> <p><b>1.2 Relevant identified uses of the substance or mixture:</b> Bentonite can be used as a rheology modifier, binding agent, adsorbent, filler and other i.e. for applications like: foundry, chemical industry, coatings, construction – civil engineering, drilling, filtration, ecological application, fertilizers and agricultural products, feed additives in animal nutrition. <b>Uses advised against:</b> There are no uses advised against.</p> <p><b>1.3 Details of the supplier of the safety data sheet:</b> Name: KERAMOST, a.s. Address: Žatecká 1899/25, 434 30 Most, CZ Identification number: 49901222 Phone: +420 476 442 511 Fax: +420 476 704 405 E-mail: <a href="mailto:reach@keramost.cz">reach@keramost.cz</a></p> <p><b>1.4 Emergency telephone number:</b> Toxicology information centre (TIC) +420 224 919 293, +420 224 915 402 (non-stop)</p>		
<b>SECTION 2: HAZARDS IDENTIFICATION</b>		
<p><b>2.1 Classification of the substance or mixture:</b> 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 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 <a href="http://www.crystallinesilica.eu">www.crystallinesilica.eu</a>.</p> <p><b>Regulation EC 1907/2006 (REACH)</b> Not classified – is not hazardous substance. <b>Regulation EC 1272/2008 (CLP)</b> Doesn't meet the criteria for classification.</p> <p><b>2.2 Label elements:</b> Not applicable – not required.</p> <p><b>2.3 Other hazards:</b> Inorganic material of natural origin. The substance does not meet the criteria for PBT or vPvB substance. No other hazards identified</p>		
<b>SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS</b>		
<p><b>3.1 Substances:</b> Bentonite is a UVCB substance sub-type 4 (substances of Unknown or Variable composition, Complex reaction products or Biological materials). Mineral clay containing montmorillonite.</p>		

CAS number:	1302-78-9
EG number (EINECS):	215-108-5
<b>3.2 General component:</b>	Montmorillonite
CAS number:	1318-93-0
EG number (EINECS):	215-288-5
Content (%)	65 - 80 %
<b>3.3 Additional component:</b>	Sodium carbonate, Na <sub>2</sub> CO <sub>3</sub>
CAS number:	497-19-8
EG number (EINECS):	207-838-8
Content (%):	Max. 7
Hazard symbol:	GHS07 - Harmful
Risk and safety phrases, GHS statement:	H319 – Causes serious eye irritation

## SECTION 4: FIRST AID MEASURES

### 4.1 Description of first aid measures:

**General advice:**

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

**Following inhalation:**

No special measure; move source of dust or move person to fresh air. Obtain medical attention immediately.

**Following skin contact:**

No special measure; wash affected area with soap and plenty of water.

**Following eye contact:**

No special measure; rinse eyes immediately with plenty of water. If symptoms persist seek medical advice.

**Following ingestion:**

No special measure; clean mouth with water and drink afterwards plenty of water. If symptoms persist, seek medical advice.

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

The acute symptoms would pain in the eyes because of dust entry. No delayed effects are anticipated if first aid treatment is applied and is effective.

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

If health problems occur or in case of doubts, seek medical help and provide information contained in this safety data sheet.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1 Extinguishing media:

**Suitable extinguishing media:** No restrictions. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable extinguishing media:** No restrictions.

### 5.2 Special hazards arising from the substance or mixture:

The material is not flammable and does not support fire. No hazardous thermal decomposition products.

### 5.3 Advice for fire fighters:

Avoid generation of dust. Use breathing apparatus. Product on floor when wetted will become slippery and may present a hazard; wear anti-slip boots. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures:

Ensure adequate ventilation. Keep dust levels to a minimum. Keep unprotected persons away. Avoid inhalation of dust and contact with skin, eyes, and clothing – wear suitable protective equipment (see section 8). Take care of wet product on floor, which presents a slip hazard.

### 6.2 Environmental precaution:

No special requirement.

### 6.3 Methods and material for containment and cleaning up:

Avoid dust formation (avoid dry sweeping). Remove mechanically dust free (use vacuum suction unit, or shovel into bags) and wash down the surface with water.

### 6.4 Reference to other sections:

For more information please check sections 7, 8 and 13 of this safety data sheet.

## SECTION 7: HANDLING AND STORAGE

### 7.1 Precautions for safe handling:

#### Protective measures:

Avoid dust generation and contact with eyes. Provide appropriate exhaust ventilation or wear suitable respiratory protective equipment at places where airborne dust is generated. The composition of the mixture ensures the explosion-proofing and incombustibility. Handle packaged products carefully to prevent accidental bursting.

#### Advice on general occupational hygiene:

Regular cleaning with suitable cleaning devices. Shower and change clothes at end of work shift. Do not wear contaminated clothing at home. No drinking, eating and smoking at the workplace.

### 7.2 Conditions for safe storage, including any incompatibilities:

Minimize airborne dust generation and prevent wind dispersal during loading and unloading. Keep containers closed and store packaged products so as to prevent accidental bursting. Storage in dry storehouse or shed without direct attack of climatic influence.

### 7.3 Specific end use(s):

Not relevant.

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control parameters:

According to Government regulation No. 361/2007, and Government regulation No. 93/2012.

Permissible exposure limit (8 hours TWA)	PELr (respirable fraction)	PELt (total amount)
Quartz	0,1 mg/m <sup>3</sup>	---
Bentonite	---	6 mg/m <sup>3</sup>

More information: [http://www.nepsi.eu/media/2307/oel\\_table\\_dust-qct\\_may\\_2010\\_jan09.pdf](http://www.nepsi.eu/media/2307/oel_table_dust-qct_may_2010_jan09.pdf)

### 8.2 Exposure controls:

#### 8.2.1 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, 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

#### 8.2.2 Individual protection measures:

##### Eye / face protection:

Do not wear contact lenses. If there is an increased risk of eyes contact, use tight fitting goggles with side shields. Ensure accessibility of eyewash equipment and safety showers close to the work place.

##### Skin and hands protection:

Wear suitable work clothes with long sleeves, gloves. At the end of each work session wash skin with soap and water. Eventually use a greasy cream – the material dries the skin.

##### 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.

#### 8.2.3 Environmental exposure controls:

All ventilation systems should be filtered before discharge to atmosphere. Avoid releasing to the environment.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties:

<b>Appearance (at 20 °C):</b>	Solid state – as a fine powder or granular.
<b>Color:</b>	Grey-blue, brown, white.
<b>Odour:</b>	No specific odour.
<b>pH value:</b>	9,5 - 11
<b>Melting point:</b>	> 450 °C (study result, EU A.1 method).
<b>Boiling point:</b>	Not applicable (solid with a melting point > 450 °C).
<b>Flash point:</b>	Not applicable (solid with a melting point > 450 °C).
<b>Evaporation rate:</b>	Not applicable (solid with a melting point > 450 °C).
<b>Flammability:</b>	Non flammable (study result, EU A.10 method).
<b>Auto ignition temperature:</b>	No relative self-ignition temperature below 400 °C (study result, EU A.16 method).

<b>Decomposition temperature:</b>	Not applicable.
<b>Explosive limits:</b>	
Non explosive (void of any chemical structures commonly associated with explosive properties).	
<b>Oxidising properties:</b>	
No oxidising 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).	
<b>Vapour pressure:</b>	Not applicable (solid with a melting point > 450 °C).
<b>Vapour density:</b>	Not applicable.
<b>Relative density:</b>	2,6 g/cm <sup>3</sup>
<b>Viscosity:</b>	Not applicable (solid with a melting point > 450 °C).
<b>9.2 Other information:</b>	
<b>Solubility:</b>	
- in water	Bentonite compound makes a suspension.
- in grease	Not known.
<b>Distributing coefficient n-octanol/water:</b>	Not known.
<b>SECTION 10: STABILITY AND REACTIVITY</b>	
<b>10.1 Reactivity:</b>	Inert and not reactive material.
<b>10.2 Chemical stability:</b>	The substance is stable under normal conditions.
<b>10.3 Possibility of hazardous reactions:</b>	Not known.
<b>10.4 Conditions to avoid:</b>	Slippery when wet. Minimise exposure to air and dust generation.
<b>10.5 Incompatible materials:</b>	Not reactive. Avoid storing together with materials that may be affected by dust.
<b>10.6 Hazardous decomposition products:</b>	Not known.
<b>SECTION 11: TOXICOLOGICAL INFORMATION</b>	
<b>11.1 Information on toxicological effects:</b>	
a) <b>Acute toxicity:</b>	
Oral – LD <sub>50</sub> > 2000 mg/kg bw (OECD 425, rat).	
Dermal – Bentonite is almost insoluble and has a low absorption through the skin.	
Inhalation – No data available.	
Bentonite is not considered as harmful. Classification for acute toxicity is not warranted.	
b) <b>Skin corrosion/irritation:</b>	
Bentonite is not irritating to skin (OECD 404, rabbit).	
c) <b>Serious eye damage / irritation:</b>	
Bentonite is not irritating to eye (OECD 405, rabbit).	
d) <b>Respiratory or skin sensitisation:</b>	
No negative influences were observed.	
e) <b>Germ cell mutagenicity:</b>	
Negative according to tests in mammalian cells (chrom abb, micronucleus assay).	
f) <b>Carcinogenicity:</b>	
Based on the available tests, bentonite was assessed as non-carcinogenic. Classification for carcinogenicity is not warranted.	
g) <b>Toxicity for reproduction:</b>	
In both animal studies no effects on maternal / foetal parameters were detected.	
h) <b>STOT – single exposure:</b>	
Classification criteria are not met according to the available tests.	
i) <b>STOT – repeated exposure:</b>	
There are no known effects.	
j) <b>Aspiration hazard:</b>	
Classification criteria are not met according to available information.	
<b>SECTION 12: ECOLOGICAL INFORMATION</b>	
<b>12.1 Toxicity:</b>	
<b>12.1.1 Toxicity to fish:</b>	
LC <sub>50</sub> (96 h) for freshwater fish (rainbow trout): 16000 mg/l.	
LC <sub>50</sub> (24 h) for marine water fish (black bass): 2800 - 3200 mg/l.	
<b>12.1.2 Toxicity to aquatic invertebrates:</b>	
EC <sub>50</sub> (96 h) for freshwater invertebrates: Dungeness crab – 81,6 mg/l, Dock shrimp - 24,8 mg/l.	

**12.1.3 Toxicity to aquatic plants:**

EC<sub>50</sub> (72 h) for freshwater algae > 100 mg/l.

**12.1.4 Toxicity to micro-organisms:**

EC<sub>50</sub> (48 h) for daphnia magna (OECD 202): > 100 mg/l.

**12.1.5 Toxicity to terrestrial plants:**

No effect was observed on the growth of beans (*Phaseolus vulgaris*) or corn (*Zea mays*) when bentonite was added at a concentration of 135 g/1,6 kg soil.

**12.2 Persistence and degradability:** Not relevant for inorganic substances.

**12.3 Bioaccumulative potential:** Not relevant for inorganic substances.

**12.4 Mobility in soil:** Bentonite is almost insoluble and thus presents a low mobility in most soils.

**12.5 Results of PBT and vPvB assessment:**

Bentonite doesn't meet the classification criteria for persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) substances.

**12.6 Other adverse effects:** No other adverse effects are identified.

**SECTION 13: DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods:**

The residues/unused product can be disposed in landfills following national and local regulations. Dispose in such a way to avoid dust generation. Where possible, recycling should be preferred to disposal.

**Substance / preparation disposal:**

Storage category 0.

**Contaminated packing disposal:**

Secondary utilization, storing, incineration. In all cases dust formation from residues in the packaging should be avoided and suitable protection be assured.

**SECTION 14: TRANSPORT INFORMATION**

The material is not classified as a dangerous substance and no restrictions apply for land/sea/air transportation. Avoid dust spreading.

**14.1 UN number:**

Not relevant.

**14.2 UN proper shipping name:**

Not relevant.

**14.3 Transport hazard class(es):**

ADR, IMDG, ICAO/IATA, RID – Not classified. Bentonite is not hazardous in the sense of transport regulations. Material is not explosive. Transport in usual covered transport means protected against climatic influences.

**14.4 Packing group:**

Not applicable.

**14.5 Environmental hazards:**

Not relevant.

**14.6 Special precautions for user:**

Avoid any release of dust during transportation. Other safety measures according to Section 6 and 8.

**14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code:**

Not regulated.

**SECTION 15: REGULATORY INFORMATION****15.1 Safety, health and environmental regulations / legislation specific for the substance:**

Bentonite is not hazardous substance. Bentonite is not a SEVESO substance, not ozone depleting substance and not a persistent organic pollutant. Bentonite is not classified according to any Directives or Regulations of the European Union, or local law and has no restrictions on use. The product (bentonite) is not 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).

## 15.2 Chemical safety assessment:

Bentonite is exempted from REACH registration in accordance with Annex V.7. 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.

[According to European Bentonite Producers Association \(EUBA\)](#), based on summary studies, [the substance Bentonite does not meet the criteria for hazardous substances and the warranted classification is "not classified" as none of the hazard criteria for physico-chemical properties, human health or environment are met](#). Alkali activation is a method to enrich bentonite with sodium cations - the resulting bentonite being the same substance. Sodium-activated bentonite should therefore be considered as a not chemically modified substance, namely 'a substance whose chemical structure remains unchanged, even if it has undergone a chemical process or treatment, or a physical mineralogical transformation, for instance to remove impurities'. Activation does not alter the crystal structure of the separate smectite layers. It changes only the stacking of the successive layers, which, in any case, is not a constant structural parameter and is largely dependent on many factors, such as the water content of smectite. Therefore, sodium exchange induced by activation, should not be considered a structural change of smectite and hence the bentonite. Na<sup>+</sup> and Ca<sup>+</sup> are not part of the "structure" of bentonite as they are loosely bound in between the smectite platelets, modifying the surface electrical charge of them. Given the above, treatment of bentonite by sodium activation results in no change in its chemical structure and, therefore, sodium activated should be considered as identical to natural one.

## SECTION 16: OTHER INFORMATION

### 16.1 Information about revision of safety data sheet:

Changes in terminology and requirements according to Regulation (EC) 1272/2008 and Regulation (EU) 2015/830.

### 16.2 Disclaimer:

The data herein correspond to the present state of knowledge and experience and they are in conformity with valid legal enactments. They are not however comprehensive. When mixing with other products, it is to control whether further health and safety risks can not occur. This safety data sheet does not represent a guarantee of product's properties. 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. This version of the SDS supersedes all previous versions.

### 16.3 Abbreviations:

**ADR** – European Agreement concerning the International Carriage of Dangerous Goods by Road

**CLP** – Regulation of European parliament and Council for Classification, Labeling and Packaging of chemicals

**EC<sub>50</sub>** – Median Effective Concentration

**EUBA** – European Bentonite Producers Association

**GHS** – Globally Harmonized System of Classification and Labeling of Chemicals

**IARC** – International Agency for Research on Cancer

**IBC** – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk

**ICAO/IATA** – International Civil Aviation Organization / International Air Transport Association

**IMDG** – International Maritime Dangerous Goods Code

**LD<sub>50</sub>** – Median Lethal Dose

**NTP** – National Toxicology Program

**OECD** – Organisation for Economic Co-operation and Development (test methods)

**OSHA** – Occupational Health and Safety Administration

**PBT** – Persistent, Bioaccumulative and Toxic substances

**PEL<sub>t</sub>** – Permissible Exposure Limit, total amount

**PEL<sub>r</sub>** – Permissible Exposure Limit, respirable fraction

**REACH** – EU Regulation about Registration, Evaluation, Authorisation and Restriction of Chemicals

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

**SEVESO** – Council Directive on the control of major-accident hazards involving dangerous substances

**STOT** – Specific Target Organ Toxicity

**SWERF** – Size-Weighted Respirable Fraction

**TWA** – Time-Weighted Average

**UN** – Numbers that identify hazardous substances, and dangerous articles in the framework of international transport.

**UVCB** – Substances of Unknown or Variable composition, Complex reaction products or Biological materials

**vPvB** – very Persistent and very Bioaccumulative substances