

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

BENTONITE PELLETS 1/2 INCH

Revision Date: 06-Mar-2014

Revision Number: 11

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product Identifier****Product Name** BENTONITE PELLETS 1/2 INCH**1.2. Relevant identified uses of the substance or mixture and uses advised against****Recommended Use** Weight Additive**1.3. Details of the supplier of the safety data sheet**

Halliburton Manufacturing Services, Ltd.
Halliburton House, Howemoss Crescent
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

Emergency Phone Number: +44 1224 795277 or +1 281 575 5000

www.halliburton.com

For further information, please contact

E-Mail address: fdunexchem@halliburton.com**1.4. Emergency telephone number**

+44 1224 795277 or +1 281 575 5000

Emergency telephone - §45 - (EC)1272/2008	
Europe	112
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Center Berlin (DE): +49 030 30686 790
Italy	Poison Center, Milan (IT): +39 02 6610 1029
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poisons Information (NO): + 47 22 591300
Poland	Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

SECTION 2: Hazards Identification**2.1. Classification of the substance or mixture****REGULATION (EC) No 1272/2008**

Carcinogenicity	Category 1A - (H350)
Specific Target Organ Toxicity - (Repeated Exposure)	Category 1 - (H372)

Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R-phrases mentioned in this Section, see Section 16

Classification	Crystalline silica is not classified as a carcinogen in EU Council Directives 67/548/EEC and 88/379/EEC.
Risk Phrases	None R49 May cause cancer by inhalation. R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

2.2. Label Elements

Hazard Pictograms



Signal Word

Danger

Hazard Statements

H372 - Causes damage to organs through prolonged or repeated exposure H350i - May cause cancer by inhalation

Precautionary Statements - EU (§28, 1272/2008)

P201 - Obtain special instructions before use

P308 + P313 - IF exposed or concerned: Get medical advice/attention

Contains

Substances

Bentonite

Crystalline silica, quartz

Crystalline silica, cristobalite

Crystalline silica, tridymite

CAS Number

1302-78-9

14808-60-7

14464-46-1

15468-32-3

2.3. Other Hazards

None known

SECTION 3: Composition/information on Ingredients

Substances	EINECS	CAS Number	PERCENT (w/w)	EEC Classification	EU - CLP Substance Classification	REACH No.
Bentonite	215-108-5	1302-78-9	60 - 100%	Not applicable	Not applicable	No data available
Crystalline silica, quartz	238-878-4	14808-60-7	1 - 5%	T; R49 R48/23	Carc. 1A (H350i) STOT RE 1 (H372)	No data available
Crystalline silica, cristobalite	238-455-4	14464-46-1	0.1 - 1%	T; R49 R48/23	Carc. 1A (H350i) STOT RE 1 (H372)	No data available
Crystalline silica, tridymite	239-487-1	15468-32-3	0.1 - 1%	T; R49 R48/23	Carc. 1A (H350i) STOT RE 1 (H372)	No data available

For the full text of the R-phrases mentioned in this Section, see Section 16

3.1. Substances

Substance

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Skin	Wash with soap and water. Get medical attention if irritation persists.
Ingestion	Under normal conditions, first aid procedures are not required.

4.2. Most Important symptoms and effects, both acute and delayed

May cause eye irritation

4.3. Indication of any immediate medical attention and special treatment needed**Notes to Physician** Treat symptomatically**SECTION 5: Firefighting Measures****5.1. Extinguishing media****Suitable Extinguishing Media**

All standard fire fighting media

Extinguishing media which must not be used for safety reasons

None known.

5.2. Special hazards arising from the substance or mixture**Special Exposure Hazards**

Not applicable.

5.3. Advice for firefighters**Special Protective Equipment for Fire-Fighters**

Not applicable.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Use appropriate protective equipment. Avoid creating and breathing dust.

See Section 8 for additional information

6.2. Environmental precautions

None known.

6.3. Methods and material for containment and cleaning up

Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

6.4. Reference to other sections

See Section 8 and 13 for additional information.

SECTION 7: Handling and Storage**7.1. Precautions for Safe Handling**

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

7.2. Conditions for safe storage, including any incompatibilities

Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container.

7.3. Specific End Use(s)**Exposure Scenario**

No information available

Other Guidelines

No information available

SECTION 8: Exposure Controls/Personal Protection**8.1. Control parameters**

Exposure Limits

Substances	CAS Number	EU	UK OEL	Netherlands	France OEL
Bentonite	1302-78-9	Not applicable	Not applicable	Not applicable	Not applicable
Crystalline silica, quartz	14808-60-7	Not applicable	STEL: 0.3 mg/m ³ TWA: 0.3 mg/m ³	TWA: 0.075 mg/m ³	0.1 mg/m ³
Crystalline silica, cristobalite	14464-46-1	Not applicable	0.1 mg/m ³	TWA: 0.075 mg/m ³	0.05 mg/m ³
Crystalline silica, tridymite	15468-32-3	Not applicable	0.1 mg/m ³	TWA: 0.075 mg/m ³	0.05 mg/m ³

Substances	CAS Number	Germany MAK/TRK	Spain	Portugal	Finland
Bentonite	1302-78-9	Not applicable	Not applicable	Not applicable	Not applicable
Crystalline silica, quartz	14808-60-7	0,15 mg/m ³	VLA-ED: 0.1 mg/m ³	TWA: 0.025 mg/m ³	TWA: 0.05 mg/m ³ TWA: 0.2 mg/m ³
Crystalline silica, cristobalite	14464-46-1	0,15 mg/m ³	VLA-ED: 0.05 mg/m ³	TWA: 0.025 mg/m ³	TWA: 0.05 mg/m ³
Crystalline silica, tridymite	15468-32-3	Not applicable	VLA-ED: 0.05 mg/m ³	Not applicable	TWA: 0.05 mg/m ³

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Bentonite	1302-78-9	Not applicable	Not applicable	Not applicable	Not applicable
Crystalline silica, quartz	14808-60-7	Not applicable	Not applicable	Not applicable	STEL: 0.9 mg/m ³ STEL: 0.3 mg/m ³ TWA: 0.3 mg/m ³ TWA: 0.1 mg/m ³
Crystalline silica, cristobalite	14464-46-1	Not applicable	Not applicable	Not applicable	STEL: 0.45 mg/m ³ STEL: 0.15 mg/m ³ TWA: 0.15 mg/m ³ TWA: 0.05 mg/m ³
Crystalline silica, tridymite	15468-32-3	Not applicable	Not applicable	Not applicable	STEL: 0.45 mg/m ³ STEL: 0.15 mg/m ³ TWA: 0.15 mg/m ³ TWA: 0.05 mg/m ³

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Bentonite	1302-78-9	Not applicable	Not applicable	Not applicable	Not applicable
Crystalline silica, quartz	14808-60-7	Not applicable	NDS: 2 mg/m ³ NDS: 0.3 mg/m ³ NDS: 4.0 mg/m ³ NDS: 1.0 mg/m ³	TWA: 0.15 mg/m ³	Not applicable
Crystalline silica, cristobalite	14464-46-1	Not applicable	NDS: 2 mg/m ³ NDS: 0.3 mg/m ³ NDS: 4.0 mg/m ³ NDS: 1.0 mg/m ³	TWA: 0.15 mg/m ³	TWA: 0.1 mg/m ³
Crystalline silica, tridymite	15468-32-3	Not applicable	NDS: 2 mg/m ³ NDS: 0.3 mg/m ³ NDS: 4.0 mg/m ³ NDS: 1.0 mg/m ³	TWA: 0.15 mg/m ³	TWA: 0.1 mg/m ³

Substances	CAS Number	Denmark
Bentonite	1302-78-9	Not applicable
Crystalline silica, quartz	14808-60-7	TWA: 0.3 mg/m ³ TWA: 0.1 mg/m ³
Crystalline silica, cristobalite	14464-46-1	TWA: 0.15 mg/m ³ TWA: 0.05 mg/m ³
Crystalline silica, tridymite	15468-32-3	TWA: 0.15 mg/m ³ TWA: 0.05 mg/m ³

Derived No Effect Level (DNEL)
Worker

No information available.

General Population**Predicted No Effect Concentration (PNEC)**

No information available.

8.2. Exposure controls**Engineering Controls**

Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

Personal protective equipment

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection	Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Hand Protection	Dust/mist respirator. (N95, P2/P3)
Skin Protection	Normal work gloves.
Eye Protection	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.
Other Precautions	Wear safety glasses or goggles to protect against exposure.
	None known.

Environmental Exposure Controls No information available

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Solid **Color:** Various
Odor: Odorless **Odor Threshold:** No information available

<u>Property</u>	<u>Values</u>
<u>Remarks/ - Method</u>	
pH:	8-10
Freezing Point/Range	No data available
Melting Point/Range	No data available
Boiling Point/Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	2.55
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

SECTION 10: Stability and Reactivity

10.1. Reactivity

Not applicable

10.2. Chemical Stability

Stable

10.3. Possibility of Hazardous Reactions

Will Not Occur

10.4. Conditions to Avoid

None anticipated

10.5. Incompatible Materials

Hydrofluoric acid.

10.6. Hazardous Decomposition Products

Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity

Inhalation	Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A). Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).
Eye Contact	May cause eye irritation
Skin Contact	May cause mechanical skin irritation.
Ingestion	None known
Chronic Effects/Carcinogenicity	Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis. Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2). There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Bentonite	1302-78-9	> 5000 mg/kg (Rat) > 2000 mg/kg (Rat)	No data available	> 5.27 mg/L (Rat)
Crystalline silica, quartz	14808-60-7	> 5000 mg/kg (Rat)	No data available	No data available
Crystalline silica, cristobalite	14464-46-1	> 5000 mg/kg (Rat)	No data available	No data available
Crystalline silica, tridymite	15468-32-3	> 5000 mg/kg (Rat)	No data available	No data available

Substances	CAS Number	Skin corrosion/irritation
Bentonite	1302-78-9	Non-irritating to the skin (rabbit)
Crystalline silica, quartz	14808-60-7	Non-irritating to the skin
Crystalline silica, cristobalite	14464-46-1	Non-irritating to the skin
Crystalline silica, tridymite	15468-32-3	Non-irritating to the skin

Substances	CAS Number	Eye damage/irritation
Bentonite	1302-78-9	Non-irritating to the eye (rabbit)
Crystalline silica, quartz	14808-60-7	Mechanical irritation of the eyes is possible.
Crystalline silica, cristobalite	14464-46-1	Mechanical irritation of the eyes is possible.
Crystalline silica, tridymite	15468-32-3	Mechanical irritation of the eyes is possible.

Substances	CAS Number	Skin Sensitization
Bentonite	1302-78-9	Did not cause sensitization on laboratory animals (mouse)
Crystalline silica, quartz	14808-60-7	Not regarded as a sensitizer.
Crystalline silica, cristobalite	14464-46-1	Did not cause sensitization on laboratory animals
Crystalline silica, tridymite	15468-32-3	Did not cause sensitization on laboratory animals

Substances	CAS Number	Respiratory Sensitization
Bentonite	1302-78-9	No information available
Crystalline silica, quartz	14808-60-7	No information available
Crystalline silica, cristobalite	14464-46-1	No information available
Crystalline silica, tridymite	15468-32-3	No information available

Substances	CAS Number	Mutagenic Effects
Bentonite	1302-78-9	In vitro tests did not show mutagenic effects
Crystalline silica, quartz	14808-60-7	Not regarded as mutagenic.
Crystalline silica, cristobalite	14464-46-1	Not regarded as mutagenic.
Crystalline silica, tridymite	15468-32-3	Not regarded as mutagenic.

Substances	CAS Number	Carcinogenic Effects
Bentonite	1302-78-9	Did not show carcinogenic effects in animal experiments (similar substances)
Crystalline silica, quartz	14808-60-7	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure.
Crystalline silica, cristobalite	14464-46-1	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure.
Crystalline silica, tridymite	15468-32-3	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure.

Substances	CAS Number	Reproductive toxicity
Bentonite	1302-78-9	Did not show teratogenic effects in animal experiments.
Crystalline silica, quartz	14808-60-7	No information available
Crystalline silica, cristobalite	14464-46-1	No information available
Crystalline silica, tridymite	15468-32-3	No information available

Substances	CAS Number	STOT - single exposure
Bentonite	1302-78-9	None under normal use conditions
Crystalline silica, quartz	14808-60-7	No significant toxicity observed in animal studies at concentration requiring classification.
Crystalline silica, cristobalite	14464-46-1	No significant toxicity observed in animal studies at concentration requiring classification.
Crystalline silica, tridymite	15468-32-3	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Bentonite	1302-78-9	None under normal use conditions
Crystalline silica, quartz	14808-60-7	Causes damage to organs through prolonged or repeated exposure if inhaled Lungs
Crystalline silica, cristobalite	14464-46-1	Causes damage to organs through prolonged or repeated exposure if inhaled Lungs
Crystalline silica, tridymite	15468-32-3	Causes damage to organs through prolonged or repeated exposure if inhaled Lungs

Substances	CAS Number	Aspiration hazard
Bentonite	1302-78-9	Not applicable
Crystalline silica, quartz	14808-60-7	Not applicable
Crystalline silica, cristobalite	14464-46-1	Not applicable
Crystalline silica, tridymite	15468-32-3	Not applicable

SECTION 12: Ecological Information

12.1. Toxicity

Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Bentonite	1302-78-9	EC50(72h): > 100 mg/L (freshwater algae)	TLM96: 10000 ppm (Oncorhynchus mykiss) LC50(96h): 16000 - 19000 mg/L (Oncorhynchus mykiss) LC50(24h): 2800 – 3200 mg/L (black bass, warmouth bass, blue gill and sunfish)	No information available	EC50(96h): 81.6 mg/L (Metacarcinus magister) EC50(96h): 24.8 mg/L (Pandalus danae) EC50(48h) > 100 mg/L (Daphnia magna)
Crystalline silica, quartz	14808-60-7	No information available	LL0(96h): 10000 mg/L (Danio rerio) (similar substance)	No information available	LL50(24h): > 10000 mg/L (Daphnia magna) (similar substance)
Crystalline silica, cristobalite	14464-46-1	No information available	LL0(96h): 10000 mg/L (Danio rerio) (similar substance)	No information available	LL50(24h): > 10000 mg/L (Daphnia magna) (similar substance)
Crystalline silica, tridymite	15468-32-3	No information available	LL0(96h): 10000 mg/L (Danio rerio) (similar substance)	No information available	LL50(24h): > 10000 mg/L (Daphnia magna) (similar substance)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Bentonite	1302-78-9	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, quartz	14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, cristobalite	14464-46-1	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, tridymite	15468-32-3	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Bentonite	1302-78-9	No information available
Crystalline silica, quartz	14808-60-7	No information available
Crystalline silica, cristobalite	14464-46-1	No information available
Crystalline silica, tridymite	15468-32-3	No information available

12.4. Mobility in soil

No information available

12.5. Results of PBT and vPvB assessment

No information available.

Substances	PBT and vPvB assessment
Crystalline silica, quartz	Not PBT/vPvB

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Disposal Method

Bury in a licensed landfill according to federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

SECTION 14: Transport Information

IMDG/IMO

UN Number: Not restricted.
 UN Proper Shipping Name: Not restricted
 Transport Hazard Class(es): Not applicable
 Packing Group: Not applicable
 Environmental Hazards: Not applicable

RID

UN Number: Not restricted.
 UN Proper Shipping Name: Not restricted
 Transport Hazard Class(es): Not applicable
 Packing Group: Not applicable
 Environmental hazard: Not applicable

ADR

UN Number: Not restricted.
 UN Proper Shipping Name: Not restricted
 Transport Hazard Class(es): Not applicable
 Packing Group: Not applicable
 Environmental hazard: Not applicable

IATA/ICAO

UN Number: Not restricted.
 UN Proper Shipping Name: Not restricted
 Transport Hazard Class(es): Not applicable
 Packing Group: Not applicable
 Environmental hazard: Not applicable

14.1. UN Number: Not restricted.

14.2. UN Proper Shipping Name: Not restricted

14.3. Transport Hazard Class(es): Not applicable

14.4. Packing Group: Not applicable

14.5. Environmental Hazards: Not applicable

14.6. Special Precautions for User: None

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

International Inventories

EINECS Inventory This product, and all its components, complies with EINECS
US TSCA Inventory All components listed on inventory or are exempt.
Canadian DSL Inventory All components listed on inventory or are exempt.

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

**Germany, Water Endangering
Classes (WGK)**

WGK 0: Generally not water endangering.

15.2. Chemical Safety Assessment

No information available

SECTION 16: Other Information**Full text of R-phrases referred to under Sections 2 and 3**

None

Key literature references and sources for datawww.ChemADVISOR.com/**Revision Date:**

06-Mar-2014

Revision Note

Not applicable

This safety data sheet complies with the requirements of Regulation (EC) No. 453/2010**Disclaimer Statement**

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End of Safety Data Sheet