Bentonite

sc-214580

Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Bentonite

STATEMENT OF HAZARDOUS NATURE
CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA

SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
Al2-O3 • 4Si-O2 • H2O, "sodium montmorillonite", "filter clay", "earth bentonite", "natural clay", "sodium bentonite", "Albagel Premium USP 4444", "Bentonite 2073", "Bentonite magma", "Bentonite Trugel 100", Hi-Jel, "Imvite I.G.B.A.", MagBond, "Panther Creek bentonite", "Southern Bentonite", Tixoton, Truben, Colclay, "Volclay HPM-20", "Volclay 325", "Volclay Premium Gel", Wilkinite, Aus-Ben, Aus-Ben(B), "Bentonite HPM20"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	0	
Toxicity:	2	
Body Contact:	2	
Reactivity:	0	
Chronic:	2	

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

Irritating to eyes, respiratory system and skin.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Although ingestion is not thought to produce harmful effects, the material may still be damaging to the health of the individual following ingestion, especially where pre-existing organ (e.
g.

EYE

■ This material can cause eye irritation and damage in some persons.

SKIN

■ This material can cause inflammation of the skin oncontact in some persons.
■ The material may accentuate any pre-existing dermatitis condition.
■ Skin contact is not thought to have harmful health effects, however the material may still produce health damage following entry through wounds, lesions or abrasions.
■ Open cuts, abraded or irritated skin should not be exposed to this material.
■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ The material can cause respiratory irritation in some persons.
The body's response to such irritation can cause further lung damage.
■ Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.
■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.
■ Effects on lungs are significantly enhanced in the presence of respirableparticles.

CHRONIC HEALTH EFFECTS

■ Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.
Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
Overexposure to respirable dust may cause coughing, wheezing, difficulty in breathing and impaired lung function. Chronic symptoms may include decreased vital lung capacity, chest infections
Repeated exposures, in an occupational setting, to high levels of fine- divided dusts may produce a condition known as pneumoconiosis which is the lodgement of any inhaled dusts in the lung irrespective of the effect. This is particularly true when a significant number of particles less than 0.5 microns (1/50,000 inch), are present. Lung shadows are seen in the X-ray. Symptoms of pneumoconiosis may include a progressive dry cough, shortness of breath on exertion (exertional dyspnea), increased chest expansion, weakness and weight loss. As the disease progresses the cough produces a stringy mucous, vital capacity decreases further and shortness of breath becomes more severe. Other signs or symptoms include altered breath sounds, diminished lung capacity, diminished oxygen uptake during exercise, emphysema and pneumothorax (air in lung cavity) as a rare complication.
Removing workers from possibility of further exposure to dust generally leads to halting the progress of the lung abnormalities. Where worker-exposure potential is high, periodic examinations with emphasis on lung dysfunctions should be undertaken
Dust inhalation over an extended number of years may produce pneumoconiosis.. Pneumoconiosis is the accumulation of dusts in the lungs and the tissue reaction in its presence. It is further classified as being of noncollagenous or collagenous types. Noncollagenous pneumoconiosis, the benign form, is identified by minimal stromal reaction, consists mainly of reticulin fibres, an intact alveolar architecture and is potentially reversible.
Chronic dust inhalation has been associated with lung disease. (Source: NIOSHTIC). Symptoms are those of nodular fibrosis and respiratory impairment is characterised by obstruction and restriction
of lung function. (Source: Occupational Diseases)

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
bentonite	1302-78-9	>95
a colloidal clay (aluminium silicate) composed		
chiefly of montmorillonite, sodium bentonite form as		
kaolin	1332-58-7	

Section 4 - FIRST AID MEASURES

SWALLOWED
· Immediately give a glass of water. · First aid is not generally required. If in doubt, contact a Poisons Information Center or a doctor.

EYE
■ If this product comes in contact with the eyes: · Wash out immediately with fresh running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN
■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

INHALED
· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN
■ Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not applicable.
Upper Explosive Limit (%):	Not applicable
Specific Gravity (water=1):	2.6 approx
Lower Explosive Limit (%):	Not applicable

EXTINGUISHING MEDIA
· There is no restriction on the type of extinguisher which may be used.
Use extinguishing media suitable for surrounding area.

FIRE FIGHTING
· Alert Emergency Responders and tell them location and nature of hazard.
· Wear breathing apparatus plus protective gloves for fire only.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS
· Non combustible.
· Not considered to be a significant fire risk, however containers may burn.
May emit poisonous fumes.
May emit corrosive fumes.

FIRE INCOMPATIBILITY
■ None known.

PERSONAL PROTECTION
Glasses:
Chemical goggles.
Gloves:
Respirator:
Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
· Remove all ignition sources.
· Clean up all spills immediately.
· Avoid contact with skin and eyes.
· Control personal contact by using protective equipment.
· Use dry clean up procedures and avoid generating dust.
· Place in a suitable, labelled container for waste disposal.
MAJOR SPILLS
■ Moderate hazard.
· CAUTION: Advise personnel in area.
· Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
· Avoid all personal contact, including inhalation.
· Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS
· Polyethylene or polypropylene container.
· Check all containers are clearly labelled and free from leaks.

STORAGE REQUIREMENTS
· Keep dry.
· Store under cover.

· Protect containers against physical damage.
· Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
US OSHA Permissible Exposure Levels (PELs) - Table Z1	bentonite (Silicates (less than 1% crystalline silica) - Talc (containing asbestos); use asbestos limit; see 29 CFR 1910.1001)		0.1						See Table Z-3; (STEL (Excursion limit)(as averaged over a sampling period of 30 minutes))
US OSHA Permissible Exposure Levels (PELs) - Table Z1	bentonite (Silicates (less than 1% crystalline silica) - Tremolite, asbestiform; see 1910.1001)		0.1						(STEL (Excursion limit)(as averaged over a sampling period of 30 minutes))
US OSHA Permissible Exposure Levels (PELs) - Table Z3	bentonite (Silicates (less than 1% crystalline silica): Tremolite, asbestiforms (see 29 CFR 1910.1001))							0.1	
US - Idaho - Limits for Air Contaminants	bentonite (Silicates (less than 1% crystalline silic))		[3]						
US - Hawaii Air Contaminant Limits	bentonite (Silicates (less than 1% crystalline silica) - Soapstone, respirable dust)		3						
US - Michigan Exposure Limits for Air Contaminants	bentonite (Sillicates (less than 1% crystalline silica) Mica, respirable dust)		3						
US - Hawaii Air Contaminant Limits	bentonite (Silicates (less than 1% crystalline silica) - Soapstone, total dust)		6						
US - Washington Permissible exposure limits of air contaminants	bentonite (Silicates (less than 1% crystalline silica) Mica - Respirable fraction)		3		6				
US - Michigan Exposure Limits for Air Contaminants	bentonite (Sillicates (less than 1% crystalline silica) Talc (containing		2						

	no asbestos), respirable dust)					
US - Michigan Exposure Limits for Air Contaminants	bentonite (Silicates (less than 1% crystalline silica) Tremolite)				0.1	R 325.51311 et seq, Asbestos for General Industry
US - Michigan Exposure Limits for Air Contaminants	bentonite (Sillicates (less than 1% crystalline silica) Soapstone, total dust)		6			
Canada - Alberta Occupational Exposure Limits	bentonite (Turpentine and selected monoterpenes)	20	111			
Canada - British Columbia Occupational Exposure Limits	bentonite (Turpentine and selected monoterpenes Revised 2003)	20				S
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	bentonite (Turpentine and selected monoterpenes)	20		30		SEN
Canada - Ontario Occupational Exposure Limits	bentonite (Particles (Insoluble or Poorly Soluble) Not Otherwise)		10 (I)			
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	bentonite (Particulates not otherwise regulated (PNOR)(f)- Respirable fraction)		5			
Canada - British Columbia Occupational Exposure Limits	bentonite (Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC))		10 (N)			
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	bentonite (Particulates not otherwise regulated Respirable fraction)		5			
US - California Permissible Exposure Limits for Chemical Contaminants	bentonite (Particulates not otherwise regulated Respirable fraction)		5			(n)
Canada - Ontario Occupational Exposure Limits	bentonite (Specified (PNOS) / Particules (insolubles ou peu solubles) non précisées		3 (R)			

	par ailleurs)				
US - Oregon Permissible Exposure Limits (Z-1)	bentonite (Particulates not otherwise regulated (PNOR) (f) Total Dust)	-	10		Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means “particles not otherwise regulated.”
US - Michigan Exposure Limits for Air Contaminants	bentonite (Particulates not otherwise regulated, Respirable dust)		5		
Canada - Prince Edward Island Occupational Exposure Limits	bentonite (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)		10		See Appendix B current TLV/BEI Book
US - Oregon Permissible Exposure Limits (Z-1)	bentonite (Particulates not otherwise regulated (PNOR) (f) Respirable Fraction)	-	5		Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means “particles not otherwise regulated.”
Canada - Prince Edward Island Occupational Exposure Limits	bentonite (Particles (Insoluble or Poorly Soluble) [NOS] Respirable particles)		3		See Appendix B current TLV/BEI Book
Canada - Alberta Occupational Exposure Limits	bentonite (Particulate Not Otherwise Regulated - Respirable)		3		
Canada - British Columbia Occupational Exposure Limits	kaolin (Kaolin, Respirable)		2 (E)		
Canada - Alberta Occupational Exposure Limits	kaolin (Kaolin respirable)		2		
US - Minnesota Permissible Exposure Limits (PELs)	kaolin (Kaolin - Respirable fraction)		5		
US - Minnesota Permissible Exposure Limits (PELs)	kaolin (Kaolin - Total dust)		10		
US ACGIH Threshold Limit Values (TLV)	kaolin (Kaolin)		2		TLV Basis: pneumoconiosis. Value is for particulate matter containing no

				asbestos and <1% crystalline silica.
US OSHA Permissible Exposure Levels (PELs) - Table Z1	kaolin (Kaolin - Respirable fraction)	5		
US NIOSH Recommended Exposure Limits (RELs)	kaolin (Kaolin)	10		(TWA (total))
US NIOSH Recommended Exposure Limits (RELs)	kaolin (Kaolin)	5		(TWA (resp))
US - California Permissible Exposure Limits for Chemical Contaminants	kaolin (Kaolin; (respirable dust containing no asbestos and <1% crystaline silica))	2		
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	kaolin (Kaolin - Respirable fraction)	5		
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	kaolin (Kaolin - Total dust)	15		
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	kaolin (Kaolin - Respirable fraction)	5		
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	kaolin (Kaolin - Total dust)	10		
US - Idaho - Limits for Air Contaminants	kaolin (Kaolin - Respirable fraction)	5		
US - Idaho - Limits for Air Contaminants	kaolin (Kaolin - Total dust)	15		
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	kaolin (Kaolin - Total dust)	10		
US OSHA Permissible Exposure Levels (PELs) - Table Z1	kaolin (Kaolin - Total dust)	15		
US - Hawaii Air Contaminant Limits	kaolin (Kaolin - Respirable fraction)	5		

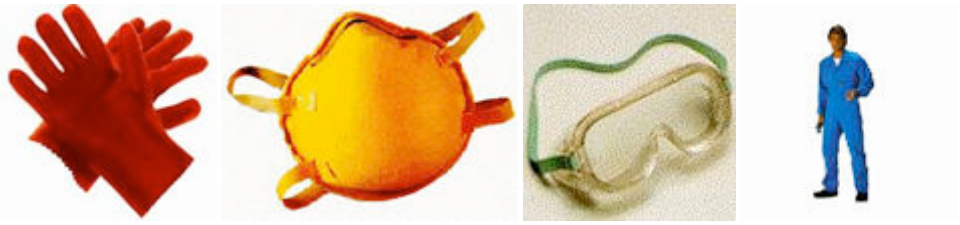
US - Hawaii Air Contaminant Limits	kaolin (Kaolin - Total dust)		10	20	
US - Alaska Limits for Air Contaminants	kaolin (Kaolin - Respirable fraction)		5		
US - Alaska Limits for Air Contaminants	kaolin (Kaolin - Total dust)		10		
US - Washington Permissible exposure limits of air contaminants	kaolin (Kaolin - Total particulate)		10	20	
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	kaolin (Kaolin)		(See Table 11)		
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	kaolin (Kaolin (respirable fraction++))		2	4	
US - Washington Permissible exposure limits of air contaminants	kaolin (Kaolin - Respirable fraction)		5	10	
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	kaolin (Kaolin- Total dust)		15		
Canada - Prince Edward Island Occupational Exposure Limits	kaolin (Kaolin)		2		TLV Basis: pneumoconiosis. Value is for particulate matter containing no asbestos and <1% crystalline silica.
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	kaolin (Kaolin)		5		
US - Oregon Permissible Exposure Limits (Z-1)	kaolin (Kaolin Total Dust)	-	10		Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits.
US - Michigan Exposure Limits for Air Contaminants	kaolin (Kaolin, Total dust)		10		

Canada - Nova Scotia Occupational Exposure Limits	kaolin (Kaolin)		2		TLV Basis: pneumoconiosis. Value is for particulate matter containing no asbestos and <1% crystalline silica.
US - Oregon Permissible Exposure Limits (Z-1)	kaolin (Kaolin Respirable Fraction)	-	5		Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits.
US OSHA Permissible Exposure Levels (PELs) - Table Z3	kaolin (Silica: Amorphous, including natural diatomaceous earth)		80/(%SiO2)		
US - Wyoming Toxic and Hazardous Substances Table Z-3 Mineral Dusts	kaolin (Silica: Amorphous, including natural diatomaceous earth)		80 / %SiO2		
Canada - Northwest Territories Occupational Exposure Limits (English)	kaolin (Silica - Fused Silica (Respirable Mass))		0.1		
US - California Permissible Exposure Limits for Chemical Contaminants	kaolin (Silica, amorphous Respirable fraction)		3		(n)
US - California Permissible Exposure Limits for Chemical Contaminants	kaolin (Silica, amorphous Total dust)		6		
US NIOSH Recommended Exposure Limits (RELs)	kaolin (Silica, amorphous)		6		
US - Alaska Limits for Air Contaminants	kaolin (Silica, amorphous)		6		
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	kaolin (Silica Amorphous: Silica, fused (respirable fraction++))		0.1		
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	kaolin (Silica Amorphous: Silica, fume (respirable fraction++))		2		
Canada - Northwest Territories	kaolin (Silica - Amorphous (Respirable		2		

Occupational Exposure Limits (English)	Mass))	
Canada - Northwest Territories Occupational Exposure Limits (English)	kaolin (Silica - Amorphous (Total Mass))	5
Canada - Northwest Territories Occupational Exposure Limits (English)	kaolin (Silica - Quartz (Total Mass))	0.3

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

• particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)
Consult your EHS staff for recommendations

EYE

· Safety glasses with side shields.
· Chemical goggles.

HANDS/FEET

■ Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
· frequency and duration of contact,
· chemical resistance of glove material,
· glove thickness and
· dexterity
Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).
· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
· Contaminated gloves should be replaced.
Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.
· polychloroprene
· nitrile rubber
· butyl rubber
· fluorocaoutchouc
· polyvinyl chloride
Gloves should be examined for wear and/ or degradation constantly.

OTHER

· Overalls.
· P.V.C. apron.
· Barrier cream.
· Skin cleansing cream.
· Eye wash unit.

ENGINEERING CONTROLS

■ Local exhaust ventilation usually required. If risk of overexposure exists, wear an approved respirator.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.
Does not mix with water.

Sinks in water.

State	Divided solid	Molecular Weight	368.38
Melting Range (°F)	2439	Viscosity	Not Applicable
Boiling Range (°F)	Not applicable.	Solubility in water (g/L)	Immiscible
Flash Point (°F)	Not applicable	pH (1% solution)	Not applicable.
Decomposition Temp (°F)	Not available.	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not applicable.	Vapour Pressure (mmHG)	Not applicable.
Upper Explosive Limit (%)	Not applicable	Specific Gravity (water=1)	2.6 approx
Lower Explosive Limit (%)	Not applicable	Relative Vapor Density (air=1)	Not applicable.
Volatile Component (%vol)	Not applicable	Evaporation Rate	Not applicable

APPEARANCE

Light pink, off white impalpable powder with no distinct odour. Insoluble in water and common organic solvents. Forms colloidal suspension in water, with strongly thixotropic properties. Sodium bentonite has high swelling capacity in water. Particle size (Australian red): 90% is 75 micron. Bulk density (Australian red): 0.75 g/cm3. Extremely slippery when wet.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

· Presence of incompatible materials.
· Product is considered stable.

STORAGE INCOMPATIBILITY

■ None known.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

bentonite

TOXICITY AND IRRITATION

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.
■ for bentonite clays:
Bentonite (CAS No. 1302-78-9) consists of a group of clays formed by crystallisation of vitreous volcanic ashes that were deposited in water.
The expected acute oral toxicity of bentonite in humans is very low (LD50>15 g/kg). However, severe anterior segment inflammation, uveitis and retrocorneal abscess from eye exposure were reported when bentonite had been used as a prophypaste.
In a 33 day dietary (2 and 6%) and a 90 day dietary (1, 3 and 5%) studies in chickens, no changes in behaviour, overall state, clinical and biochemical parameters and electrolytic composition of the blood. Repeat dietary administration of bentonite did not affect calcium or phosphorus metabolism. However, larger amounts caused decreased growth, muscle weakness, and death with marked changes in both calcium and phosphorus metabolism.
Bentonite did not cause fibrosis after 1 year exposure of 60 mg dust (<5 um) in a rat study. However, in a second rat study, where 5 um particles were intratracheally instilled at 5, 15 and 45 mg/rat, dose-related fibrosis was observed. Bentonite clay dust is believed to be responsible for bronchial asthma in workers at a processing plant in USA.
Ingestion of bentonite without adequate liquids may result in intestinal obstruction in humans.
Hypokalaemia and microcytic iron-deficiency anaemia may occur in patients after repeat doses of clay. Chronic ingestion has been reported to cause myositis.
■ No significant acute toxicological data identified in literature search.
BENTONITE:

TOXICITY	IRRITATION
Intravenous (Rat) LD50: 35 mg/kg	
Intravenous (Dog) LD: 10 mg/kg	

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

CARCINOGEN

VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen

Kaolin	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A4
kaolin	US - Rhode Island Hazardous Substance List	IARC	
TWAMG_M3~	US - Maine Chemicals of High Concern List	Carcinogen	A4

Section 12 - ECOLOGICAL INFORMATION

No data

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
bentonite	No Data Available	No Data Available		
kaolin	No Data Available	No Data Available		

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.
¦ Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
A Hierarchy of Controls seems to be common - the user should investigate:
· Reduction
· Reuse
· Recycling
· Disposal (if all else fails)
This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.
· Recycle wherever possible or consult manufacturer for recycling options.
· Consult Waste Management Authority for disposal.

Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

Section 15 - REGULATORY INFORMATION

kaolin (CAS: 1332-58-7) is found on the following regulatory lists;

"Canada - Alberta Occupational Exposure Limits","Canada - British Columbia Occupational Exposure Limits","Canada - Nova Scotia Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens","Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances","Canada Domestic Substances List (DSL)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","GESAMP/EHS Composite List - GESAMP Hazard Profiles","IMO IBC Code Chapter 18: List of products to which the Code does not apply","US - Alaska Limits for Air Contaminants","US - California Permissible Exposure Limits for Chemical Contaminants","US - Hawaii Air Contaminant Limits","US - Idaho - Limits for Air Contaminants","US - Michigan Exposure Limits for Air Contaminants","US - Minnesota Hazardous Substance List","US - Minnesota Permissible Exposure Limits (PELs)","US - Oregon Permissible Exposure Limits (Z-1)","US - Pennsylvania - Hazardous Substance List","US - Rhode Island Hazardous Substance List","US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants","US - Washington Permissible exposure limits of air contaminants","US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants","US ACGIH Threshold Limit Values (TLV)","US ACGIH Threshold Limit Values (TLV) - Carcinogens","US Cosmetic Ingredient Review (CIR) Cosmetic ingredients found safe as used","US DOE Temporary Emergency Exposure Limits (TEELs)","US NFPA 30B Manufacture and Storage of Aerosol Products - Chemical Heat of Combustion","US NIOSH Recommended Exposure Limits (RELs)","US OSHA Permissible Exposure Levels (PELs) - Table Z1","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

■ Inhalation may produce health damage*.
■ Cumulative effects may result following exposure*.
* (limited evidence).

Ingredients with multiple CAS Nos

Ingredient Name CAS bentonite 1302-78-9, 11004-12-9

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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