Material Safety Data Sheet

Revised December 23, 2003 Rev. B

Section 1 – Product Identification

Trade Names:	Non-Traditional Cat Litter, Scoopable Cat Litter, Clumping Cat Litter, Blended Cat Litter, Traditional Cat Litter, Conventional Cat Litter, Non-Clumping Cat Litter
Common Names/Synonyms:	Cat Litter
Product Use:	Absorbent, Adsorbent
Manufacturers Name:	Ash Meadows, LLC, a wholly-owned subsidiary of Badger Mining Corporation
Manufacturers Address:	P.O. Box 328 409 South Church Street Berlin, WI 54923
Manufacturers Telephone:	800-932-7263 (7 am – 5 pm Central Time Monday-Friday) 920-361-2388
Manufacturers Fax:	920-361-2826
Emergency Number:	800-932-7263 (7 am – 5 pm Central Time Monday-Friday) 920-361-2388

Section 2 – Composition and Information on Ingredients

This product may contain varying concentrations of the following minerals:

Chemical Name	CAS Number	Specific Chemical Identity	Concentration
Clinoptilolite	1318-02-1 (All Zeolites – excluding Erionite) 12173-10-3 (Natural Zeolites – excluding Erionite)	Hydrated Sodium, Potassium Aluminosilicate $(Na_3K_4Ca)(Al_8Si_{40}O_{96})\bullet 24H_2O$	0-100%
Bentonite	1302-78-9	Hydrous Silicate of Alumina	0-100%
Smectite Clay	12199-37-0		0-100%
Sepiolite	63800-37-3	$(H_6Mg_8Si_{12}O_{30}[OH]_{10})\bullet 6H_2O$	0-100%
Fragrance		Trade Secret	0-0.1%

Exposure Limits in Air:

OSHA PEL (as Inert or Nuisance Dust): 15 mppcf/5 mg/m^3 (respirable fraction)
50 mppcf/15 mg/m^3 (total dust)

ACGIH TLV (as particles not otherwise specified): 10 mg/m^3 (inhalable particles)
3 mg/m^3 (respirable particles)

NOTE: There is no established occupational exposure level for the minerals contained in this product. The guidelines for Inert Dust are provided as guidelines.

Composition of these minerals varies naturally; product(s) may contain:

Name:	Silica, Quartz, SiO_2
CAS Number:	14808 - 60- 7

Exposure Limits in Air:

OSHA - PEL	$\frac{10 \text{ mg/m}^3}{\% SiO_2+2}$	(8-Hour Time Weighted Average)
ACGIH – TLV	0.05 mg/cubic meter	(8-Hour Time Weighted Average)
NIOSH	0.05 mg/cubic meter	(10-Hour Time Weighted Average, 40-hour work week)

Exposure Limits for silica refer to the respirable fraction

Silica is classified as hazardous under Occupational Safety and Health Administration (OSHA) regulations (29 CFR 1910.1200).

CAUTION:
Crystalline silica exists in several forms, the most common of which is quartz. If crystalline silica (quartz) is heated to more than 870°C it can change to a form of crystalline silica known as trydimite, and if crystalline silica (quartz) is heated to more than 1470°C, it can change to a form of crystalline silica known as cristobalite. Crystalline silica as trydimite and cristobalite are more fibrogenic than crystalline silica as quartz. The OSHA PEL for crystalline silica as trydimite and cristobalite is one-half the PEL for crystalline silica (quartz); the ACGIH TLV for crystalline silica as trydimite and cristobalite is one-half the TLV for crystalline silica as quartz.

Section 3 – Hazards Identification

Emergency Overview
Ash Meadows, LLC Cat Litter is a dry, gray, yellow, blue, tan, or reddish-tan granular and powdery solid that has a sand-like appearance, with an earth-like odor. Some products may be scented with a powder fresh fragrance. It is not flammable, combustible, or explosive. All potential environmental, health, and safety hazards associated with Cat Litter are associated with the crystalline silica component of the product. A single exposure will not result in serious adverse health effects. Cat Litter is not known to be an environmental hazard.

Potential Health Effects
Inhalation:

a. Silicosis: Respirable crystalline silica (quartz) can cause chronic silicosis, a fibrosis (scarring) of the lungs. Silicosis may be progressive; it may lead to disability and death. Acute Silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis is fatal.

b. Cancer: Crystalline silica (quartz) inhaled from occupational sources in sufficient concentrations is classified as carcinogenic to humans. In its Ninth Annual Report on Carcinogens, the National Toxicology Program (NTP) listed crystalline silica as a known human carcinogen, based on sufficient evidence of carcinogenicity from studies in humans indicating a causal relationship between exposure to respirable crystalline silica and increased lung cancer rates in workers exposed to crystalline silica dust. The International Agency for Research on Cancer (IARC) has evaluated crystalline silica and determined that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)."

c. Autoimmune Diseases: There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis is associated with the increased incidence of several autoimmune disorders, -- scleroderma, systemic lupus erythematosus, rheumatoid arthritis and diseases affecting the kidneys.

d. Tuberculosis: Silicosis increases the risk of tuberculosis.

e. Nephrotoxicity: There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis is associated with the increased incidence of kidney diseases, including end stage renal disease.

Eye Contact: Crystalline silica (quartz) may cause abrasion of the cornea.

Skin Contact: May cause abrasion to skin.

Ingestion: No known health effect.

Acute Effects: One form of silicosis, Acute Silicosis, can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis is fatal.

Chronic Effects: The adverse health effects – lung disease, silicosis, cancer, autoimmune disease, tuberculosis, and nephrotoxicity -- are chronic effects.

Signs and Symptoms of Exposure: There are generally no signs or symptoms of exposure to crystalline silica (quartz). Often, chronic silicosis has no symptoms. The symptoms of chronic silicosis, if present, are shortness of breath, wheezing, cough and sputum production. The symptoms of acute silicosis are the same as those associated with chronic silicosis; additionally, weight loss and fever may also occur. The symptoms of scleroderma include thickening and stiffness of the skin, particularly in the fingers, shortness of breath, difficulty swallowing and joint problems.

Medical Conditions Generally Aggravated by Exposure: The condition of individuals with lung disease (e.g., bronchitis, emphysema, chronic obstructive pulmonary disease) can be aggravated by exposure.

See Section 11, Toxicological Information, for additional detail on potential adverse health effects.

Section 4 – First Aid Procedures

Inhalation – There is no specific treatment because the health effects associated with silica are chronic. If gross inhalation of silica occurs, remove the person to fresh air, perform artificial respiration as needed, and obtain medical attention as needed.

Eye – Wash the eye with water. If irritation persists, seek medical attention.

Skin – If abrasion occurs, seek medical attention.

Ingestion – If large amounts are ingested, seek medical attention.

Section 5 – Fire Fighting Measures

Flashpoint:	None
Upper/Lower Explosive Limit:	Not Combustible
Autoignition Temperature:	None
Unusual Fire and Explosion Habits:	None
Extinguishing Media:	Compatible with all media; use the medium appropriate to the surrounding fire.
Special Fire Fighting Procedures:	None with respect to this product.
Hazardous Combustion Products:	None

Section 6 – Accidental Release Measures

Wear appropriate personal protective equipment as described in Section 8 of this document. Collect the material using a method which does not produce dust [High-Efficiency Particulate Air (HEPA) vacuum or thoroughly wetting down the product]. Place the product in a covered container appropriate for disposal. Dispose of the product according to federal, state, and local regulations.

Section 7 – Handling and Storage

Do not breathe dust which may be created during the handling of this product. Do not rely on vision to determine whether respirable silica is present in the air, as it may be present without a visible cloud. Use good housekeeping procedures to prevent the accumulation of silica dust in the workplace. Avoid the creation of respirable dust.

Use adequate ventilation and dust collection equipment. Ensure that the dust collection system is adequate to reduce dust levels to below the appropriate occupational health limit.

In accordance with the U.S. Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (29 CFR 1910.1200, 1915.99, 1917.28, 1918.90, 1926.59, 1928.21), state, and/or local right-to-know laws and regulations, familiarize your employees with this MSDS and the information contained herein. Warn your employees (and your customers in case of resale) of the potential health risks associated with the use of this product and train them in the appropriate use of personal protective equipment and engineering controls which will reduce their risks of exposure.

See also American Society for Testing and Materials (ASTM) standard practice E 1132-99a, "Standard Practice for Health Requirements Relating to Occupational Exposure to Respirable Crystalline Silica."

Section 8 – Exposure Controls/Personal Protection

Ventilation:	Use local exhaust as required to maintain exposures below the occupational exposure limits; see also ACGIH, Industrial Ventilation – Recommended Practice (latest edition).
Respiratory Protection:	Consult with OSHA regulations and NIOSH recommendations to determine the appropriate respiratory protection during use of this product. Use only NIOSH-approved respiratory protection equipment. Avoid breathing dust produced during the use and handling of this product. If the workplace airborne crystalline silica concentration is unknown for a given task, conduct air monitoring to determine the appropriate level of respiratory protection. Consult with a certified industrial hygienist, your insurance risk manager, or the OSHA Consultative Services group for detailed information. Ensure appropriate respirators are worn during and following the task, including clean-up or whenever airborne dust is present, to insure ambient dust levels are below occupational health limits. Provisions should be made for a respiratory protection training program (see 29 CFR 1910.134 – Respiratory Protection for minimum program requirements). See also ANSI standard Z88.2 (latest revision) "American National Standard for Respiratory Protection," 29 CFR 1910.134 and 1926.103, and 42 CFR 84.
Gloves:	Recommended in situations where abrasion from product may occur
Eye:	Use protection as appropriate for the task at hand.
Other:	Use protective clothing as appropriate for the work environment.

Section 9 – Physical and Chemical Properties

Appearance:	Dry, gray, yellow, blue, tan, or reddish-tan granular and powdery solid that has a sand-like appearance
Odor:	Earth-like; scented products have powder fresh fragrance
Physical State:	Granular Solid
pH:	Not Applicable
Vapor Pressure	Not Applicable
Vapor Density:	Not Applicable
Boiling Point or Range, °F:	None
Melting Point or Range, °F:	Approximately 1920°F
Solubility In Water:	Insoluble
Specific Gravity:	1.01-2.6

Section 10 – Stability and Reactivity

Stability:	Stable
Materials to Avoid:	Strong Oxidizing Agents, such as fluorine, chlorine trifluoride, and oxygen difluoride.
Hazardous Decomposition Products:	Silica will dissolve in hydrofluoric acid and produce a corrosive gas – silicon tetrafluoride.
Hazardous Polymerization:	Will not occur

Section 11 – Toxicological Information

For Respirable Silica:

A. SILICOSIS

The major concern is silicosis (lung disease), caused by the inhalation and retention of respirable crystalline silica dust. Silicosis can exist in several forms, chronic (or ordinary), accelerated, or acute.

Chronic or Ordinary Silicosis is the most common form of silicosis, and can occur after many years of exposure to levels above the occupational exposure limits for airborne respirable crystalline silica dust. It is further defined as either simple or complicated silicosis.

Simple silicosis is characterized by lung lesions (shown as radiographic opacities) less than 1 centimeter in diameter, primarily in the upper lung zones. Often, simple silicosis is not associated with symptoms, detectable changes in lung function or disability. Simple silicosis may be progressive and may develop into complicated silicosis or progressive massive fibrosis (PMF).

Complicated silicosis or PMF is characterized by lung lesions (shown as radiographic opacities) greater than 1 centimeter in diameter. Although there may be no symptoms associated with complicated silicosis or PMF, the symptoms, if present, are shortness of breath, wheezing, cough and sputum production. Complicated silicosis or PMF may be associated with decreased lung function and may be disabling. Advanced complicated silicosis or PMF may lead to death. Advanced complicated silicosis or PMF can result in heart disease (cor pumonale) secondary to the lung disease.

Accelerated Silicosis can occur with exposure to high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five (5) years of the initial exposure. The progression can be rapid. Accelerated silicosis is similar to chronic or ordinary silicosis, except that the lung lesions appear earlier and the progression is more rapid.

Acute Silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis is fatal.

B. CANCER
IARC - The International Agency for Research on Cancer ("IARC") concluded that there was "*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources", and that there is "*sufficient evidence* in experimental animals for the carcinogenicity of quartz and cristobalite." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is *carcinogenic to humans* (*Group 1*)." The IARC evaluation noted that not all industrial circumstances studied evidenced carcinogenicity. The monograph also stated that "[C]arcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." For further information on the IARC evaluation, see IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 68, "Silica, Some Silicates..." (1997).

NTP - The National Toxicology Program, in its Ninth Annual Report on Carcinogens, concluded that respirable crystalline silica is known to be a human carcinogen, based on sufficient evidence of carcinogenicity from studies in humans indicating a causal relationship between exposure to respirable crystalline silica and increased lung cancer rates in workers exposed to crystalline silica dust.

There have been many articles published on the carcinogenicity of crystalline silica, which the reader should consult for additional information; the following are examples of recently published articles: (1) "Crystalline Silica and Lung Cancer: The Problem of Conflicting Evidence", Indoor Built Environ, Volume 8, pp. 121-126 (1998); (2) "Crystalline Silica and the risk of lung cancer on the potteries", Occup. Environ. Med., Volume 55, pp. 779-785 (1998); (3) "Is Silicosis Required for Silica-Associated Lung Cancer?", American Journal of Industrial Medicine, Volume 37, pp. 252-259 (2000); (4) " Silica, Silicosis, and Lung Cancer: A Risk Assessment", American Journal of Industrial Medicine, Volume 38, pp. 8-18 (2000); (5) "Silica, Silicosis, and Lung Cancer: A Response to a Recent Working Group Report", Journal of Occupational and Environmental Medicine, Volume 42, pp. 704-720 (2000).

C. AUTOIMMUNE DISEASES
There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be associated with the increased incidence of several autoimmune disorders -- scleroderma, systemic lupus erythematosus, rheumatoid arthritis and diseases affecting the kidneys. For a review of the subject, the following may be consulted: "Occupational Exposure to Crystalline Silica and Autoimmune Disease", Environmental Health Perspectives, Volume 107, Supplement 5, pp. 793-802 (1999); "Occupational Scleroderma", Current Opinion in Rheumatology, Volume 11, pp. 490-494 (1999); "Connective tissue disease and silicosis", Am J Ind Med, Volume 35, pp. 375-381 (1999).

D. TUBERCULOSIS
Individuals with silicosis are at increased risk to develop pulmonary tuberculosis, if exposed to persons with tuberculosis. The following may be consulted for further information: Occupational Lung Disorders, Third Edition,

Chapter 12, entitled "Silicosis and Related Diseases", Parkes, W. Raymond (1994); "Risk of pulmonary tuberculosis relative to silicosis and exposure to silica dust in South African gold miners," Occup Environ Med., Volume 55, pp.496-502 (1998); "Occupational risk factors for developing tuberculosis", Am J Ind Med, Volume 30, pp. 148-154 (1996).

E. KIDNEY DISEASE
There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis is associated with the increased incidence of kidney diseases, including end stage renal disease. For additional information on the subject, the following may be consulted: "Kidney Disease and Silicosis", Nephron, Volume 85, pp. 14-19 (2000); "End stage renal disease among ceramic workers exposed to silica", Occup Environ Med, Volume 56, pp. 559-561 (1999); "Kidney disease and arthritis in a cohort study of workers exposed to silica", Epidemiology, Volume 12, pp. 405-412 (2001).

Section 12 – Ecological Information

Cat Litter and crystalline silica are not known to be ecotoxic.

Section 13 – Disposal Considerations

General: Cat Litter and crystalline silica may be landfilled. Material should be placed in covered containers to minimize generation of airborne dust.

RCRA: Cat Litter and crystalline silica (quartz) are not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261 et seq.

The above information applies to Ash Meadows, LLC Cat Litter only as sold. The product may be contaminated during use, and it is the responsibility of the user to assess the appropriate disposal method in this situation.

Section 14 – Transport Information

Cat Litter and crystalline silica (quartz) are not hazardous materials for purposes of transportation under the U. S. Department of Transportation Table of Hazardous Materials, 49 CFR §172.101.

Section 15 – Regulatory Information

UNITED STATES (FEDERAL AND STATE)

TSCA No.: Crystalline silica (quartz) appears on the EPA TSCA inventory under the CAS No. 14808-60-7.
RCRA: Cat Litter and crystalline silica (quartz) are not classified as hazardous wastes under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261 et seq.
CERCLA: Cat Litter and crystalline silica (quartz) are not classified as hazardous substances under regulations of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 40 CFR §302.
Emergency Planning and Community Right to Know Act: Cat Litter and crystalline silica (quartz) are not extremely hazardous substances under Section 302 and are not toxic chemicals subject to the requirements of Section 313.
Clean Air Act: Cat Litter and crystalline silica (quartz) mined and processed by Ash Meadows, LLC were not processed with or do not contain any Class I or Class II ozone depleting substances.
FDA: Silica is included in the list of substances that may be included in coatings used in food contact surfaces, 21 CFR §175.300(b)(3)(xxvi).
NTP: Respirable crystalline silica (quartz) is classified as a known human carcinogen.
OSHA Carcinogen: Crystalline silica (quartz) is not listed.

CANADA

Domestic Substances List: Ash Meadows, LLC products, as naturally occurring substances, are on the Canadian DSL.
WHMIS Classification: D-2A

OTHER

EINECS No.: 231-545-4 (for silica)
EEC Label (Risk/Safety Phrases): R 48/20, R 40/20, S22, S38 (for silica)
IARC: Crystalline silica (quartz) is classified in IARC Group 1.
National, state, provincial or local emergency planning, community right to know or other laws, regulations or ordinances may be applicable--consult applicable national, state, provincial or local laws.

Section 16 – Other Information

An electronic version of this MSDS is available at www.badgerminingcorp.com/ashmeadows . More information on the effects of crystalline silica exposure may be obtained from the Occupational Safety and Health Administration (OSHA) (phone number: 1-800-321-OSHA; website: http://www.osha.gov) or from the National Institute for Occupational Safety and Health (NIOSH) (phone number: 1-800-35-NIOSH; website: http://www.cdc.gov/niosh).