SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Identifier
Product Name: Ball Clay

Synonyms: Clay, Hydrous Aluminum Silicate

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against:
Product Use: Various commercial and industrial uses
Restrictions on Use: None

Manufacturer/Supplier:
Covia (formerly Fairmount Santrol and Unimin)
US: 3 Summit Park Drive, Suite 700
Independence, OH 44131
Industrial and Recreation: 1-800-243-9004

CAN:
260 Unimin Road, County Rd. #46, PO Box 2000
Havelock, Ontario, Canada KOL 1Z0

Emergency Telephone Number: CHEMTREC
Within USA and Canada 1-800-424-9300
Outside USA and Canada +1-703-741-5970
For emergency calls only. Non-emergency calls cannot be serviced at these numbers.

SDS Date of Preparation/Revision: June 2024

SECTION 2: HAZARDS IDENTIFICATION

GHS/Hazcom 2012 Classification:

Physical:	Health:	Environmental
Not Hazardous	Carcinogen Category 1A Specific Target Organ Toxicity (Repeated Exposure) Category 1	Not Hazardous

GHS/Hazcom 2012 Label:

DANGER

Statements of Hazard
H350 May cause cancer by inhalation.
H372 Causes damage to lungs through prolonged or repeated exposure by inhalation.

Response:
P308+P313 If exposed or concerned: Get medical advice.

Disposal:
P501 Dispose of contents/containers in accordance with local regulation.

Prevention
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves and safety glasses or goggles.
P284 In case of inadequate ventilation wear respiratory protection.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

CAS#	Component	Percentage
1318-74-7	Kaolinite (Aluminum Silicate) (Kaolin)	≤91%
14808-60-7	Crystalline Silica in the form of Quartz	≤45%
12001-26-2	Mica (Muscovite)	≤35%
1327-36-2	Chlorite (Aluminosilicate)	≤25%
68476-25-5	Feldspar	≤25%
13463-67-7	Titanium Dioxide	≤3%

This material contains trace amounts (parts per trillion) of naturally occurring polychlorinated dibenzodioxins ("PCDD"), including 2,3,7,8-tetrachlorodibenzo-p-dioxin ("TCDD")."

SECTION 4: FIRST AID MEASURES

Gross Inhalation: Remove victim to fresh air. If breathing has stopped, perform artificial respiration. If breathing is difficult, have qualified personnel administer oxygen. Get prompt medical attention.

Skin Contact: No first aid should be needed since dermal contact with this product does not affect the skin. Wash exposed skin with soap and water before breaks and at the end of the shift.

Eye Contact: Flush the eyes immediately with large amounts of running water, lifting the upper and lower lids occasionally. If irritation persists, or for an imbedded foreign body, get immediate medical attention.

Ingestion: If large amounts are swallowed, get immediate medical attention.

Most Important Symptoms and Effects, Both Acute and Delayed: May cause eye irritation with redness and tearing. Exposure to dust may cause mucous membrane and respiratory irritation, cough, sore throat, nasal congestion, sneezing and shortness of breath. However, there may be no immediate signs or symptoms of exposure to hazardous concentrations of respirable crystalline silica (quartz).

Indication of immediate medical attention and Special Treatment Needed: None required.

SECTION 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media: This product will not burn; it is compatible with all extinguishing media. Use any media that is appropriate for the surrounding fire.

Specific Hazards Arising from the Chemical:

Unusual Fire and Explosion Hazards: Not flammable or combustible. Dry powders may accumulate static charge in handling which can be a source of ignition for flammable atmospheres.

Hazardous Combustion Products: None.

Special Protective Equipment and Precautions for Fire-Fighters: None required with respect to this product. Firefighters should always wear self-contained breathing apparatus for fires indoors or in confined areas.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Wear appropriate protective equipment.

Environmental Precautions: Report spills and releases as required to appropriate authorities.

Methods and Material for Containment/Cleanup: If uncontaminated, collect using dustless method (HEPA vacuum or wet method) and place in appropriate container for use. If contaminated: a) use appropriate method for the nature of contamination, and b) consider possible toxic or fire hazards associated with the contaminating substances. Collect for appropriate disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling: Do not breathe dust. Do not rely on your sight to determine if dust is in the air. Silica may be in the air without a visible dust cloud. Use normal precautions against bag breakage or spills of bulk material. Avoid creation of respirable dust. Use good housekeeping in storage and use areas to prevent accumulation of dust in work area.

To reduce the risk of developing silicosis, lung cancer and other adverse health effects, the ACGIH recommends that the industrial hygienist use every means available to keep exposures below the recommended TLV. NIOSH recommends reducing airborne exposure levels as low as possible below NIOSH's recommended exposure limit, substituting less hazardous materials when feasible, using appropriate respiratory protection when source controls cannot keep exposures below the recommended limit and making medical examinations available to exposed workers.

Use adequate ventilation and dust collection. To minimize exposure, wear a respirator approved for silica dust when using, handling, storing or disposing of this product or bag. Refer to the most recent government and local regulations when selecting a respirator. Maintain, clean and fit test respirators in accordance with the most recent government and local regulations. Maintain and test ventilation and dust collection equipment. Launder clothing that has become dusty. Empty containers (bags, bulk containers, storage tanks, etc.) retain silica residue and must be handled in accordance with the provisions of this Safety Data Sheet. **WARN and TRAIN** employees in accordance with state and federal regulations.

Refer to the OSHA Respirable Crystalline Silica standards; 29CFR1910.1053, 1915.1053 and 1926.1153 for specific requirements for use and handling.

WARN YOUR EMPLOYEES (AND YOUR CUSTOMERS AND USERS IN CASE OF RESALE) BY POSTING, AND OTHER MEANS, OF THE HAZARDS AND OSHA AND ANY OTHER APPLICABLE REGULATORY PRECAUTIONS TO BE USED. PROVIDE TRAINING FOR YOUR EMPLOYEES ABOUT OSHA PRECAUTIONS.

Dust can accumulate electrostatic charges due to friction from transfer and mixing operations and cause an electrical spark (ignition source) which can ignite flammable liquids and atmospheres. Provide adequate precautions when adding this product to flammable and combustible mixtures like paints and coating, such as electrical grounding and bonding, inert atmosphere or non-sparking tools. However, bonding and grounds may not eliminate the hazard for static accumulation.

See also American Society for Testing and Materials (ASTM) Standard Practice E1132-99a, "Standard Practice for Health Requirements Relating to Occupational Exposure to Respirable Crystalline Silica".

Additional information on silica hazards and precautionary measures can be found at the following websites:

NIOSH Joint Campaign on Silicosis Prevention http://www.cdc.gov/niosh/topics/silica/default.html
OSHA Crystalline Silica Website http://www.osha.gov/dsg/topics/silicacrystalline/index.html
MSHA Silicosis Prevention Website https://arlweb.msha.gov/S&HINFO/SILICO/SILICAX.pdf
NIOSH Hazard Review – Health Effects of Occupational Exposure to Respirable Crystalline Silica Website
http://www.cdc.gov/niosh/docs/2002-129/

Conditions for Safe Storage, Including any Incompatibilities: Store in a dry location.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Definitions:
ACGIH means American Conference of Governmental Industrial Hygienists.
Fine-scale means respirable particles >100nm.
mppcfa means millions of particles per cubic foot air.
MSHA means Mine Safety and Health Administration.
NIOSH means National Institute for Occupational Safety and Health.
OSHA means Occupational Safety and Health Administration.
PEL means OSHA Permissible Exposure Limit.
REL means the NIOSH Recommended Exposure Limit.
TLV means ACGIH Threshold Limit Value.
TWA means 8-hour time-weighted average.

Component	OSHA PEL	ACGIH TLV	NIOSH REL	MSHA
Crystalline Silica*, quartz	0.05 mg/m3 TWA (respirable dust) *	0.025 mg/m3 TWA (respirable dust)	0.05 mg/m3 TWA (respirable dust)	[(10 mg/m3) / (% Silica +2)] (respirable dust) TWA
Kaolinite (Aluminum Silicate)	5 mg/m3 (respirable dust), 15 mg/m3 (total dust) TWA	2 mg/m3 TWA (respirable dust)	None established	10 mg/m3 TWA (total dust)
Mica	20 mppcfa TWA (respirable dust)	3 mg/m3 TWA (respirable dust)	3 mg/m3 TWA (containing <1% Quartz)	20 mppcfa TWA (respirable dust)
Chlorite	5 mg/m^3 (respirable dust), 15 mg/m^3 (total dust) TWA as Particulates not Otherwise Regulated	None established (refer to ACGIH guidance for Particulates - insoluble or poorly soluble - Not Otherwise Specified)	None established	10 mg/m^3 TWA as Nuisance Particulates
Feldspar	5 mg/m^3 (respirable dust), 15 mg/m^3 (total dust) TWA as Particulates not Otherwise Regulated	None established (refer to ACGIH guidance for Particulates - insoluble or poorly soluble - Not Otherwise Specified)	None established	10 mg/m^3 TWA as Nuisance Particulates
Titanium Dioxide	PEL: 15 mg/m^3 TWA (total dust)	2.5 mg/m^3 TWA (respirable dust fine-scale)	None established	15 mg/m^3 TWA (total dust)

*Crystalline silica exists in several forms, the most common of which are quartz (i.e., this product), tridymite and cristobalite, with quartz being the most common form found in nature. If quartz is heated to more than 870°C, it can change form to tridymite and if quartz is heated to more than 1450°C, it can change form to cristobalite.

Appropriate Engineering Controls: Use local exhaust as required to maintain exposures as far as possible below applicable occupational exposure limits. See also ACGIH "Industrial Ventilation - A Manual for Recommended Practice" (current edition). Control of exposure to dust must be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general or local exhaust ventilation and substitution of less toxic materials). Refer to the OSHA Respirable Crystalline Silica standards; 29CFR1910.1053, 1915.1053 and 1926.1153 for specific requirements for engineering controls.

Personal Protective Equipment:
Respiratory Protection: When effective engineering controls are not feasible, or while they are being implemented, appropriate respiratory protection must be used. Use appropriate respiratory protection for respirable particulates based on consideration of airborne workplace concentrations and duration of exposure arising from intended end use. Refer to the OSHA Respirable Crystalline Silica standards; 29CFR1910.1053, 1915.1053 and 1926.1153 for specific requirements for respiratory protection. Always refer to the most recent government and local standards.

Gloves: Protective gloves recommended.

Eye Protection: Safety glasses or goggles recommended.

Other Protective Equipment/Clothing: As appropriate for the work environment. Dusty clothing should be laundered before reuse.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Form:	Solid	**Appearance:**	Cream to buff colored powder
Viscosity:	Not applicable	**Odor:**	Earthy odor
pH:	5-9% (in a 5% slurry)	**Odor Threshold:**	Not applicable
Boiling Point/Range:	Not applicable	**Vapor Density:**	Not applicable
Melting point/freezing point:	Not applicable	**Evaporation Rate:**	Not applicable
Flammability (solid, gas):	Fully oxidized, will not burn	**Partition coefficient (n-octanol/water):**	Not applicable
Decomposition Temperature:	Not applicable	**Vapor Pressure:**	Not applicable
Flash Point:	Not applicable	**Relative Density:**	2.6-2.7
Lower Explosion Limit:	Not applicable	**Solubilities:**	Negligible in water
Upper Explosion Limit:	Not applicable	**Autoignition Temperature:**	Will not burn

SECTION 10: STABILITY AND REACTIVITY

Reactivity: This product is not reactive under normal conditions of storage and use.

Chemical Stability: This product is stable at normal temperatures.

Possibility of Hazardous Reactions: None known.

Conditions to Avoid: None known.

Incompatible Materials: Powerful oxidizing agents such as fluorine, chlorine trifluoride, manganese trioxide, etc.

Hazardous Decomposition Products: Silica will dissolve in hydrofluoric acid producing a corrosive gas, silicon tetrafluoride.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Potential Health Effects:

Inhalation: Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may have serious chronic health effects (see below Repeat Dose Toxicity.)

Skin Contact: No adverse effects expected.

Eye Contact: Contact may cause mechanical irritation and possible injury.

Ingestion: No adverse effects expected for normal, incidental ingestion.

Chronic Health Effects: See Repeat Dose Toxicity below with respect to silicosis, cancer status and other data with possible relevance to human health.

Signs and Symptoms of Exposure: Exposure to dust may cause mucous membrane and respiratory irritation, cough, sore throat, nasal congestion, sneezing and shortness of breath. However, there may be no immediate signs or symptoms of exposure to hazardous concentrations of respirable crystalline silica (quartz). See Repeat Dose Toxicity below for symptoms of silicosis. The absence of symptoms is not necessarily indicative of safe conditions.

Acute Toxicity Values: Silica: LD50 oral rat >22,500 mg/kg.
Titanium Dioxide: LD50 oral rat >12,000 mg/kg

Skin Sensitization: Not a skin sensitizer in animals or humans.

Repeated Dose Toxicity:

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 mycobacterial infections (tuberculous and non-tuberculous) and fungal infections. Inhalation of air with a very high concentration of respirable silica dust can cause the most serious forms of silicosis in a matter of months or a few years. Some epidemiologic studies have concluded that there is significant risk of developing silicosis even at airborne exposure levels that are equal to the recommended NIOSH REL and ACGIH TLV.

Pneumoconiosis: Excessive inhalation of respirable kaolin dust or mica dust may cause pneumoconiosis, a respiratory disease, which can result in delayed, progressive, disabling and sometimes fatal lung injury. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with pneumoconiosis are predisposed to develop tuberculosis.

Other Data with Possible Relevance to Human Health:

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 fibrosis of the lungs, skin and other internal organs) rheumatoid arthritis, systemic lupus, erythematosus, sarcoidosis, chronic bronchitis, chronic obstructive pulmonary disease (COPD), emphysema, chronic kidney disease and end-stage renal disease.

The material contains trace amounts (parts per trillion) of naturally occurring dioxin congeners including TCDD. 2,3,7,8-TCDD has been classified as a known human carcinogen by the U.S. National Toxicological Program in its Tenth Annual Report, by the IARC in Monograph 69 (1997), and by the State of California in its Proposition 65 list of chemicals known to cause cancer and developmental toxicity. The regulatory limit for TCDD in drinking water and bottled water is 3×10^{-8} milligram per liter of water (0.03 ppt). NIOSH has recommended that the exposure limit of TCDD be the lowest feasible concentration. OSHA regulates TCDD under the Hazard Communication Standard. In 1998, the World Health Organization set a lifetime tolerable daily intake for dioxin congeners using the toxicity equivalent factors to convert each dioxin congener into the equivalent concentration of TCDD ("TEQs") of 1 – 4 TEQ picograms per kilogram of body weight (for dioxins and dioxin-like compounds), based on the view that below this threshold level of exposure no adverse health impacts are likely to occur. Exposure is the amount of a chemical that actually enters the body and is not the same as concentrations in soil or on dust particles. WHO emphasized that occasional short-term excursions above the total daily intake would have no health consequences provided that the average intake over long periods is not exceeded. Furthermore, in an Investigative Report,

MSHA has determined that clay miners' risk of harmful exposure to naturally occurring trace amounts of 2,3,7,8 TCDD by inhalation or ingestion or both is very low. (See U.S. Dept. of Labor, Mine Safety and Health Administration, Investigative Report PP-004-98M, December 18, 1997.) EPA dioxin soil cleanup guidance states that exposure of workers at an industrial site to soil containing 20 ppb or less of total dioxin toxicity equivalents should be safe.

For further information consult "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pages 761-768, 1997, and see also NIOSH Hazard Review – Health Effects of Occupational Exposure to Respirable Crystalline Silica, April 2002 (see Section 7 for NIOSH Hazard Review Website).

Carcinogenicity: The International Agency for Research on Cancer has determined that crystalline silica is carcinogenic to humans (Group 1 - carcinogenic to humans). Refer to IARC Monograph 100C, A Review of Human Carcinogens: Arsenic, Fibres, and Dusts (published in 2011) in conjunction with the use of these materials. The National Toxicology Program classifies respirable crystalline silica as "known to be a human carcinogen". Refer to the Twelfth Report on Carcinogens (2011). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2). NIOSH classifies titanium dioxide as a potential occupational carcinogen. IARC has classified titanium dioxide as possibly carcinogenic to humans (Group 2B). Refer to IARC Monograph 93, Carbon Black, Titanium Dioxide and non-Asbestiform Talc (published in 2006).

Developmental / Reproductive Toxicity: No specific data is available, however, there is no evidence that silica exposure has any effect on reproduction.

Genetic Toxicity: No specific data is available, however, there is no evidence that silica is a germ cell mutagen.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity: Practically non-toxic to aquatic organisms. Silica: LC50 carp >10,000 mg/L/72 hr.

Persistence and Degradability: Silica is not degradable.

Bioaccumulative Potential: Not expected to bioaccumulate.

Mobility in Soil: Not applicable.

Results of PBT and vPvB Assessment: None required.

Other Adverse Effects: None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Treatment Methods:
If uncontaminated, dispose as an inert, non-metallic mineral. If contaminated, dispose in accordance with all applicable local, state/provincial and national/ federal regulations in light of the contamination present. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.

SECTION 14: TRANSPORT INFORMATION

Not regulated for transportation under IATA/ICAO, IMDG, US DOT, EU ADR, or Canadian TDG Regulations.
Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code: None

SECTION 15: REGULATORY INFORMATION

SARA 311/312: Refer to Section 2 for the OSHA Hazard Classification

SARA 313 This Product Contains the Following Chemicals Subject to Annual Release Reporting Requirements Under the SARA Section 313 (40 CFR 372): None

CERCLA Section 103 Reportable Quantity: None

WARNING: This product can expose you to chemicals including crystalline silica, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Toxic Substances Control Act: All of the components of this product are: listed on the EPA TSCA Inventory, or exempt from premanufacture notification requirements.

European Inventory of Commercial Chemical Substances: All of the components of this product are listed on the EINECS Inventory or are exempt from notification requirements.

EU REACH Status: This substance is exempt from REACH registration.

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or are exempt from notification requirements.

Japan METI: All of the components of this product are existing chemical substances as defined in the Chemical Substance Control Law.

Australian Inventory of Industrial Chemicals: All of the components of this product are listed on the AIIC inventory or are exempt from notification requirements.

Korea: All of the components of this product are listed on the ECL inventory or are exempt from notification requirements.

Philippines: All of the components of this product are listed on the PICCS inventory or are exempt from notification requirements.

New Zealand: All of the components of this product are listed on the HSNO inventory or are exempt from notification requirements.

China: All of the components of this product are listed on the IECSC inventory or are exempt from notification requirements.

Taiwan: All of the components of this product are listed on the CSNN inventory or are exempt from notification requirements.

16: OTHER INFORMATION

NFPA Hazard Rating: Health: 1 Fire: 0 Reactivity: 0

HMIS Hazard Rating: Health: * Fire: 0 Reactivity: 0
* Warning - Chronic health effect possible - inhalation of silica dust may cause lung injury/disease (silicosis). Take appropriate measures to avoid breathing dust. See Section 3.

References:

Registry for Toxic Effects of Chemical Substances (RTECS), 2018
NIOSH Hazard Review – Health Effects of Occupational Exposure to Respirable Crystalline Silica, April 2002
NTP Report on Carcinogens
IARC Monograph Volume100C, A Review of Human Carcinogens: Arsenic, Fibres, and Dusts (2011)
IARC Monograph 93, Carbon Black, Titanium Dioxide and Talc

Hazardous Substances Data Bank (HSDB), 2016
Documentation of the TLV – Silica, Crystalline: α-Quartz and Cristobalite, American Conference of Governmental Industrial Hygienists, 2006
OSHA Respirable Crystalline Silica standards; 29CFR1910.1053, 1915.1053 and 1926.1153

SDS Date of Preparation/Revision: June 2024

Revision Summary: Revisions to Section 1.
