



## SAFETY DATA SHEET 1175

### ARMOURCOOL WHITE GRANULES

#### SECTION 1 – SUBSTANCE IDENTITY AND COMPANY CONTACT INFORMATION

PRODUCT NAME	ArmourCool White Granules
TRADE NAME	White Armour Granules
PRODUCT NUMBER	330530
CHEMICAL FAMILY	Mineral powder mixture
PRODUCT USE	Roofing granules
MANUFACTURER/SUPPLIER	BramCal Production Co. 305 Rutherford Rd., Brampton, Ontario L6W 3R5
WEBSITE	<a href="http://www.iko.com">www.iko.com</a>
EMERGENCY NUMBER	CANUTEC: 1-613-996-6666 (24 hours information only)

#### SECTION 2 – HAZARD IDENTIFICATION

##### CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

SIGNAL WORD DANGER

SYMBOL(S)



CLASSIFICATION Carcinogenicity – Category 1A  
Specific Target Organ Toxicity (repeated exposure) – Category 1

HAZARD STATEMENTS H350 May cause cancer by inhalation.  
H372 Causes damage to organs through prolonged or repeated exposure by inhalation.

PRECAUTIONARY STATEMENTS P201 Obtain special instructions before use  
P202 Do not handle until all safety precautions have been read and understood  
P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P281 Use personal protective equipment as required.  
P308+P313 If exposed or concerned: Get medical attention.  
P314 Get medical advice/attention if you feel unwell.  
P501 Dispose of content/container in accordance with local/regional/national/international regulation.



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NFPA Health: 1  
Flammability: 0  
Instability: 0

HMIS Health: \*  
Flammability: 0  
Physical Hazards: 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, Chemical Composition and Data on Components.

#### SECTION 3 – CHEMICAL COMPOSITION AND DATA ON COMPONENTS

HAZARDOUS CHEMICAL NAME	% (w/w)	CAS NUMBER
Calcined Kaolin	95-100 %	92704-41-1
Crystalline Silica (quartz)	0-5 %	14808-60-7

#### SECTION 4 – FIRST AID

**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.

**INGESTION** If large amounts are swallowed, get immediate 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 foreign matter remains non removable, get immediate medical attention.

**ACUTE AND CHRONIC SYMPTOMS** Refer to section 11, Toxicological Information, for additional information.

**MEDICAL ATTENTION** Pre-existing medical conditions (such as asthma, and other breathing, skin, eye or lung disorders) may be aggravated by exposure. If addicted to tobacco, smoking will impair the ability of the lungs to clear themselves of dust.

Individuals with silicosis do not always show symptoms. Silicosis is progressive and symptoms can appear even years after exposure is stopped. An individual with silicosis is at greater risk of pulmonary tuberculosis infections.



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#### SECTION 5 – FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA	This product will not burn but is compatible with all extinguishing media. Use any media that is appropriate for the surrounding fire.
FIRE FIGHTING	No special firefighting procedures required with respect to this product.
FLAMMABILITY	Not applicable
PROPERTIES:	
FLASH POINT	Fully oxidized, will not burn.
FLAMMABLE LIMITS IN AIR	Not applicable.
AUTO IGNITION TEMPERATURE	Will not burn.
SPECIAL PPE FOR FIRE-FIGHTERS	Firefighters should always wear self-contained breathing apparatus for fires indoors or in confined areas.

#### SECTION 6 – ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE MEASURES AND EMERGENCY PROCEDURES	Wear appropriate personal protective equipment and adequate ventilation or adequate respirators.
ENVIRONMENTAL PRECAUTIONS	Collect for appropriate disposal.
SPILL MANAGEMENT	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 product.

#### SECTION 7 - HANDLING AND STORAGE

HANDLING PROCEDURE	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 cloud. Use normal precautions against bag breakage or spills of bulk material. Avoid creation of respirable dust. Avoid creating dust when handling, using or storing. Use only with adequate ventilation or with adequate respirator to keep exposure below recommended exposure limits. Do not use as a dry abrasive blasting agent. ANSI/AIHA Z9.4:1997 recommends that silica sand be prohibited as an abrasive blasting agent for use in fixed location abrasive-blast enclosures. Use good
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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 ACGUH 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 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 material safety data sheet.

WARN and TRAIN employees in accordance with state and federal regulations.

Also see American Society for Testing and Materials (ASTM) "Standard Practices 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 – <http://www.msha.gov/S&HINFO/SILICO/Silico.HTM>
- NIOSH Hazard Review – Health Effects of Occupational Exposure to Respirable Crystalline Silica Website – <http://www.sds.gov/niosh/docs/2002-129/>

#### STORAGE PRECAUTIONS

Ensure trapping of dust produced during the loading of silos. Keep containers closed and store/handle the bagged products so as to prevent accidental bursting.

#### SPECIFIC USE(S)

When mixing with other substances the fore mentioned safe handling advice shall apply.



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### SECTION 8 – EXPOSURE CONTROL AND PERSONAL PROTECTION

CHEMICAL NAME	OCCUPATIONAL EXPOSURE LIMITS				
	ALBERTA	ONTARIO	BRITISH COLUMBIA	OSHA	ACGIH
Crystalline Silica (Quartz)	TWA : 0.025 mg/m <sup>3</sup>	TWA : 0.10 mg/m <sup>3</sup>	TWA : 0.025 mg/m <sup>3</sup>	TWA : 0.05 mg/m <sup>3</sup>	TWA : 0.025 mg/m <sup>3</sup>
Calcined Kaolin	TWA : 2 mg/m <sup>3</sup>	TWA : 2 mg/m <sup>3</sup>	TWA : 2 mg/m <sup>3</sup>	TWA : 15 mg/m <sup>3</sup> (total dust) TWA : 5 mg/m <sup>3</sup> (respirable)	TWA : 2 mg/m <sup>3</sup>

In 2006 the ACGIH lowered the TLV for Silica, Crystalline: a-Quartz and Cristobalite to 0.025 mg/m<sup>3</sup> stating in the Documentation of the TVL “Because the time between exposure and signs of fibrosis is characteristically very long, as much as 30 to 40 years, the margin of safety for exposure to crystalline silica at the proposed TLV-TWA is not known precisely. Given the observed association between silicosis and lung cancer, it is recommended that air concentrations be maintained far below the proposed TLV as prudent practices permit. The recommended TLV-TWA of 0.025 mg/m<sup>3</sup>, respirable particulate mass, is intended to prevent pulmonary fibrosis that may be a risk factor for lung cancer. An A2, Suspected Human Carcinogen, notation is based on the demonstrated association between lung cancer and the presence of silicosis”. The documentation further states “A lack of toxicological and industrial hygiene data does not permit the recommendation of a TLV-STEL. However, it should be noted that high exposures of short duration to freshly fragmented crystalline particles do produce an acute and rapidly progressive form of silicosis. The reader is encouraged to review the section on Excursion Limits in the “Introduction to the Chemical Substances” of the current TLVs and BEIs book for guidance and control of excursions above the TLV-TWA, even when the 8-hour TWA is within the recommended limits”.

NIOSH has recommended that OSHA and MSHA adopt NIOSH REL as the OSHA PEL and the MSHA Exposure Limit. The 1974 NIOSH Criteria for a Recommended Standard for Occupational Exposure to Crystalline Silica should be consulted for more detailed information. Additionally, NIOSH, in a publication entitled NIOSH Hazard Review Health Effects of Occupational Exposure Responsible Silica (April 2002), stated “that workers have a significant risk of developing chronic silicosis when they are exposed to respirable crystalline silica over a working lifetime at the current Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL), the Mine Safety and Health Administration (MSHA) PEL, or the National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit (REL). Current sampling and analytical methods used to evaluate occupational exposure to respirable crystalline silica do not meet the accuracy criterion needed to quantify exposures at concentrations below the NIOSH REL of 0.05 mg/m<sup>3</sup> as a time-weighted average (TWA) for up to a 10-hr workday during a 40-hr work week. Until improved sampling and analytical methods are developed for respirable crystalline silica, NIOSH will continue to recommend an exposure limit of 0.05 mg/m<sup>3</sup> to reduce the risk of developing silicosis, lung cancer, and other adverse health effects. NIOSH also recommends minimizing the risk of illness that remains for workers exposed at the REL by substituting less hazardous materials for crystalline silica when feasible, by using appropriate respiratory protection when source controls cannot keep exposures below the NIOSH REL, and by making medical examinations available to exposed workers.”



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

#### ENGINEERING MEASURES

Ventilation: 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).

#### 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 most recent government and local standards.

##### SKIN AND BODY PROTECTION

Protective gloves recommended. Wear other protective equipment/clothing as appropriate for the work environment.

##### EYE PROTECTION

Safety glasses or goggles recommended.

##### HYGIENE MEASURES

Dusty clothing should be laundered before reuse.

##### OTHER CONTROLS

No information available.

### SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

#### APPEARANCE (PHYSICAL STATE, COLOR etc.)

Hard grain with powder

#### ODOR

Odorless

#### ODOR THRESHOLD

Not applicable.

#### PH

Approx. 7

#### MELTING POINT/FREEZING POINT

Approx. 1700°C

#### INITIAL BOILING POINT AND BOILING RANGE

No information available.

#### FLASH POINT

Fully oxidized, will not burn.



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EVAPORATION RATE	No information available.
FLAMMABILITY	Not applicable.
UPPER/LOWER FLAMMABILITY/EXPLOSIVE LIMITS	Not applicable
VAPOR PRESSURE	No information available.
VAPOR DENSITY	No information available.
MOLECULAR WEIGHT	No information available.
SOLUBILITY(IES)	Negligible solubility in water. Soluble in hydrofluoric acid.
PARTITION COEFFICIENT: N- OCTANOL/WATER	No information available.
AUTO-IGNITION TEMPERATURE	Will not burn.
SPECIFIC GRAVITY	No information available.
VISCOSITY	Not applicable.

#### SECTION 10 – STABILITY AND REACTIVITY

##### REACTIVITY:

CHEMICAL STABILITY	Stable. Not reactive.
POSSIBILITY OF HAZARDOUS REACTIONS	Hazardous polymerization will not occur.
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

ACUTE/CHRONIC TOXICITY	For chronic health effects see “Inhalation” subsection below with respect to silicosis, cancer status and other data with possible relevance to human health.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE	Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to respirable silica dust.



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PRIMARY ROUTE OF EXPOSURE

Inhalation

HEALTH EFFECTS:

EYES Contact may cause mechanical irritation and possible injury.

SKIN No adverse effects expected.

INHALATION Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may have the following serious chronic health effects:

**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 form 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, the ACGIH TLV.

**Cancer Status:** The International Agency for Research on Cancer has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1 – carcinogenic to humans). Refer to IARC Monograph 100C, A review of Human Carcinogens: Arsenic, Fibers 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 human carcinogen”. Refer to the Twelfth Report on Carcinogens (2011). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as suspected human carcinogen (A2).

**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 endpoints such as scleroderma (an immune system disorder manifested by fibrosis of the lungs, skin and other internal organs) rheumatoid arthritis, systemic lupus, erythematous, sarcoidosis, chronic bronchitis, chronic obstructive pulmonary disease (COPD), emphysema, chronic kidney disease and end-stage renal disease.

INGESTION No adverse effects expected for normal, incidental ingestion.

STOT (SPECIFIC TARGET ORGAN TOXICITY)- SINGLE EXPOSURE No information available.





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STOT (SPECIFIC TARGET ORGAN TOXICITY) – REPEATED EXPOSURE No information available.

CARCINOGENICITY Refer to Cancer Status, under health effects, inhalation above.

REPRODUCTIVE TOXICITY:

DEVELOPMENT OF OFFSPRING No information available.

SEXUAL FUNCTION AND FERTILITY No information available.

GERM CELL MUTAGENICITY No information available.

#### SECTION 12 – ECOLOGICAL INFORMATION

ECOTOXICITY No specific adverse effects known.  
This product is not expected to present an environmental hazard.

PERSISTENCE & DEGRADABILITY No information available.

BIODEGRADATION MOBILITY No information available.

BIOACCUMULATION POTENTIAL No information available.

#### SECTION 13 – DISPOSAL CONSIDERATIONS

DISPOSAL RECOMMENDATIONS If uncontaminated, dispose as an inert, non-metallic mineral. If contaminated, dispose in accordance with all applicable local, state/provincial and 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

U.S. DOT HAZARD CLASSIFICATION

PROPER SHIPPING NAME Not Regulated

TECHNICAL NAME N/A

UN NUMBER: N/A



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HAZARD CLASS/PACKING GROUP: N/A

LABELS REQUIRED: None

DOT PACKAGING REQUIREMENTS: N/A  
EXCEPTIONS: N/A

#### SECTION 15 - REGULATIONS

SARA 311/312: Hazard Categories for SARA Section 311/312 Reporting: Chronic Health

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

California Proposition 65: This product contains crystalline silica (respirable) which is known to the State of California to cause cancer.

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 exempt from notification requirements.

European Community Labeling: No labeling required.

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

#### SECTION 16 – OTHER INFORMATION

REVISION DATE OF SDS January 23, 2018

REPLACES THE MSDS/SDS FROM June 29, 2017

PREPARED BY HSE department

GENERAL INFORMATION 1-888-766-2468

WEBSITE [www.iko.com](http://www.iko.com)



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#### OTHER INFO/DISCLAMERS

Read this Safety Data Sheet before handling or disposing of this product.

This product safety information is provided to help our customers with health, safety and/or environmental matters. We have taken reasonable effort to ensure that the test methods and sources for this data are correct and reliable, however, we give no warranty, expressed or implied, regarding its correctness. Since conditions or methods of handling and using this product are beyond our control, we do not assume responsibility and expressly disclaim liability for damages resulting from or connected with the handling, storage, use or disposal of the product.