



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 1 of 18

SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product identifier used on the label

: **Coloured Roofing Granules**

Product Code(s) : 1606

Recommended use of the chemical and restrictions on use

: Roofing granules.
No restrictions on use known.

Chemical family

: Mixture of: Andesite coated with pigments, sodium silicate, kaolin clay, oil and siloxane.

Name, address, and telephone number of the manufacturer:

IKO Industries Ltd.

105084 Hwy # 7 West
P.O. Box 839
Madoc, ON, Canada
K0K 2K0

Manufacturer's Telephone # : (888) 766-2468 (Monday - Friday, 8:00 am - 4:30 pm, Eastern Time)

24 Hr. Emergency Tel # : In case of transportation emergencies: (613) 996-6666 (CANUTEC)

Name, address, and telephone number of the supplier:

Refer to manufacturer

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Coloured granules. Slight oil or silicone odour.

Most important hazards:

Irritating to eyes and skin. Possible cancer hazard - contains material which may cause cancer. Causes damage to organs through prolonged or repeated exposure. Occupational exposure to the substance or mixture may cause adverse effects. For further information, please refer to section 11 of the SDS.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Avoid release to the environment. See Section 12 for more environmental information.

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:

Skin corrosion/irritation - Category 2

Eye damage/irritation - Category 2A

Carcinogenicity - Category 1

Specific target organ toxicity, repeated exposure - Category 1

Label elements

Hazard pictogram(s)



Signal Word

DANGER!

Hazard statement(s)

Causes skin irritation.

Causes serious eye irritation.

May cause cancer.

Causes damage to organs through prolonged or repeated exposure.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 2 of 18

SAFETY DATA SHEET

Precautionary statement(s)

Obtain special instructions before use.
 Do not handle until all safety precautions have been read and understood.
 Do not breathe dust or fume.
 Wash exposed skin thoroughly after handling.
 Do not eat, drink or smoke when using this product.
 Wear protective gloves/clothing and eye/face protection.

IF exposed or concerned: Get medical attention/advice.

IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: get medical advice/attention.

Store locked up.

Dispose of contents/container in accordance with local regulation.

Other hazards

Other hazards which do not result in classification:

Toxic fumes, gases or vapours may evolve on burning. Mild respiratory irritant. May cause gastrointestinal irritation.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical name	Common name and synonyms	CAS #	Concentration (% by weight)
Volcanic rock	Naturally occurring volcanic rock	N/Av	80.0 – 100.0
The Volcanic rock component, consists of the following materials:			
Silicon dioxide	Amorphous silica	7631-86-9	45.0 – 70.0
aluminum oxide	Aluminum trioxide	1344-28-1	10.0 - 30.0
Crystalline silica, quartz	Quartz silica Crystallized silicon dioxide	14808-60-7	*2.73 - 11.17
Iron oxide	Ferric oxide Diiron trioxide	1309-37-1	7.0 - 13.0
Disodium oxide	Sodium monoxide Sodium oxide (Na ₂ O)	1313-59-3	3.0 - 7.0
Potassium oxide	Dipotassium oxide (K ₂ O)	12136-45-7	1.0 - 5.0
Calcium oxide	Calcium monoxide Unslaked lime	1305-78-8	1.0 - 5.0
Lithium oxide	Dilithium monoxide	12057-24-8	1.0 - 5.0
Magnesium oxide	Magnesia	1309-48-4	1.0 - 5.0
titanium dioxide	Anatase Titanic acid anhydride	13463-67-7	1.0 – 5.0
Sodium silicate	Silicic acid, sodium salt	1344-09-8	1.0 - 5.0
Kaolin	Hydrated aluminum silicate China clay	1332-58-7	1.0 - 5.0
M330 DK BLACK Roofing Granule also contains the following chemical:			
Carbon black	Furnace black Lamp black Thermal black	1333-86-4	0.1 - 1.0



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 3 of 18

SAFETY DATA SHEET

M105, M110, M205, M210, M525, M527 and M901 Roofing Granules additionally contain the following chemical:

titanium dioxide	Anatase	13463-67-7	0.1 - 1.0
	Titanic acid anhydride		

The exact concentrations of the above listed chemicals are being withheld as a trade secret; or appear as the *actual concentration range (e.g. 14808-60-7).

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : If ingested, do not induce vomiting. Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical attention/advice.
- Inhalation* : If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing is irregular or stopped, administer artificial respiration. IF exposed or concerned: Get medical advice/attention.
- Skin contact* : IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.
- Eye contact* : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: get medical advice/attention.

Most important symptoms and effects, both acute and delayed

- : Causes skin irritation. Contact may cause redness, swelling and a painful sensation. Causes serious eye irritation. Symptoms may include redness, pain, tearing and conjunctivitis. May cause cancer. Symptoms may include persistent coughing, shortness of breath, coughing up blood and wheezing. Causes damage to organs through prolonged or repeated exposure. Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough. Repeated or prolonged inhalation of fine dusts may cause severe scarring of the lungs, a disease called silicosis, and alveolar proteinosis (lower lung disease). Symptoms may include coughing, shortness of breath and eventually severe respiratory impairment. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Indication of any immediate medical attention and special treatment needed

- : Provide general supportive measures and treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

- Suitable extinguishing media* : Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.

Unsuitable extinguishing media

- : None known.

Special hazards arising from the substance or mixture / Conditions of flammability

- : Not considered flammable. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure. Toxic fumes, gases or vapours may evolve on burning.

Flammability classification (OSHA 29 CFR 1910.106)

- : Not considered flammable.

Hazardous combustion products

- : Carbon oxides; Sulfur oxides; Other irritating fumes and smoke.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 4 of 18

SAFETY DATA SHEET

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

- : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.

Special fire-fighting procedures

- : Move containers from fire area if safe to do so. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- : All persons dealing with the clean-up should wear the appropriate chemically protective equipment. Keep people away from and upwind of spill/leak. Restrict access to area until completion of clean-up. Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Avoid discharge into drains, water courses or onto the ground.

Methods and material for containment and cleaning up

- : Ventilate the area. Remove all sources of ignition. Prevent further leakage or spillage if safe to do so. Shovel into suitable container for disposal. Use methods that do not generate dusts. Keep in properly labelled containers. Refer to Section 13 for disposal of contaminated material. Contact the proper local authorities.

Special spill response procedures

- : If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8802).
US CERCLA Reportable quantity (RQ): None known.

In Canada: Contact appropriate local and provincial environmental authorities for assistance and/or reporting requirements.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

- : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
Provide adequate ventilation. Wear suitable protective equipment during handling. Wear protective gloves/clothing and eye/face protection. Do not breathe dust or fume. Avoid contact with skin, eyes and clothing. Avoid and control operations which create airborne dust. Keep away from extreme heat and direct flame. Keep away from incompatibles. Wash thoroughly after handling. Keep container tightly closed when not in use. Empty containers retain residue and can be dangerous.

Conditions for safe storage : Store in cool/well-ventilated place. Store locked up. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks.

Incompatible materials : Strong acids



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 5 of 18

SAFETY DATA SHEET

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<u>Exposure Limits:</u>					
	<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
		<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Volcanic rock	N/Av	N/Av	N/Av	N/Av	
Silicon dioxide	10 mg/m ³ (inhalable); 3 mg/m ³ (respirable) (as PNOS)	N/Av	20 mppcf	N/Av	
aluminum oxide	1 mg/m ³ (respirable)	N/Av	15 mg/m ³ (total dust); 5 mg/m ³ (respirable)	N/Av	
Crystalline silica, quartz	0.025 mg/m ³ (respirable)	N/Av	0.1 mg/m ³ (respirable) (final rule limit)	N/Av	
Iron oxide	5 mg/m ³ (respirable)	N/Av	10 mg/m ³ (fume); 15 mg/m ³ (total dust); 5 mg/m ³ (respirable)	N/Av	
Disodium oxide	N/Av	N/Av	N/Av	N/Av	
Potassium oxide	N/Av	N/Av	N/Av	N/Av	
Sodium silicate	N/Av	N/Av	N/Av	N/Av	
Calcium oxide	2 mg/m ³	N/Av	5 mg/m ³	N/Av	
Kaolin	2 mg/m ³ (respirable)	N/Av	15 mg/m ³ (total dust); 5 mg/m ³ (respirable)	N/Av	
Lithium oxide	1 mg/m ³ (Ceiling) (AIHA WEEL)	N/Av	N/Av	N/Av	
Magnesium oxide	10 mg/m ³ (inhalable fraction)	N/Av	15 mg/m ³ (fume, total particulate)	N/Av	
titanium dioxide	10 mg/m ³	N/Av	15 mg/m ³ (total dust)	N/Av	
Carbon black	3.0 mg/m ³ (inhalable)	N/Av	3.5 mg/m ³	N/Av	
titanium dioxide	10 mg/m ³	N/Av	15 mg/m ³ (total dust)	N/Av	

Exposure controls

Ventilation and engineering measures

- : Provide adequate ventilation. Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. In case of insufficient ventilation wear suitable respiratory equipment.

Respiratory protection

- : If airborne concentrations are above the permissible exposure limit or are not known, use NIOSH-approved respirators. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02. Advice should be sought from respiratory protection specialists.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 6 of 18

SAFETY DATA SHEET

- Skin protection** : Wear protective gloves/clothing. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Wear apron or protective clothing in case of contact.
- Eye / face protection** : Wear eye/face protection. Wear as appropriate: Safety glasses with side shields; Tightly fitting safety goggles. A full face shield may also be necessary.
- Other protective equipment** : Ensure that eyewash stations and safety showers are close to the workstation location. Other equipment may be required depending on workplace standards.
- General hygiene considerations** : Do not breathe dust or fume. Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance** : Coloured granules.
- Odour** : Slight oil or silicone odour.
- Odour threshold** : N/Av
- pH** : N/Av
- Melting/Freezing point** : N/Av
- Initial boiling point and boiling range** : N/Av
- Flash point** : N/Av
- Flashpoint (Method)** : N/Av
- Evaporation rate (BuAe = 1)** : N/Av
- Flammability (solid, gas)** : Not classified as flammable.
- Lower flammable limit (% by vol.)** : N/Av
- Upper flammable limit (% by vol.)** : N/Av
- Oxidizing properties** : None known.
- Explosive properties** : Not explosive
- Vapour pressure** : N/Av
- Vapour density** : N/Av
- Relative density / Specific gravity** : 2.5 - 2.8
- Solubility in water** : N/Av
- Other solubility(ies)** : N/Av
- Partition coefficient: n-octanol/water or Coefficient of water/oil distribution** : N/Av
- Auto-ignition temperature** : N/Av
- Decomposition temperature** : N/Av
- Viscosity** : N/Av
- Volatiles (% by weight)** : N/Av
- Volatile organic Compounds (VOC's)** : N/Av
- Absolute pressure of container** : N/Av
- Flame projection length** : N/Av
- Other physical/chemical comments** : No additional information.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 7 of 18

SAFETY DATA SHEET

SECTION 10. STABILITY AND REACTIVITY

- Reactivity** : Not normally reactive.
- Chemical stability** : Stable under normal conditions.
- Possibility of hazardous reactions** : Hazardous polymerization does not occur.
- Conditions to avoid** : Keep away from extreme heat and flame. Do not use in areas without adequate ventilation. Avoid contact with incompatible materials.
- Incompatible materials** : Strong acids
- Hazardous decomposition products** : None known, refer to hazardous combustion products in Section 5.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

- Routes of entry inhalation** : YES
- Routes of entry skin & eye** : YES
- Routes of entry Ingestion** : YES
- Routes of exposure skin absorption** : NO

Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

- : Mild respiratory irritant. May cause coughing and breathing difficulties.

Sign and symptoms ingestion

- : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Sign and symptoms skin

- : Causes skin irritation. Contact may cause redness, swelling and a painful sensation.

Sign and symptoms eyes

- : Causes serious eye irritation. Symptoms may include redness, pain, tearing and conjunctivitis.

Potential Chronic Health Effects

- : None known or reported by the manufacturer.

Mutagenicity

- : No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

- : This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:
Carcinogenicity - Category 1. May cause cancer. Symptoms may include persistent coughing, shortness of breath, coughing up blood and wheezing.
Contains crystalline silica. Crystalline silica is classified as carcinogenic by IARC (Group 1), the ACGIH (Category A2) and the NTP (Group 1 - Known human carcinogen).
This product also contains: titanium dioxide. Titanium dioxide is classified as possibly carcinogenic by IARC (Group 2B).
No other components are classified as carcinogenic by IARC, ACGIH, OSHA or NTP.

Reproductive effects & Teratogenicity

- : This product is not expected to cause reproductive or developmental effects.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 8 of 18

SAFETY DATA SHEET

- Sensitization to material** : No data available to indicate product or components may be respiratory sensitizers.
No data available to indicate product or components may be skin sensitizers.
- Specific target organ effects** : This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:
Specific target organ toxicity, repeated exposure - Category 1. Causes damage to organs through prolonged or repeated exposure.
Repeated or prolonged inhalation of fine dusts may cause severe scarring of the lungs, a disease called silicosis, and alveolar proteinosis (lower lung disease). Symptoms may include coughing, shortness of breath and eventually severe respiratory impairment.
- Medical conditions aggravated by overexposure** : Pre-existing skin, eye, respiratory and central nervous system disorders.
- Synergistic materials** : None reported by the manufacturer.
- Toxicological data** : No data is available on the product itself. The calculated ATE values for this mixture are:
ATE oral = 114,620 mg/kg
See below for individual ingredient acute toxicity data.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 9 of 18

SAFETY DATA SHEET

<u>Chemical name</u>	<u>LC₅₀ (4hr)</u> <u>inh, rat</u>	<u>LD₅₀</u>	
		<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Volcanic rock	N/Av	N/Av	N/Av
The Volcanic rock component, consists of the following materials:			
Silicon dioxide	N/Av	3160 mg/kg	> 5000 mg/kg
aluminum oxide	> 2.3 mg/L (dust) (No mortality)	> 2000 mg/kg (No mortality)	N/Av
Crystalline silica, quartz	N/Av	N/Av	N/Av
Iron oxide	N/Av	> 10 000 mg/kg	N/Av
Disodium oxide	N/Av	N/Av	N/Av
Potassium oxide	N/Av	3200 mg/kg	> 5000 mg/kg
Calcium oxide	N/Av	> 2000 mg/kg (No mortality)	> 2500 mg/kg (No mortality)
Lithium oxide	N/Av	N/Av	N/Av
Magnesium oxide	N/Av	3870 mg/kg	N/Av
titanium dioxide	> 6.82 mg/kg (dust) (No mortality)	> 25 000 mg/kg	> 10 000 mg/kg
Sodium silicate	> 2.06 mg/L (aerosol) (No mortality)	1960 mg/kg	> 4640 mg/kg
Kaolin	N/Av	> 5000 mg/kg	> 5000 mg/kg
M330 DK BLACK Roofing Granule also contains the following chemical:			
Carbon black	6.75 mg/L (dust)	> 10 000 mg/kg	> 3000 mg/kg
M105, M110, M205, M210, M525, M527 and M901 Roofing Granules additionally contain the following chemical:			
titanium dioxide	> 6.82 mg/kg (dust) (No mortality)	> 25 000 mg/kg	> 10 000 mg/kg

Other important toxicological hazards

: None reported by the manufacturer.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

: No data is available on the product itself. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters. See the following tables for individual ingredient ecotoxicity data.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 10 of 18

SAFETY DATA SHEET

Ecotoxicity data:

<u>Ingredients</u>	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Volcanic rock	N/Av	N/Av	N/Av	N/Av
Silicon dioxide	7631-86-9	N/Av	N/Av	None.
aluminum oxide	1344-28-1	> 100 mg/L (Brown trout)	N/Av	None.
Crystalline silica, quartz	14808-60-7	N/Av	N/Av	None.
Iron oxide	1309-37-1	> 50 000, < 100 000 mg/L (Zebra fish)	N/Av	None.
Disodium oxide	1313-59-3	N/Av	N/Av	N/Av
Potassium oxide	12136-45-7	917.6 mg/L (Indian carp)	2000 mg/L (40 days) (Indian catfish)	None.
Sodium silicate	1344-09-8	1108 mg/L (Zebra fish)	N/Av	None.
Calcium oxide	1305-78-8	50.6 mg/L (Rainbow trout)	N/Av	None.
Kaolin	1332-58-7	N/Av	N/Av	None.
Lithium oxide	12057-24-8	N/Av	N/Av	None.
Magnesium oxide	1309-48-4	N/Av	N/Av	None.
titanium dioxide	13463-67-7	> 100 mg/L (Japanese ricefish)	N/Av	None.
Carbon black	1333-86-4	> 1000 mg/L (Zebra fish)	N/Av	None.
titanium dioxide	13463-67-7	> 100 mg/L (Japanese ricefish)	N/Av	None.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 11 of 18

SAFETY DATA SHEET

<u>Ingredients</u>	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Volcanic rock	N/Av	N/Av	N/Av	N/Av
Silicon dioxide	7631-86-9	N/Av	N/Av	None.
aluminum oxide	1344-28-1	> 100 mg/L (Daphnia magna)	N/Av	None.
Crystalline silica, quartz	14808-60-7	N/Av	N/Av	None.
Iron oxide	1309-37-1	> 100 mg/L (Daphnia magna)	N/Av	None.
Disodium oxide	1313-59-3	N/Av	N/Av	N/Av
Potassium oxide	12136-45-7	660 mg/L (Daphnia magna)	68 mg/L	None.
Sodium silicate	1344-09-8	1700 mg/L (Daphnia magna)	N/Av	None.
Calcium oxide	1305-78-8	49.1 mg/L (Daphnia magna)	N/Av	None.
Kaolin	1332-58-7	> 1.1 g/l Daphnia pulex (Water flea)	N/Av	None.
Lithium oxide	12057-24-8	N/Av	N/Av	None.
Magnesium oxide	1309-48-4	N/Av	N/Av	None.
titanium dioxide	13463-67-7	> 100 mg/L (Daphnia magna)	N/Av	None.
Carbon black	1333-86-4	> 5600 mg/L/24hr (Daphnia magna)	N/Av	None.
titanium dioxide	13463-67-7	> 100 mg/L (Daphnia magna)	N/Av	None.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 12 of 18

SAFETY DATA SHEET

<u>Ingredients</u>	<u>CAS No</u>	<u>Toxicity to Algae</u>		
		<u>EC50 / 96h or 72h</u>	<u>NOEC / 96h or 72h</u>	<u>M Factor</u>
Volcanic rock	N/Av	N/Av	N/Av	N/Av
Silicon dioxide	7631-86-9	N/Av	N/Av	None.
aluminum oxide	1344-28-1	> 100 mg/L/72hr (Green algae) (Read-across)	N/Av	None.
Crystalline silica, quartz	14808-60-7	N/Av	N/Av	None.
Iron oxide	1309-37-1	N/Av	N/Av	None.
Disodium oxide	1313-59-3	N/Av	N/Av	N/Av
Potassium oxide	12136-45-7	1368.3 mg/L/96hr (QSAR) (Green algae)	None.	None.
Sodium silicate	1344-09-8	> 345.4 mg/L/72hr (Green algae)	N/Av	None.
Calcium oxide	1305-78-8	184.57 mg/L/72hr (Green algae)	48 mg/L/72hr	None.
Kaolin	1332-58-7	N/Av	N/Av	None.
Lithium oxide	12057-24-8	N/Av	N/Av	None.
Magnesium oxide	1309-48-4	N/Av	N/Av	None.
titanium dioxide	13463-67-7	> 100 mg/L/72hr (Green algae)	N/Av	None.
Carbon black	1333-86-4	> 10 000 mg/L/72hr (Green algae)	N/Av	None.
titanium dioxide	13463-67-7	> 100 mg/L/72hr (Green algae)	N/Av	None.

Persistence and degradability

: Most components in this product are inorganic materials. The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulation potential

: The product itself has not been tested. See the following data for ingredient information.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
Potassium oxide (CAS 12136-45-7)	- 5.08 (QSAR)	3.162 (QSAR)
Calcium oxide (CAS 1305-78-8)	- 0.57	N/Av

Mobility in soil

: The product itself has not been tested.

Other Adverse Environmental effects

: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal

: Handle in accordance with good industrial hygiene and safety practice. Refer to protective measures listed in sections 7 and 8.
Empty containers retain residue and can be dangerous. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

Methods of Disposal

: Dispose in accordance with all applicable federal, state, provincial and local regulations.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 13 of 18

SAFETY DATA SHEET

RCRA : If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

SECTION 14. TRANSPORT INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
TDG	None.	Not regulated.	Not regulated	None	
TDG Additional information	None.				
49CFR/DOT	None.	Not regulated.	Not regulated	None	
49CFR/DOT Additional information	None.				
ICAO/IATA	None.	Not regulated.	Not regulated	None	
ICAO/IATA Additional information	None.				
IMDG	None.	Not regulated.	Not regulated	None	
IMDG Additional information	None.				

Special precautions for user : Appropriate advice on safety must accompany the package.

Environmental hazards : This product does not meet the criteria for an environmentally hazardous mixture, according to the IMDG Code. See ECOLOGICAL INFORMATION, Section 12.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
 : Not applicable.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 14 of 18

SAFETY DATA SHEET

SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

<u>Ingredients</u>	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de minimus Concentration
Volcanic rock	N/Av	N/Av	None.	None.	No	N/Ap
Silicon dioxide	7631-86-9	Yes	None.	None.	No	N/Ap
aluminum oxide	1344-28-1	Yes	None.	None.	Yes	1%
Crystalline silica, quartz	14808-60-7	Yes	None.	None.	No	N/Ap
Iron oxide	1309-37-1	Yes	None.	None.	No	N/Ap
Disodium oxide	1313-59-3	Yes	None.	None.	No	N/Ap
Potassium oxide	12136-45-7	Yes	None.	None.	No	N/Ap
Sodium silicate	1344-09-8	Yes	None.	None.	No	N/Ap
Calcium oxide	1305-78-8	Yes	None.	None.	No	N/Ap
Kaolin	1332-58-7	Yes	None.	None.	No	N/Ap
Lithium oxide	12057-24-8	Yes	None.	None.	No	N/Ap
Magnesium oxide	1309-48-4	Yes	None.	None.	No	N/Ap
titanium dioxide	13463-67-7	Yes	None.	None.	No	N/Ap
Carbon black	1333-86-4	Yes	None.	None.	No	N/Ap
titanium dioxide	13463-67-7	Yes	None.	None.	No	N/Ap

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes:

Health hazards (Skin irritation; Eye irritation; Carcinogenicity; Specific target organ toxicity, repeated exposure)

Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 15 of 18

SAFETY DATA SHEET

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

<u>Ingredients</u>	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Volcanic rock	N/Av	No	N/Ap	No	No	No	No	No	No
Silicon dioxide	7631-86-9	No	N/Ap	Yes	Yes	Yes	No	Yes	No
aluminum oxide	1344-28-1	No	N/Ap	Yes	Yes	Yes	Yes	Yes	No
Crystalline silica, quartz	14808-60-7	Yes	Cancer (airborne particles of respirable size)	No	Yes	Yes	Yes	Yes	Yes
Iron oxide	1309-37-1	No	N/Ap	Yes	Yes	Yes	Yes	Yes	Yes
Disodium oxide	1313-59-3	No	N/Ap	No	No	No	No	No	No
Potassium oxide	12136-45-7	No	N/Ap	No	No	No	Yes	No	No
Sodium silicate	1344-09-8	No	N/Ap	No	No	No	No	No	No
Calcium oxide	1305-78-8	No	N/Ap	Yes	Yes	Yes	Yes	Yes	Yes
Kaolin	1332-58-7	No	N/Ap	No	Yes	Yes	No	Yes	Yes
Lithium oxide	12057-24-8	No	N/Ap	No	No	Yes	No	No	No
Magnesium oxide	1309-48-4	No	N/Ap	Yes	Yes	Yes	Yes	Yes	Yes
titanium dioxide	13463-67-7	Yes	Cancer (airborne, unbound particles of respirable size)	No	Yes	Yes	Yes	Yes	Yes
Carbon black	1333-86-4	Yes	Cancer (airborne, unbound particles of respirable size)	Yes	Yes	Yes	Yes	Yes	Yes
titanium dioxide	13463-67-7	Yes	Cancer (airborne, unbound particles of respirable size)	No	Yes	Yes	Yes	Yes	Yes

California Proposition 65: This product can expose you to chemicals, which are known to the State of California to cause cancer. This product may also contain trace amounts of: Vanadium pentoxide (< 0.01%).

Canadian Information:

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

Canadian National Pollutant Release Inventory (NPRI): This product contains the following substances listed on the NPRI: aluminum oxide (Part 1, Group A Substance)

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 16 of 18

SAFETY DATA SHEET

International Information:

Components listed below are present on the following International Inventory list:

<u>Ingredients</u>	<u>CAS #</u>	<u>European EINECs</u>	<u>Australia AICS</u>	<u>Philippines PICCS</u>	<u>Japan ENCS</u>	<u>Korea KECI/KECL</u>	<u>China IECSC</u>	<u>New Zealand IOC</u>
Volcanic rock	N/Av	N/Av	N/Av	N/Av	N/Av	N/Av	N/Av	N/Av
Silicon dioxide	7631-86-9	231-545-4	Present	Present	(1)-548	KE-31032	Present	May be used as a single component chemical under an appropriate group standard.
aluminum oxide	1344-28-1	215-691-6	Present	Present	(1)-23	KE-01012	Present	May be used as a single component chemical under an appropriate group standard.
Crystalline silica, quartz	14808-60-7	238-878-4	Present	Present	(1)-548	KE-29983	Present	HSR003125
Iron oxide	1309-37-1	215-168-2	Present	Present	(5)-5189; (5)-5188; (5)-5163; (1)-357; (1)-1073	KE-10897	Present	May be used as a single component chemical under an appropriate group standard.
Disodium oxide	1313-59-3	215-208-9	Present	Present	(1)-495	KE-31562	Present	May be used as a component in a product covered by a group standard, but is not approved for use as a chemical in its own right.
Potassium oxide	12136-45-7	235-227-6	Present	Present	(9)-2423	KE-12172	Present	May be used as a component in a product covered by a group standard, but is not approved for use as a chemical in its own right.
Sodium silicate	1344-09-8	215-687-4	Present	Present	(1)-508	KE-31002	Present	HSR003640
Calcium oxide	1305-78-8	215-138-9	Present	Present	(1)-189	KE-04588	Present	HSR002926
Kaolin	1332-58-7	310-194-1	Present	Present	(1)-20	KE-21772	Present	May be used as a single component chemical under an appropriate group standard.



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 17 of 18

SAFETY DATA SHEET

Lithium oxide	12057-24-8	235-019-5	Present	Present	(9)-2424	KE-10991	Present	May be used as a component in a product covered by a group standard, but is not approved for use as a chemical in its own right.
Magnesium oxide	1309-48-4	215-171-9	Present	Present	(1)-465	KE-22728	Present	May be used as a single component chemical under an appropriate group standard.
titanium dioxide	13463-67-7	236-675-5	Present	Present	(5)-5225; (1)-558	KE-33900	Present	May be used as a single component chemical under an appropriate group standard.
Carbon black	1333-86-4	215-609-9	Present	Present	(5)-3328; (5)-5222	KE-04682	Present	HSR002801
titanium dioxide	13463-67-7	236-675-5	Present	Present	(5)-5225; (1)-558	KE-33900	Present	May be used as a single component chemical under an appropriate group standard.

SECTION 16. OTHER INFORMATION

Legend

: ACGIH: American Conference of Governmental Industrial Hygienists
AICS: Australian Inventory of Chemical Substances
ATE: Acute Toxicity Estimate
CAS: Chemical Abstract Services
CSA: Canadian Standards Association
EC50: Effective Concentration 50%
EINECS: European Inventory of Existing Commercial chemical Substances
ENCS: Existing and New Chemical Substances
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IBC: Intermediate Bulk Container
IECSC: Inventory of Existing Chemical Substances
IMDG: International Maritime Dangerous Goods
IOC: Inventory of Chemicals
KECI: Korean Existing Chemicals Inventory
KECL: Korean Existing Chemicals List
LC: Lethal Concentration
LD: Lethal Dose
N/Ap: Not Applicable
N/Av: Not Available
NIOSH: National Institute of Occupational Safety and Health
NOEC: No observable effect concentration
OECD: Organisation for Economic Co-operation and Development
OSHA: Occupational Safety and Health Administration
PEL: Permissible exposure limit
PICCS: Philippine Inventory of Chemicals and Chemical Substances



Coloured Roofing Granules

1606

SDS Preparation Date (mm/dd/yyyy): 07/12/2018

Page 18 of 18

SAFETY DATA SHEET

RTECS: Registry of Toxic Effects of Chemical Substances
 SDS: Safety Data Sheet
 STEL: Short Term Exposure Limit
 TDG: Canadian Transportation of Dangerous Goods Act & Regulations
 TLV: Threshold Limit Values
 TWA: Time Weighted Average
 WHMIS: Workplace Hazardous Materials Identification System

References

- : 1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2018.
- 2. International Agency for Research on Cancer Monographs, searched 2018.
- 3. Canadian Centre for Occupational Health and Safety, CCIInfoWeb databases, 2018 (Chempendium, HSDB and RTECs).
- 4. Material Safety Data Sheets from manufacturer.
- 5. US EPA Title III List of Lists - March 2015 version.
- 6. California Proposition 65 List - May 25, 2018 version.
- 7. OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2018.

Preparation Date (mm/dd/yyyy)

: 07/12/2018

Other special considerations for handling

: Provide adequate information, instruction and training for operators.

<p><u>Prepared for:</u> IKO Industries Ltd. 105084 Hwy # 7 West P.O. Box 839 Madoc, ON, Canada, K0K 2K0 Telephone: (888) 766-2468 Direct all enquiries to: IKO Industries Ltd.</p>	
<p><u>Prepared by:</u> ICC The Compliance Center Inc. Telephone: (888) 442-9628 (U.S.); (888) 977-4834 (Canada) http://www.thecompliancecenter.com</p>	

DISCLAIMER

This Safety Data Sheet was prepared by ICC The Compliance Center Inc. using information provided by IKO Industries Ltd. and CCOHS' Web Information Service. The information in the Safety Data Sheet is offered for your consideration and guidance when exposed to this product. ICC The Compliance Center Inc and IKO Industries Ltd. expressly disclaim all expressed or implied warranties and assume no responsibilities for the accuracy or completeness of the data contained herein. The data in this SDS does not apply to use with any other product or in any other process.

This Safety Data Sheet may not be changed, or altered in any way without the expressed knowledge and permission of ICC The Compliance Center Inc. and IKO Industries Ltd.

END OF DOCUMENT