Earth Friendly Concrete (EFC)

1 Material and Supplier Information

1.1 Product Identifier

Product Name: Earth Friendly Concrete (EFC).

Other Names: EFC Geopolymer Concrete

1.2 Product Use

Recommended Use: Earth Friendly Concrete is used for a wide variety of building and construction applications.

1.3 Details of the manufacturer

Company Details:

Wagners EFC Pty Ltd
175 Wacol Station Road, Wacol Qld, 4076.
ABN 32 092 341 529

Telephone: 07) 4637 7777 or

Facsimile: 07) 4637 7778

Website: www.wagner.com.au

1.4 Emergency Telephone Number(s)

Emergency: Local: (07) 4637 7707 (Safety Hotline)
International: +617 4637 7707 (Safety Hotline)

Emergency after hours: 13 11 26 (Poisons Information Centre)

2 Hazards Identification

2.1 Classification of Material

Hazardous according to the criteria of Safe Work Australia.

GHS Classification(s): Skin Corrosion/Irritation: Category 2
Serious Eye Damage / Eye Irritation: Category 2A

2.2 Label Elements & Precautionary Statements

Single Word: Warning

Hazard Statement(s):

H315 Causes skin irritation
H319 Causes serious eye irritation

General Statement(s):

None.

Prevention Statement(s):

P264 Wash any body parts that comes into contact with concrete thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response Statement(s):

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P321 Specific treatment is advised - see first aid instructions

P362 + P364 Take off contaminated clothing and wash before re-use.

P332 + P337 + P313 If skin or eye irritation occurs: Get medical advice/ attention.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage Statement(s):

None

Disposal Statement(s):

None

2.3 Other hazards which do not result in classification:

This SDS only considers the Earth Friendly Concrete when it is in its wet state. The final hardened concrete is relatively inert, however, should the hardened concrete be cut or ground it may result in dust.

The dust from dry concrete may cause;

- Acute Respiratory Irritation,
- Chronic over exposure by inhalation of crystalline silica dust may result in silicosis (lung disease). Principal symptoms of silicosis are coughing and breathlessness.

Prevention:

- Avoid breathing dust
- Wear respiratory protection

3 Composition / Information on Ingredients

3.1 Ingredients

Ingredients	*CAS Number*	*Proportion*
Crushed Stone, or Gravel	Not required	20-85%
Sand	14808-60-7	20-85%
Fly Ash	68131-74-8	0-20%
Ground Granulated Blast Furnace Slag	65996-69-2	0-20%
Water	7732-18-5	0-20%

Ingredient Notes:

1. Sand, Crushed stone, Gravel, Blast Furnace Slag and Fly Ash may contain crystalline silica (quartz).
2. Depending on the source of the material for the above ingredients, the crystalline silica content of the final product can vary from product to product.

4 First Aid Measures

4.1 Description of First Aid Measures

Ingestion:

Rinse mouth and lips with water. Do not induce vomiting. Give water to drink. Seek medical attention.

Eye Contact:

If in eyes flush thoroughly with flowing water, while holding eyelids open, for 15 minutes to remove all traces. Do not attempt to remove solid particles embedded in

the eye. If symptoms such as irritation, pain or redness persist, seek medical attention.

Skin Contact:

Remove heavily contaminated clothing immediately. Wash off skin thoroughly with water. Use a mild soap if available. Shower if necessary. Seek medical attention for persistent redness, irritation or burning of the skin.

Inhalation:

Due to product form and nature of use, an inhalation hazard is not anticipated however if inhalation occurs remove the source of contamination or move the victim to fresh air. Ensure airways are clear and have a qualified person give oxygen through a face mask if breathing is difficult. If irritation develops seek medical attention immediately.

Recommended First aid facilities

Recommend eye wash station or equipment.

4.2 Symptoms caused by exposure

To Wet Product

Prolonged exposure can cause caustic type corrosive burns and other Irritating effects to the skin and eyes.

To Hardened Product

No known symptoms

To Product Dust

Inhalation of product dust caused by grinding or cutting with Chronic over exposure to crystalline silica dust may result in silicosis (lung disease). Principal symptoms of silicosis are coughing and breathlessness. Crystalline silica is classified as carcinogenic to humans (IARC Group 1).

4.3 Medical Attention and Special Treatment

Advice to Doctor:

Treat symptomatically as medium to strong alkali.
Caustic burns may result from prolonged product contact to skin or eye

Ingestion of significant amounts of concrete is unlikely. Do not induce vomiting. Neutralization with acidic agents is not advised because of increased risks of exothermic reactions which can compound the chemical injury with a thermal injury. If product has come into contact with eyes, seek medical attention.

5 Fire Fighting Measures

5.1 Suitable Extinguishing Equipment

Non – flammable,
If concrete is heated use water to cool.

5.2 Specific hazards arising from the product

Non - flammable, no hazards known.

5.3 Special Protective Equipment and Precautions for Fire Fighters

Heated concrete caused by fire may not show visual signs of heat at temperatures below 800ºC.

Wear Self-Contained Breathing Apparatus (S.C.B.A.) and full protective clothing to minimise skin exposure.

5.4 Hazchem Code:

None Allocated

6 Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions

Prevent spillage or wash down water from entering sewers, drains, stormwater and watercourses.
If contamination of drains or watercourses has occurred, advise the relevant state environment protection agency.

6.3 Methods and materials for containment and clean up

Recover spilled material by shovelling into containers and using mechanical sweepers. Avoid generating dust.

7 Handling and Storage

7.1 Precautions for safe handling

Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating drinking, smoking or using the toilet. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

No special storage requirements.

8 Exposure Controls / Personal Protection

8.1 Control Parameters

Exposure Standards:

Ingredient	Reference	TWA			STEL	
		ppm	f/mL	mg/m^3	ppm	mg/m^3
Crystalline silica (quartz): (respirable dust)	SWA	-	-	0.05	-	-
Dust	SWA	-	-	10.0	-	-
Silica Fume	SWA	-	-	2	-	-

Reference Key

SWA Safe Work Australia – Workplace exposure standard for airborne contaminants.

Biological Monitoring:

No biological limit values have been entered for this product.

8.2 Appropriate engineering controls

- Maintain air concentration below occupational exposure standards, using engineering controls if necessary
  Avoid generating dust and inhaling dusts. All work that generates concrete dust should be carried out in such a way that maintains concentrations below the exposure standards above.
- Provide adequate ventilation and/or local dust extraction or water spray to remove dust from breathing zones.
- Work areas should be cleaned regularly by wet sweeping or vacuuming.
- Use mechanical handling to reduce skin contact with materials.

8.3 Personal Protective Equipment (PPE)

PPE should be used only when other control measures (for example, elimination, substitution, isolation, engineering controls) have been found to be impracticable or in conjunction with one or more control measures.

Respirator Type (AS1719):

Plastic concrete;
No special respiratory protection required.
Dry product;
Where dust is generated the use of an Air Purifying Respirator with a Class P1, P2 or P3 filter complying with AS/NZS 1716 is recommended.
Note;
Persons with facial hair may not be able to obtain a satisfactory seal.

Eye & Face Protection:

Where splashing is likely or dust is generated, the use of safety glasses with side shield protection or safety goggles is recommended in accordance with AS/NZS 1337.

Glove Type:

Plastic concrete;
Wear water-proof gloves in accordance with AS2161.
Dry product;
Wear leather palm, cotton-back work gloves in accordance with AS2161.

Clothing:

The use of sleeves, overalls, and clean clothing should be worn daily.

Footwear:

The use of water-proof safety boots high enough to prevent concrete from contacting skin should be worn.

9 Physical and Chemical Properties

Appearance:	A mouldable generally grey mixture which will set and harden to become a stable solid. Colour may vary from near white to any other colour.
Odour:	Odourless
Odour Threshold:	Not Available
pH:	12-13
Melting / Freezing point:	Not Available
Boiling Point / Range:	Not Applicable
Flash Point:	Not Relevant
Evaporation Rate:	Not Applicable
Flammability:	Non Flammable
Upper explosive limit:	Not Relevant
Lower explosive limit:	Not Relevant
Vapour Pressure:	Not Applicable
Vapour Density:	Not Applicable
Relative Density:	Generally 2.1t/m^3 to 2.6t/m^3
Solubility(ies):	Water – Insoluble
Partition Coefficient:	Not Available

n-octanol/water	
Auto-ignition temperature:	Not Available
Decomposition temperature:	>1200ºc - May evolve toxic gases if heated to decomposition.
Viscosity:	Not Available
Specific heat value:	Not Available
Particle size:	Wet Concrete - Consists of particle sizes from 2µm to 40mm. Hardened Concrete – Not Available
Volatile Organic compound content:	Not Available
% volatile:	Not Available
Saturated vapour concentration:	Not Applicable
Release of invisible flammable vapours and gases:	May evolve toxic gases if heated to decomposition.

10 Stability and Reactivity

10.1 Reactivity:

Acid contact may increase product temperature 2-3ºC.

10.2 Chemical Stability:

Stable under recommended conditions of storage.

10.3 Conditions to avoid:

Heating product above 1200ºc.

10.4 Incompatible materials and possible hazardous reactions:

Incompatible with oxidising agents (e.g. hypochlorites), and acids.

10.5 Hazardous decomposition products

May evolve toxic gases if heated to decomposition.

11 Toxicological Information

11.1 Information on routes of exposure

Route of Exposure	***Symptoms related to exposure***	
	Acute / Immediate / Short term exposure	***Chronic /Delayed /long term exposure***
Skin contact	***Fresh Concrete:*** Irritating, abrasive and drying to the skin. Contact may result in irritation, redness, pain and rash. ***Hardened Concrete:*** Effects not known.	***Fresh Concrete:*** Repeated contact causes irritation and drying of the skin and can result in skin reddening, skin cracking or skin rash (dermatitis) which may become persistent. ***Hardened Concrete:*** Effects not known.
Eye contact	***Fresh Concrete:*** Irritating to the eyes, may cause alkaline (caustic) burns to the eyes. Splash of wet concrete into the eye can cause serious and rapid corrosive burning, with potential for permanent loss of vision. Contact may result in irritation, lacrimation, pain, redness, conjunctivitis and possible alkaline burns. ***Hardened Concrete:*** Contact from dry concrete dust normally caused by cutting or grinding may result in irritation, pain, redness and conjunctivitis to the eyes	***Fresh Concrete:*** Repeated exposure of wet concrete to the eyes could cause partial to permanent loss of vision. ***Hardened Concrete:*** Dry concrete in dust normally caused by cutting or grinding form it may cause inflammation of the cornea.

Route of Exposure	Symptoms related to exposure	
	Acute / Immediate / Short term exposure	Chronic /Delayed /long term exposure
Inhalation	Fresh Concrete: Effects not known. This product is not expected to present an inhalation hazard in its wet state as it does not normally form air born particles in a breathable size. Hardened Concrete: Concrete dust normally caused by cutting or grinding concrete is irritating to the nose, throat and respiratory tract causing coughing and sneezing. Pre-existing upper respiratory and lung diseases including asthma and bronchitis may be aggravated.	Fresh Concrete: Effects not known. Hardened Concrete: Concrete dust normally caused by cutting or grinding concrete may cause inflammation of lining tissue of the respiratory system. Repeated inhalation of dust containing crystalline silica can cause bronchitis, silicosis (scarring of the lung), and may increase the risk of other serious disorders including scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels and internal organs). Long term occupational over-exposure or prolonged breathing-in (or inhalation) of crystalline silica dust at levels above the Exposure Standard carries the risk of causing serious and irreversible lung disease, including bronchitis and silicosis (scarring of the lung). Respirable crystalline silica dust is classified as GHS Category 1A carcinogen. This means it may can cause lung cancer. Exposure to respirable crystalline silica is negligible when handling fresh concrete. In the case of dust from activities associated with dry concrete (e.g. cutting, drilling and finishing), the recommended controls outlined in Section 8 should be followed.
Ingestion	Fresh Concrete: Unlikely in normal use in the industrial situation. Abrasive and highly irritant (burning) to mouth and throat. May cause nausea and stomach cramps. Hardened Concrete: Effects not known. Abrasive, sharp edges may cause internal abrasions and other unknown effects.	Fresh Concrete: Effects not known. Hardened Concrete: Effects not known.

11.2 Exposure Levels / Acute Toxicity

Oral:

Component	Oral LD50 (Single Dose)
No Data Available	

Inhalation:

Component	Inhalation LC50 (Single Dose)
No Data Available	

Dermal:

Component	Dermal LD50 (Single Dose)
No Data Available	

11.3 Interactive effects

Acute toxicity	No known toxicity data is available for this product. Based on available data, the classification criteria are not met.
Sensitization	This product is not classified as a skin or respiratory sensitiser.
Mutagenicity	Insufficient data available to classify as a mutagen.
Carcinogenicity	This product contains crystalline silica which is classified as carcinogenic to humans (GHS carcinogenicity Category 1A). However, there is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis. Therefore, preventing the onset of silicosis will also reduce the cancer risk.
Reproductive	Insufficient data available to classify as a reproductive toxin.
STOT – single exposure	Over exposure to respirable dust (if generated) may result in irritation of the nose and throat, with coughing. High level exposure may result in breathing difficulties.
STOT – repeated exposure	Due to the product form (wet-mix), over exposure via inhalation is not anticipated with normal use. However, if dust is generated via cutting, grinding, machining, etc dry/set product, repeated exposure to respirable crystalline silica may result in pulmonary fibrosis (silicosis). Silicosis is a fibronodular lung disease caused deposition in the lungs of fine respirable particles of crystalline silica. Principal symptoms of silicosis are coughing and breathlessness.

12 Ecological Information

12.1 Eco-toxicity:

May be harmful to the aquatic environment due to the alkaline nature of the product. This product is non-toxic to aquatic organisms when present as a cured solid.

12.2 Persistence and Degradability:

Persistent with low degradability >100years.

12.3 Bio accumulative Potential

Product is not expected to bio accumulate.

12.4 Mobility in soil:

Low mobility would be expected in a landfill situation.

12.5 Other adverse effects:

Can block drains & waterways. Avoid contamination to drains and waterways.

13 Disposal Considerations

13.1 Safe handling and disposal methods

Reuse or recycle where possible. Ensure measures are taken to prevent dust generation. Contact the manufacturer/supplier for additional information (if required).

Fresh concrete

Keep out of sewer and storm water drains.
For large amounts - Recycling into other construction products is usually a practicable alternative. If this cannot be done avoid placing concrete in large piles as the hardened weight may prevent practical recycling or reuse. Make several smaller piles or spread thin layers on ground and continue to turn over until hardened. Then gather and treat as hardened concrete. (See below)

For Small amounts (i.e. about a wheelbarrow full or less) if it cannot be recycled dispose into approved landfill site or Spread and turn until hardened then treat as hardened concrete (See below)

Hardened concrete

May be disposed of as inert landfill in accordance with local authority regulations or reused / crushed & recycled into other construction materials or manufactured landfill.

13.2 Disposal of any contaminated packaging

Not Applicable

13.3 Environmental regulations

Dispose of in accordance with relevant local legislation.

14 Transport Information

Transportation is done in bulk by road or ship.

UN Number:	Not classified as dangerous for transport by Australian Dangerous Godds code.
Proper Shipping Name:	None Allocated
Transport Hazard Class:	None Allocated
Packing Group:	None Allocated
Environmental Hazards:	No Information provided
Special Precautions During Transport:	None Allocated
Hazchem Code:	None Allocated

15 Regulatory Information

15.1 Safety health and environmental regulations specific for the product

Poisons Schedule:

A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classification:

Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listing(s) AUSTRALIA: AIIS (Australian Inventory of Industrial Chemicals)
All components are listed on AIIS, or are exempt.

Regulations (State and Territory) as they are applicable to Respirable Crystalline Silica, requiring exposure assessment, and control of inhalation exposure below the NES.

Persons who have potential for exposure to respirable crystalline silica dust above the NES, may be required by Regulations to have periodic health surveillance including chest x-ray (see relevant state Government Regulations and ASCC/NOHSC documentation).

16 Other Information

For further information on this product, contact:
Telephone: 07 4637 7777
Website: www.wagner.com.au

Additional Information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES: The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE: It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

References:

AS/NZS 1336 Recommended practices for occupational eye protection.
AS/NZS 1715 Selection, use and maintenance of respiratory protective devices.
AS/NZS 1716 Respiratory protective devices.
AS 2161 Industrial safety gloves and mittens (excluding electrical and medical glove.
Safe Work Australia - Code of Practice - Preparation of Safety Data Sheets for Hazardous Chemicals (July 2020)
Safe Work Australia – Workplace exposure standard for airborne contaminants.

Advice Note:

The information in this document is believed to be accurate. Please check the currency of this SDS by Contacting (07) 4637 7777. The provision of this information should not be construed as a recommendation to use this product in violation of any patent rights or in breach of any statute or regulation. Users are advised to make their own determination as to the suitability of this information in relation to their particular purposes and specific circumstances. Users should read this SDS and consider the information in the context of how the product will be handled and used in the workplace and in conjunction with other substances or products.

Abbreviations:

CAS	Chemical Abstract Service number - used to uniquely identify chemical compounds
EC No.	EC No - European Community Number
GHS	Globally Harmonized System
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m^3	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT	Specific target organ toxicity
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

16.1 Document Information:

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