SECTION 1 - IDENTIFICATION OF THE MATERIAL AND SUPPLIER

PRODUCT NAME:	**Metromix Concrete; Premixed Concrete, Ready Set,**
APPLICABLE IN:	**AUSTRALIA**
OTHER NAMES:	**Grouts, Mortars, Ready-Mixed Concrete,**
RECOMMENDED USE:	**Premixed concrete is used for a wide variety of applications in building and civil engineering projects. When sprayed it is used for encapsulating steel work as well as structural applications.**
OTHER INFORMATION:	**Plastic concrete begins to harden within about one hour and is quite hard within eight hours. The rate of settling depends on ambient conditions (temperature, wind and humidity) and the concentration of cementitious ingredients.**
COMPANY NAME:	**Metromix Pty Ltd.**
ADDRESS:	**Level 4 107 Phillip St. Parramatta NSW 2150**
TELEPHONE:	**02 9849 7400**
FACSIMILE:	**02 9635 4816**
EMERGENCY PHONE:	**Emergency Services 000, Poisons Information Centre13 1126**

This material safety data sheet (MSDS) is issued by Metromix Pty Ltd in accordance with the Code and guidelines from the Australian Safety and Compensation Council ASCC (formerly NOHSC). The information in it must not be altered, deleted or added to. Metromix Pty Ltd will not accept any responsibility for any changes made to this MSDS by any other person or organization. Metromix Pty Ltd will issue a new MSDS when there is a change in product specifications and/or ASCC standards, guidelines, or regulations.

SECTION 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE:

Classified as **Hazardous** according to the criteria of the Australian Safety and Compensation Council approved criteria for Classifying Hazardous Substances [NOHSC:1008]3rd Edition. **Non-Dangerous Goods**

Risk Phrases:	Safety Phrases:
R21/22: Harmful in contact with skin and if swallowed	**S22:** Do not breathe dust.
R43: May cause sensitisation by skin contact	**S24/25:** Avoid contact with skin and eyes
R48/20: Danger of serious damage to health by prolonged exposure through inhalation.	**S28:** After contact with skin immediately wash with plenty of water
	S29: Do not empty into drains

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Name	CAS No	Proportion%
Portland Cement	65997-15-1	10-60%
*Chromium VI (hexavalent chromium)	1333-82-0	2-20ppm
Sands / Gravels / Aggregates containing:		
*Crystalline Silica SiO2 (quartz)	14808-60-7	20-85%
*OTHER INGREDIENTS MAY BE ADDEDD:		
Water	7732-18-5	<20%
Polypropylene or steel	-----	
Polystyrene beads (reduced density)	9003-53-6	<10%
Metallic oxide pigments (colouring)	----	<4%
Silica fume (amorphorous silica)	7699-41-4	<4%
*Admixtures such as water reducers, set retarders, set accelerators, plasticisers and waterproofing agents (refer AS 1478)	-----	<1%

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible. The proportion of crystalline silica (% of quartz) in the product will vary according to the rock sources of the gravel or aggregates.

*Crystalline silica (quartz) may be a constituent of sand, crushed stone, gravel, blast furnace slag and flyash used in any particular concrete mix. Cement in concrete contains traces of Chromium VI (hexavalent). Cementitious additives may contain traces of metals.

SECTION 4 - FIRST AID MEASURES

GENERAL INFORMATION:
You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this MSDS with you when you call.

Swallowed:
Rinse mouth and lips with water. Do not induce vomiting. Give water to drink to dilute stomach contents. If symptoms persist, seek medical attention.

Eye Contact:
Flush thoroughly with flowing water for 15 minutes to remove all traces. If symptoms such as irritation or redness persist, seek medical attention. If wet concrete is splashed in the eye, always treat as above and get urgent 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:
Remove to fresh air, away from dusty area. If symptoms persist, seek medical attention. Good work practices should be followed when dust is generated, PPE such as dust masks (P2) should be worn.

Advice to Doctor:
Treat symptomatically. Wet concrete burns to skin or eye may result in corrosive caustic burns, Ingestion of significant amounts of concrete is unlikely. Do not induce emesis or perform gastric lavage. Neutralization with acidic agents is not advised because of increased risks of exothermic burns. Water-mineral oil soaks may aid in removing hardened concrete from the skin. Ophthalmologic opinion should be sought for ocular burns.

SECTION 5 - FIRE FIGHTING MEASURES

Flammability:
None. Concrete is a stable substance, compatible with most other building materials, will not decompose into hazardous by-products or polymerise.

Suitable Extinguishing Media:
Not applicable. Use extinguishing media suited to burning materials.

Special Protective Precautions and Equipment for Fire Fighting:
None

Hazchem Code: None allocated
Flash point: Does not burn.
Upper Flammability Limit: Does not burn.
Lower Flammability Limit: Does not burn.
Auto ignition temperature: Not applicable - does not burn.
Flammability Class: Does not burn.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spills:
If spillage is dry, shovel into containers. Avoid generating dust. If spillage is wet, shovel into containers and then wash down area preventing runoff from entering storm water and sewer drains and watercourses. If a significant quantity of material enters drains, advise emergency services. Recommendations on exposure Controls / Personal Protection (see section 8 below) should be followed during spill clean-up.

SECTION 7 - HANDLING AND STORAGE

Handling:
Wet concrete is a heavy material and appropriate control of manual handling risk is required when barrowing, shovelling or carrying quantities of wet concrete. Check Section 8 of this MSDS for details of personal protective measures, and make sure that those measures are followed.

Storage:
Wet premixed concrete has a limited life after batching and will set hard. The rate of setting depends on the ambient conditions and amount of agitation. May be stored for very short periods of time (less than twenty minutes) in self cleansing hoppers with sides of at least 45^{o} to the horizontal.
Contact with sugars, acids or solutions of either will cause a serious degradation of the quality of the material. A safety hazard is created by such contact due to the potential failure of the structure being constructed. Similarly handling and transporting the material at temperatures less than 0^{o} or greater than 30^{o} may cause a degradation of the quality of the material with a consequent safety hazard arising from the potential failure of the structure being constructed.

Incompatibilities: None

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Standards:
National Occupational Exposure Standard (NES) Australian Safety and Compensation Council, ASCC (formerly NOHSC).
Exposure to dust should be as low as practicable and below the following NES.

Crystalline Silica as Respirable Dust: < 7 microns particle equivalent aerodynamic diameter

EXPOSURE LIMITS:	**TWA (mg/m^3)**	**STEL (mg/m^3)**
Crystalline Silica (quartz)	0.1 mg/m^3 TWA.	not set
Total Dust (of any type or particle size)	10 mg/m^3 TWA.	
Chromium VI (hexavalent):	0.05 mg/m^3	

The TWA exposure (time weighted average) value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak "is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

ENGINEERING CONTROLS:
If placing concrete in enclosed areas or a confined space ensure adequate forced ventilation. When dry concrete dust is present ensure exposures to respirable crystalline silica (quartz) are maintained below NES.

Ventilation:
Work in the open air and the opening of external openings (such as doors and windows in buildings) generally provides adequate ventilation. Local mechanical ventilation or extraction may be required in areas where spray droplets from wet concrete or dry dust could escape into the work environment.

PERSONAL PROTECTION:
Skin Protection:
Minimise contact with concrete materials. When handling wet concrete mortar or grout, personnel should wear loose comfortable protective clothing and impervious boots (AS/NZS 4501) suitable impervious gloves such as PVC (AS2161). Never kneel in wet concrete or allow extended contact of skin with wet concrete.
Remove clothing which has become contaminated with wet or dry concrete to avoid prolonged contact with the skin. If concrete gets into boots, remove socks and boots immediately and wash skin thoroughly. Wash work clothes regularly to avoid contamination of face and lips and ingestion, wash hands before eating or smoking.

Eye Protection:
Avoid contact with the eyes, splash resistant safety glasses with side shields or safety goggles or a face shield should be worn. Industrial Eye Protection: **AS1336**

Respiratory Protection:
Where dust is generated:- The type of respiratory protection required depends primarily on the concentration of the respirable crystalline silica dust in the air and the frequency and length of exposure time. Amount of physical exertion required and personal comfort during the work are other considerations in choice of respirator. A suitable P2 or P1 particulate respirator chosen and used in accordance with **AS/NZS 1715, AS/NZS 1716** Respiratory equipment: may be sufficient for many situations, but where high levels of dust are encountered, more efficient cartridge type or powered respirators or supplies air helmets or suits may be necessary. If there is a significant chance that dusts are likely to build up in the area where this product is being used, we recommend that you use a suitable Dust Mask. Use a P1 mask, designed for use against mechanically generated particles eg silica & asbestos.
Use only respirators that bear the Australian Standards mark and are fitted and maintained correctly.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical Appearance

Description & Colour:	Plastic mixture of water, portland cement and aggregates. The consistency of the mixture ranges from near liquid to a friable damp earth-like mixture. The most common plasticity has a cohesive porridge like appearance. The colour is usually grey although colour can be varied by adding metallic oxide pigments.
Odour:	Some added ingredients used in concrete may create a smell of ammonia.
pH Value:	12-13.
Vapour Pressure:	No Determined
Vapour Density:	Not Applicable no vapour emitted.
Boiling Point:	Not Available.
Freezing/Melting Point:	Solid at normal temperatures. Melting Point>1200^{o}C
Water Solubility:	Forms slurry, not soluble or slight, reacts on mixing with water forming and alkaline (caustic) solution (pH>11)
Specific Gravity:	2.5 (H_2O =1)
Evaporation Rate:	Not Applicable.
Flammability Limits:	Not Applicable
Flash Point:	Not Applicable
Explosive Properties:	Not flammable or explosive

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability: Stable

Reactivity:
This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

Conditions to Avoid: Dust Generation.
Incompatibilities: No particular incompatibilities.

Hazardous Decomposition Products:
None. No significant quantities of decomposition products are expected at temperatures normally achieved in a fire.

Hazardous Polymerisation:
None. This product is unlikely to undergo polymerisation processes.

SECTION 11 - TOXICOLOGICAL INFORMATION

Typically, gravels and aggregates will have no specific toxicity data available as they are of very low acute toxicity to plants animals and humans.

HEALTH EFFECTS ACUTE (short term):

Ingestion:
Unlikely in normal use in the industrial situation. Abrasive and highly irritant (burning) to mouth and throat. May cause nausea, stomach cramps.

Eye Contact:
Irritating and 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.

Skin Contact:
Irritating, abrasive, and drying to the skin. May cause alkaline (caustic) burns if direct contact is made with wet concrete for any length of time, leading to second or even third degree burns.

Inhalation:
Concrete Dust is irritating to the nose, throat and respiratory tract and may cause coughing and sneezing. To pose a danger to the lungs, a dust particle must be respirable (smaller than 10 microns). Pre-existing upper respiratory and lung diseases including asthma and bronchitis may be aggravated.

HEALTH EFFECTS CHRONIC (long term exposure):

Eye Contact:
In dust form it may cause inflammation of the cornea.

Skin Contact:
Repeated contact causes irritation and drying of the skin and can result in skin reddening and skin rash (dermatitis) which may become persistent. Persons who are allergic to chromium may develop an allergic dermatitis.

Inhalation:
In dust form it 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). Concrete is not listed as a carcinogen by ASCC. Risk of cancer has not been identified from using concrete. However the international Agency for Research on Cancer (IARC) has classified Chromium VI (hexavalent) and Crystalline Silica inhaled in the form of quartz or cristobalite from occupational sources, as carcinogenic to humans (Group 1)

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:
Product forms an alkaline slurry when mixed with water.

Persistence and degradability:
Persistent and have a low degradability.

Mobility:
Low mobility expected in a landfill situation.

SECTION 13 - DISPOSAL CONSIDERATIONS

Pre-mixed concrete can be treated as a common waste for disposal, or dumped into a landfill site in accordance with local authority guidelines. Keep out of storm water and sewer drains.

Recycling into construction activities is usually a practicable alternative.

Measures should be taken to prevent dust generation during disposal and exposure and personal precautions should be observed (see section 8 above).

SECTION 14 - TRANSPORT INFORMATION

Transport Requirements:

Transport equipment should be strong enough to contain a fluid with an effective specific gravity of 2.5

UN Number:	None allocated.
Class:	None allocated.
Subsidiary Risk 1:	None allocated.
Packaging Group:	None allocated.
Hazchem Code:	None allocated.
DG Class:	None allocated
EPG:	None.
Incompatibilities:	None
Proper Shipping Name:	None allocated.
Marine Pollutant:	No.

SECTION 15 - REGULATORY INFORMATION

Classification:	Hazardous according to ASCC criteria and not classified as Dangerous Goods
Hazard Symbol:	None Allocated
Poisons Schedule:	Not scheduled.

Exposures by inhalation to high levels of dust may be regulated under the Hazardous Substances 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 a periodic health surveillance including chest x-ray (see relevant State Government Regulations and ASCC/NOHSC documentation).

SECTION 16 - OTHER INFORMATION

Emergency Contact Numbers:
Poisons Information Centre: 13 11 26
Emergency Services: 000
Additional Information:
Australian Standards References:

AS/NZS 1336	Recommended practices for occupational eye protection
AS/NZS 1715	Select, use and maintenance of respiratory protective devices
AS/NZS 1716	Respiratory protective devices
AS 2161	Industrial safety gloves and mittens (excluding electrical and medical gloves)

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC:2011(2003), April 2003, National Occupational Health and Safety Commission.

Please read all labels/dockets carefully before using product.

END OF MSDS