SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

GHS Product Identifier: Ready Mixed Concrete

Other Means of Identification: Concrete, Duracrete, Shotcrete, Portland Cement Concrete, PBFC Concrete, Freshly Mixed Concrete, Ready Mix Grout, Permeable Concrete, Self-Compacting Concrete, etc.

Intended Use of the Product: Concrete is widely used as a structural component in many construction applications.

Supplier Detail:

TOP-MIX CONCRETE PRIVATE LIMITED
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SECTION 2. HAZARDS IDENTIFICATION

GHS Classification(s):

SKIN SENSITIZATION – Category 1
CARCINOGENICITY – Category 1A
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) – Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) – Category 1
SKIN CORROSION/IRRITATION – Category 2
SERIOUS EYE DAMAGE/EYE IRRITATION – Category 1

GHS LABEL ELEMENTS

Hazard pictograms:

Signal Word: Danger

Hazard statements:

May cause cancer (inhalation)
May cause damage to organs (lung) thru prolonged or repeated exposure
Causes severe skin burns and eye damage
Causes serious eye irritation
May cause an allergic skin reaction

Precautionary Statements:

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/protective clothing/eye protection/ face protection.
Over-exposure to wet concrete can cause severe, potentially irreversible tissue (skin, eye, respiratory tract) damage in the form of chemical burns, including third degree burns.

Precautionary Statements (Continue)…

Severe injury can occur if wet/moist skin is exposed to dry Concrete dust.
Clothing wet with moisture from concrete can transmit the caustic effects to the skin, causing chemical burns.
Contact with wet concrete may aggravate existing skin conditions. Sensitivity to hexavalent chromium can be aggravated by exposure. Avoid breathing dust.

Response:

If exposed or concerned, wash any exposed body parts thoroughly after handling. Get medical advice/attention if irritation or rash occurs.
If on skin: Take off immediately all contaminated clothing or disallowing contaminated clothing in workplace. Rinse/wash skin with plenty of water/shower. Wash contaminated clothing before reuse.
If in eyes: Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do.
Restrict or control access to ready mix concrete.

Storage Disposal:

Dispose of contents/container in accordance with ocal/ regional/ national/ international regulations.

Hazards not otherwise classified: Not applicable.

SECTION 3. COMPOSITION / HAZARDOUS INFORMATION ON INGREDIENTS

Substance/mixture: Mixture of Portland Cement, Coarse Aggregate, Fine Aggregate, Water, Admixtures

CAS number: Not applicable.

Product code: Not applicable.

Ingredient name	%	CAS number
Aggregates (Crushed Stone)	35 - 80	Varies
Aggregates (Quartz)	35 - 80	14808-60-7
Portland Cement	25 - 100	65997-15-1
Slag Cement	0 - 75	N/A
Other Cementitious Materials	0 - 25	68131-74-8
Water	5 - 15	7732-18-5

Any concentration shown as a range is to protect confidentiality or is due to batch variation. Chemical admixtures may be present in ranges of less than 2%. Also, Individual composition of hazardous constituents may vary between types/different mix designs of Ready Mixed Concrete.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

SECTION 4. FIRST AID MEASURES

EMERGENCY AND FIRST AID PROCEDURES

Eye Contact: If exposed or concerned: get medical attention. Do not allow individual to rub eyes. Flush eyes gently under running water for 15 minutes or longer, making sure that the eyelids are held open. Other than washing with water, do not attempt to remove material from eyes. Remove contact lenses, if present and easy to do. Obtain medical attention for eye contact with wet concrete.

Inhalation: Move exposed individual to fresh air. Dust in throat and nasal passages should clear naturally by coughing, sneezing and nasal discharge. Obtain medical attention if symptoms persist or develop later.

Skin Contact: Wash affected areas with water and soap. Remove contaminated clothing and wash before reuse. If irritation persists or develops later, obtain medical attention.

Ingestion: Ingestion is not a common route of occupational exposure. If swallowed and irritation or discomfort occurs, obtain medical attention.

IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED HEALTH EFFECTS

Inhalation: May cause respiratory irritation. Adverse symptoms may include the following: respiratory tract irritation, coughing

Skin contact: May cause severe burns. May cause an allergic skin reaction. Adverse symptoms may include the following: pain or irritation, redness, blistering may occur

Eye contact: May cause serious eye damage. Adverse symptoms may include the following: pain, watering, redness

Ingestion: May cause burns to mouth, throat and stomach. Adverse symptoms may include the following: stomach pains

OVER-EXPOSURE SYMPTOMS, PRECAUTION AND TREATMENTS

Notes to physician: Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

Specific treatments: Not Applicable

Protection of first-aiders: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

General information: Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and lung (including asthma and other breathing disorders). If addicted to tobacco, smoking will impair the ability of the lungs to clear themselves of dust.

SECTION 5. FIRE-FIGHTING MEASURES

Flash Point:	Non-combustible
Suitable extinguishing media:	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media:	None known.
Specific hazards arising from the product:	No specific fire or explosion hazard.
Hazardous thermal decomposition products may include:	Carbon dioxide, carbon monoxide, sulfur oxides, metal oxide/oxides
Special protective equipment and precautions for fire-fighters:	Fire-fighters should wear appropriate protective equipment.
Flammable Limits in Air (Volume %):	Not Applicable
Lower/ Upper Explosive Limit:	Not Applicable

SECTION 6. ACCIDENTAL RELEASE MEASURES

For response personnel:	Keep unprotected personnel out of the area. Do not dry sweep dusty material. All local and national laws governing waste disposal must be followed.
For non-emergency personnel:	Personnel involved in handling of wet concrete should avoid contact with the eyes and skin, through the use of gloves and suitable clothing as described in Section 8. Also, Silica-containing respirable dust particles may be generated by crushing, cutting, grinding, or drilling hardened concrete or concrete products, and should be avoided. Follow protective controls defined in Section 8. When cutting, grinding, crushing or drilling hardened concrete, use local exhaust or general dilution ventilation or other suppression methods to keep dust levels below exposure limits.
Environmental precautions:	Clean spilled material immediately. Contain spills and wash water to prevent run-off into public waterways. Remove wet concrete from roadways immediately. Do not dry sweep spilled dusty material.
Environmental precautions:	Wet unhardened concrete should be recycled or allowed to harden and disposed. Do not wash concrete down sewage and drainage systems or into bodies of water (e.g. lakes, streams, wetlands, etc.).
Methods and materials for containment and cleaning up spills:	Place spilled material into a contained area and allow wet concrete to harden and dispose in a landfill as common solid waste. Appropriate PPE such as Alkali resistant gloves, long sleeves, long pants and water-proof boots should be used. Also, eye protection and appropriate respirator protection should be used to protect clean up personnel against dust.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:

Use appropriate PPE to avoid direct contact with concrete. Remove contaminated clothes as soon as possible. Dust may be generated during handling or mixing dry powder or from cutting, breaking or crushing hardened material. Use wet cutting methods when possible. Also, observe good industrial hygiene practices. Promptly remove dusty clothing and launder before reuse.

Conditions for safe storage, including any incompatibilities:

Persons shall recognize the chemical reactivity of Ready Mixed Concrete which can cause severe chemical burns. Avoid skin and eye contact with concrete. Also, prevent Ready Mixed Concrete inside PPE. Do not allow wet, saturated clothing to remain against the skin. Promptly remove clothing and shoes that are dusty or wet with concrete mixtures. Launder/clean clothing and shoes before reuse.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

		Exposure Limits		
Ingredient / Component	**Type/ Form**	**OSHA PEL (8-HR TWA)**	**ACGIH TLV (TWA)**	**NIOSH REL (TWA)**
Aggregates (Crushed Stone)	Respirable fraction	5 mg/m3	NA	Use Respirable Silica TLV
	Total dust	15 mg/m3	NA	10 mg/m3
Aggregates (Quartz)	Respirable fraction	10 mg/m$_3$ ÷ (%SiO_2 + 2)	0.05 mg/m3	0.025 mg/m3
	Total dust	30 mg/m$_3$ ÷ (%SiO_2 + 2)	0.05 mg/m3	NE
Portland Cement	Respirable fraction	5 mg/m3	5 mg/m3	10 mg/m3
	Total dust	15 mg/m3	10 mg/m3	NE
Other Cementitious Materials	Respirable fraction	5 mg/m3	NA	NE
	Total dust	15 mg/m3	NA	NE

Note:

- Concrete may contain other cementitious materials such as fly ash, blast furnace slag, etc. and various Admixtures to improve the workability or finished properties of the product.
- Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled because it is a hazardous chemical as defined by ACGIH and NIOSH.
- OSHA PELs and ACGIH TLVs are 8-hr TWA values while NIOSH REL is a 10-hr TWA value.

Respirable fraction – The amount of airborne dust in sizes capable of passing through the upper respiratory system to reach the lower lung passages during periods of exposure to product. Not all dust is respirable.
Total dust – The total amount of all airborne particulate generated for a particular component.
ACGIH – American Conference of Governmental Industrial Hygienists
NIOSH – National Institute for Occupational Safety and Health
OSHA -- Occupational Safety and Health Administration
PEL – Permissible Exposure Limit
REL – Recommended Exposure Limit
TLV – Threshold Limit Value
TWA – Time Weighted Average
NE – Not Established
NA – Not Applicable

Engineering Controls: Provide adequate ventilation If operations generate dust. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

INDIVIDUAL PROTECTION MEASURES (including Personal Protective Equipment):

Respiratory Protection: Use of NIOSH/OSHA approved respirator is recommended based on airborne concentrations while cutting, sawing, grinding, or demolishing dry, hardened concrete. Wear a NIOSH/OSHA approved respirator with N-100 or P-100 filters when adequate ventilation is not available or occupational exposure limits are exceeded.

Ventilation: Use local exhaust ventilation as well as sufficient general area ventilation.

Skin/Body Protection: Protective gloves, boots, and clothing are recommended to prevent skin contact.

Eye/Face Protection: ANSI approved chemical work goggles (FPN) shall be used to prevent splash of Ready Mixed Concrete into eyes. Dust goggles shall be worn when excessively dusty conditions are present during cutting, grinding, sawing, or demolition of hardened concrete. An eye-wash station or fountain within the immediate working area shall be provided for emergency use.

Hygiene measures: Wash dust-exposed skin with soap and water before eating, drinking, smoking, and using toilet facilities. Wash work clothes after each use.

Other control measures: A clean water supply for first-Aid and cleaning should be available. Engineering controls, including, but not limited to, wet suppression, ventilation, enclosures, etc., should be used as needed to reduce employee exposure to particulates and to maintain exposure levels below allowable limits. Dust exposure should be monitored by a health and safety professional as needed to determine worker exposure levels.

SECTION 9. PHYSICAL / CHEMICAL CHARACTERISTICS

Appearance (physical state, color, etc.)	Solid, semi-fluid, flowable, granular paste, varying Gray	**Upper/lower flammability or explosive limits:**	N/A
Odor:	Odorless	**Vapor pressure:**	N/A
Odor threshold:	N/A	**Vapor density:**	N/A
pH:	Pour solution: 11-14	**Relative density:**	Normal weight concrete: 1.5 to 3.0
Flash point:	Not flammable. Not combustible.	**Partition coefficient: n-octanol/water:**	N/A
Melting/ freezing point:	N/A	**Solubility:**	N/A
Initial boiling and range:	N/A	**Viscosity:**	N/A
Evaporation rate:	N/A	**Auto-ignition temperature:**	N/A
Flammability (solid, gas):	N/A	**Decomposition temperature:**	N/A

SECTION 10. STABILITY AND REACTIVITY

Reactivity:	Cementitious materials react slowly with water forming hydrated compounds, releasing heat and producing a strong alkaline solution.
Chemical Stability:	Stable under recommended handling and storage conditions.
Possibility of hazardous reactions:	Hazardous reactions will not occur under normal conditions of storage and usage.
Conditions to avoid:	Keep dry until used. Avoid contact with water or incompatible compounds.
Incompatible materials:	Wet cement may react with acids, aluminum, ammonium salts, alkali and alkaline earth compounds. Concrete dissolves in hydrofluoric acid producing a corrosive gas, silicon tetrafluoride. Silica may react with powerful oxidizing agents such as fluorine, chlorine, trifluorides, and oxygen difluoride.
Hazardous decomposition products:	None

SECTION 11. TOXICOLOGICAL

Likely routes of exposure: Dermal contact. Eye contact. Inhalation. Ingestion.

EFFECTS OF ACUTE OVEREXPOSURE:

Eye Contact: Contact with wet, unhardened concrete may cause immediate irritation or alkaline burns. Dust created from sawing, cutting, grinding, or demolition of dry, hardened concrete may cause mechanical irritation.

Skin Contact: Contact with wet, unhardened concrete may cause dry skin, discomfort, and irritation.

Ingestion: Small amounts may cause temporary irritation. Large amounts could result in more serious caustic burns.

Inhalation: Not a factor with wet, unhardened material. Dry, hardened concrete is not harmful unless dust is created by sawing, grinding, cutting, or demolishing the concrete. Short-term exposure to that dust is likely to cause mechanical irritation of the mucous membranes and respiratory tract.

Carcinogenicity:

Ingredient name:	National Toxicology Program (NTP)	IARC	OSHA	NIOSH	ACGIH
Portland cement	Known to be a human carcinogen.	N/A	N/A	N/A	A4
Aggregates (Quartz)	Known to be a human carcinogen.	1	N/A	N/A	A2

Note: ACGIH.A4 - Not classifiable as a human carcinogen
ACGIH.A2 - Suspected human carcinogen
IARC.1 - Carcinogenic to humans; IARC - International Agency for Research on Cancer

Potential chronic health effects in general: Prolonged inhalation of respirable crystalline silica may be harmful and cause damage to organs (lungs). Excessive crystalline silica exposure may be associated with autoimmune disorders and other adverse health effects involving the kidney. In particular, the incidence of scleroderma (thickening of the skin caused by swelling and the thickening of fibrous tissue) appears to be higher in silicotic individuals.

Aspiration hazard: Due to the physical form of the product it is not an aspiration hazard.

SECTION 12. ECOLOGICAL INFORMATION

No ecological data available. Product is not expected to be ecotoxic or harmful to aquatic life. Product is a solid, therefore the following parameters are not affected by the components listed in Section 3: persistence and degradability, bio-accumulative potential, and mobility in soil.

SECTION 13. DISPOSAL CONSIDERATIONS

Dispose of waste product and unused product in compliance with International and local requirements. The generation of waste should be avoided or minimized wherever possible.

Used material which has become contaminated, may have significantly different characteristics based on the contaminant and should be evaluated accordingly. The product may be contaminated during use and it is the responsibility of the user to assess the appropriate disposal method in that situation.

SECTION 14. TRANSPORT INFORMATION

DOT Hazard Class:	Not regulated
UN Number or Shipping Name:	NA
Transport Hazard Class(es):	NA
Packing Group:	NA
Environmental Hazards:	None. Product is not expected to be ecotoxic or harmful to aquatic life
Special precautions:	It is the responsibility of the transporting entity to follow all applicable laws, regulations, and rules regarding the transport of this material.

SECTION 15. REGULATORY INFORMATION

OSHA Hazard Communication: This product is considered by OSHA to be a hazardous material and should be included in the employer's hazard communication program.

CERCLA/SUPERFUND: This product is not listed as a CERCLA hazardous substance.

RCRA: If discarded in its hardened form, this product would not be a hazardous waste either by listing characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

TSCA: Portland Cement and crystalline silica are exempt from reporting under the inventory update rule.

Refer to TOP-MIX CONCRETE PRIVATE LIMITED for local Regulatory information.

SECTION 16. OTHER INFORMATION

Date of Issue: 01 Nov 2023
Date of Origin: 01 Nov 2023
Development: All 16 GHS-SDS Sections

NOTICE TO READER

While the information provided in this safety data sheet is believed to provide a useful summary of the hazards of ready mixed concrete as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product. In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with ready mixed concrete to produce ready mixed concrete products. Users should review other relevant material safety data sheets before working with this ready mixed concrete or working on ready mixed concrete products.

The information in this SDS, including but not limited to product composition, recommended industrial hygiene, and safe handling procedures, was obtained from sources believed to be reliable and is offered in good faith as generally applicable; however, exact compositions may vary. Each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate. No warranty, either express or implied, is hereby made. Once this product is sold, the conditions or methods of handling, storage, use and disposal of the product are beyond the supplier's knowledge and control. Top-Mix Concrete Pte Ltd does not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of, or in any way connected with, the handling, storage, use, or disposal of the product. The recipient of this material should be aware of the possible existence of additional local regulations which may be applicable to this material.