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Concrete: Specification, Performance, Production and Conformity

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I.S. EN 206:2013+A2:2021

Roadstone Ltd

**Fassaroe
Co. Wicklow
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Approved by:
Kevin D. Mullaney
Director of Certification, NSAI

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SAFETY DATA SHEET READYMIX (WET) CONCRETE

1 IDENTIFICATION OF THE SUBSTANCE/ MIXTURE AND OF THE COMPANY/ UNDERTAKING

1.1 Product identifier

Readymix Concrete

1.2 Relevant identified uses of the substance or mixture and uses advised against

This safety datasheet applies to bulk Traditional Ready mixed concrete

Concrete is used industrially, by professionals, and by consumers in building and construction work.

1.3 Details of the supplier of the safety data sheet

Company Name	Roadstone Ltd
Company Address	Fortunestown Tallaght Dublin 24
Phone	(01) 404 1200
Email of Person Responsible for Safety Data Sheet	info@roadstone.ie

1.4 Emergency Telephone Number

National Poisons Information Centre Emergency Telephone (NPIC) number: **01 8092166**

Emergency telephone number available during office working hours.

2 HAZARDS IDENTIFICATION

2.1 Classification of the mixture

2.1.1 According to regulation (EC) No. 1272/2008 (CLP)

Hazard Class	Hazard Category	Hazard Statements
Skin corrosive	1	H315: Causes skin irritation
Skin sensitisation	1	H317: May cause an allergic skin reaction
Serious eye damage/eye irritation	3	H318: Causes serious eye damage

2.2 Label elements

According to Regulation (EC) No. 1272/2008 (CLP) Hazard Pictograms.



Signal Word
Danger

Hazard Statements

H315: Causes skin irritation
H317: May cause an allergic skin reaction
H318: Causes serious eye damage

Precautionary Statements

P102 Keep out of reach of children.
P280 Wear protective gloves/protective clothing/ eye protection/face protection.
P305+P351+P338+P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor/physician
P302+P352+P333+P313: IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention
P261+P304+P340+P312: Avoid breathing dust. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a doctor/physician if you feel unwell.
P501 Dispose of contents/container to: Harden by application of water and dispose of as concrete waste.

Supplemental information

Wet concrete, cement or mortar may cause irritation, dermatitis or serious alkali burns if in contact with skin or eyes.

2.3 Other Hazards

Concrete does not meet the criteria for PBT or vPvB in accordance with Annex XIII of REACH (Regulation (EC) No 1907/2006). Due to the high alkalinity, wet concrete may provoke skin and eye irritation. Contact with strongly alkaline solutions such as concrete can initially cause nerve damage and chemical burns may occur without the person being aware because they do not feel any pain. Contact with wet cement mixes such as wet concrete can also cause skin disease.

Irritant contact dermatitis is caused by the combination of the wetness, alkalinity, and abrasiveness of the ready-mixed concrete.

Allergic contact dermatitis may be caused by individual sensitivity to chromium compounds in cement. Levels of soluble chromium VI are kept below 2 ppm (0.0002%) of the total dry weight of the cement according to legislation specified under Section 15.

Wet concrete is not likely to create dust, but respirable dust may be released by the surface treatment, cutting, or drilling of hardened concrete. If inhaled in

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excessive quantities over a prolonged period or extended period, respirable dust can constitute a long-term health hazard. Respirable crystalline silica (quartz) has been associated with the lung disease silicosis. The quartz content of the aggregate used in concrete will vary depending on the type of mineral deposit from which the aggregate originated.

3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable as ready mixed concrete is a mixture, not a substance.

3.2 Mixtures

Ready-mixed concrete is a mixture of:

- A cementitious material which may be cement or a mixture of cement with an addition (e.g., fly ash, ground granulated blast furnace slag or silica fume).
- Fine and coarse aggregate.
- Water
- Admixtures or additives may be added to modify the properties of the fresh or hardened concrete. Pigments may be added to colour the product.

Substance	Portland cement
% by weight	5-25%
EC No	266-043-4

4 FIRST AID MEASURES

4.1 Description of first aid measures

4.1.1 General Advice

Consult a physician for all exposures except for minor instances. First aid responders should avoid contact with wet concrete.

4.1.2 Contact with Eyes

Immediately and thoroughly irrigate the eye(s) with eye wash solution (0.9% NaCl) or clean water for at least 20 minutes with the eyelid(s) open wide. Remove contact lenses, if present and easy to do and continue washing. Take care not to wash product from one eye to another. Do not rub eyes in order to avoid possible cornea damage as a result of mechanical stress. Seek immediate medical attention, preferably an ophthalmologist.

4.1.3 Skin Contact

Where skin contact occurs with wet concrete, either directly or through saturated clothing, the concrete must be washed off immediately with soap and water. If wet

concrete enters boots or gloves, or saturates clothing, remove article immediately and wash before re-use. Seek medical attention if skin irritation (redness, rash, blistering) or burns occur.

4.1.4 Ingestion

If person is conscious, rinse out mouth and give plenty of water to drink and seek further medical attention. Do not induce vomiting and never give anything by mouth to an unconscious person.

4.1.5 Inhalation

Inhalation is unlikely, but if concrete dust is inhaled, remove to fresh air. If breathing difficulties, discomfort or inflammation are experienced, seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Eyes: Eye contact with concrete (dry or wet) may cause serious and potentially irreversible injuries, including blindness.

Skin: Prolonged skin contact with wet concrete may cause serious burns because they develop without pain being felt (for example when kneeling in wet concrete even when wearing trousers). See also Section 2.3.

Wet and dry concrete may have an irritating effect on moist skin (due to sweat or humidity) after prolonged contact or may cause contact dermatitis after repeated contact.

Inhalation: Repeated inhalation of dust from concrete over a long period of time increases the risk of developing lung diseases. May cause respiratory irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Immediate medical attention should be sought following eye contact, preferably by an ophthalmologist. Alkali burns or irritation following skin contact require immediate medical attention. Take a copy of this Safety Data Sheet with you when seeking medical attention.

5 FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Readymix Concrete is not flammable.

5.2 Special hazards arising from the mixture

Readymix Concrete non-combustible, non-explosive and will not facilitate or sustain the combustion of other materials.

5.3 Advice for Fire-fighters

Readymix Concrete poses no fire-related hazards. If a fire occurs in the vicinity then general measures for a fire are applicable: Fire fighters should wear complete protective clothing including self-contained

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breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel
Wear protective equipment as described under Section 8 (Exposure Controls / Personal Protection) and follow the advice for safe handling and use given under Section 7 (Handling & Storage).

6.1.2 For emergency responders
Use suitable personal protective equipment (refer to Section 8 for details). Avoid contact with skin and eyes. Wear impervious clothing, gloves and boots. Wear eye protection.

6.2 Environmental precautions
Prevent further spillage if safe to do so. Do not let product enter drains or watercourses and prevent from being deposited anywhere other than the intended placement site.

6.3 Methods and material for containment and cleaning up

Clean up fresh (wet) concrete using suction or mechanical means if possible. Allow to harden before disposing of in a manner consistent with applicable regulations (see Section 13). To clean up hardened or dry concrete, avoid the use of compressed air, dry sweeping, or other methods likely to create airborne dust.

6.4 Reference to other sections
See section 8 (Exposure Controls / Personal Protection) and section 13 (Disposal Considerations) for more details.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Protective Measures

- Avoid skin and eye contact because contact with wet concrete can cause serious alkali burns and may also cause skin disease by the combination of the wetness, alkalinity and abrasiveness of ready mixed concrete.
- Thoroughly clean and wash all affected areas with soapy water.
- Do not sit or kneel on wet, unhardened concrete without wearing the correct personal protective equipment.
- When concrete enters boots or gloves or saturates clothing, the article should be removed immediately and washed before further use.

7.1.2 Information on General Occupation Hygiene

Do not handle or store near food and beverages or smoking materials. In dusty environment, wear dust mask and protective goggles. Use protective gloves to avoid skin contact. See section 8 for details on hand protection.

7.2 Conditions for safe storage, including any compatibilities

Ready-mixed concrete is normally used upon receipt. However, the hardening process of ready mixed concrete can be delayed by the use of additions and/or admixtures, extending the period during which the precautions given in this data sheet should continue to be taken and during which time access by unauthorised persons should be prevented.

7.3 Specific end uses

No additional information for the specific end uses (see section 1.2, Relevant identified use of the substance or mixture and uses advised against)

8 EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control parameters

Ingredient	OELV (8 hour TWA)	Legal Reference
Portland Cement	1mg/M ³	Chemical agents CoP 2011

8.2 Exposure controls

8.2.1 Appropriate Engineering controls:

Generation of dust is unlikely during placement of fresh concrete, but during surface treatment, cutting or drilling of hardened concrete, dust should be controlled by containment, suppression and extraction/filtration as required. Use appropriate specialist equipment for bulk handling and placement of fresh concrete.

8.2.2 Individual protection measures, such as personal protective equipment

General:

Avoid skin and eye contact. Do not sit or kneel on wet, un-hardened concrete without wearing the correct waterproof personal protective equipment. Do not eat, drink or smoke when working with concrete to avoid contact with skin or mouth. Use barrier cream and skin moisturisers as appropriate before, during and after working with concrete. Wash hands and skin if contaminated and after working with concrete. Where concrete enters boots or gloves, or saturates clothing, the articles should be removed immediately and washed before further use.

Eye/face protection:

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Goggles or protective face-shield tested to EN 166 should be worn to prevent wet concrete or dust entering the eyes.

Skin Protection:

Wear impermeable, wear- and alkali-resistant gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with good practices. Wash and dry hands. The selected protective gloves must satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Wear impermeable boots to protect feet. Safety wellington boots should be worn if working with wet concrete, with waterproof trousers pulled over them to help prevent concrete entering the boots.

Body Protection:

Outer clothing should be waterproof if contact with wet concrete is likely. Overalls and/or long-sleeve jackets and full length trousers should be worn to protect the skin.

If concrete saturates clothing, or enters gloves or boots, remove the articles immediately and wash before wearing again. In addition to the above, the use of skin barrier cream and aftercare products is also recommended.

Respiratory Protection:

If dust is present, particularly if cutting, drilling or carrying out surface treatment of hardened concrete use correctly fitted respiratory protection with filter type P3 to Standard EN14387, EN149 or equivalent.

Thermal Hazards:

Not applicable.

8.2.3 Environmental exposure controls

Air:

Emissions to air are unlikely when handling fresh concrete. If hardened concrete is cut, drilled or surface treatment is carried out, dust may be generated which must be controlled in accordance with available technology and regulatory requirements.

Water:

Do not allow concrete to enter drains or watercourses. The high pH of the product may have a negative ecological impact.

Soil/terrestrial environment:

No specific controls required. Allow to fully harden before removing.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Grey, granular paste unless pigmented
Odour	Slight, earthy odour
pH	11-13.5
Melting point / Freezing point	Not determined
Initial boiling point and boiling range	Not determined
Flash point	Not applicable
Evaporation point	Not applicable
Flammability (solid, gas)	Non-combustible solid
Upper/lower Flammability or explosive limits	Not applicable
Vapour Pressure and density	Not applicable
Relative Density	Above 2
Solubility(ies)	Not applicable
Partition coefficient: n-octanol/water	Not applicable as product is an inorganic mixture
Auto-Ignition temperature	Not applicable
Decomposition temperature	Not applicable as no organic peroxide present
Viscosity	Not applicable
Explosive properties	Not applicable
Oxidising Properties	Not applicable

9.2 Other information:

Not applicable.

10 STABILITY AND REACTIVITY

10.1 Reactivity

When mixed with water, the cement/s in the product will harden into a stable mass that is not reactive under normal conditions.

10.2 Chemical stability

Wet concrete is alkaline and incompatible with acids, with ammonium salts, with aluminium or other non-noble metals. Cement from concrete dissolves in hydrofluoric acid to produce corrosive silicon tetrafluoride gas. Cement from concrete reacts with water to form silicates and calcium hydroxide.

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Silicates in cement react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride.

Hardened concrete is stable under normal conditions

10.3 Possibility of hazardous reactions

Not applicable.

10.4 Conditions to avoid

Humid conditions during storage may cause lump formation and loss of product quality.

10.5 Incompatible materials

Acids, ammonium salts, aluminium or other non-noble metals. Uncontrolled use of aluminium powder in wet concrete should be avoided as hydrogen is produced.

10.6 Hazardous decomposition products

Cement from concrete reacts with water to form silicates and calcium hydroxide. Silicates in cement react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride.

11 TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects****(a) Acute toxicity**

Based on available data, the classification criteria are not met

(b) Skin corrosion/irritation**Category 2**

Fresh/wet concrete in contact with skin may cause thickening, cracking, or fissuring on the skin. Prolonged contact in combination with abrasion may cause severe burns.

(c) Serious eye damage/irritation**Category 1**

Direct contact may cause corneal damage by mechanical stress, immediate or delayed irritation or inflammation. Direct contact by splashes of wet concrete may cause effects ranging from moderate eye irritation (such as conjunctivitis or blepharitis) to chemical burns and permanent blindness.

(d) Respiratory or skin sensitisation**Category 1**

Some individuals may develop eczema upon exposure to fresh/wet concrete by either the high pH which induces irritant contact dermatitis after prolonged contact, or by an immunological reaction to soluble Cr(VI) which elicits allergic contact dermatitis. The response may appear in a variety of forms ranging from a mild rash to severe dermatitis. If the cement contains a soluble Cr (VI) reducing agent and as long as the period of effectiveness of the agent is not exceeded, a sensitising effect is not expected.

There is no indication of sensitisation of the respiratory system, and based on available data, the classification criteria are not met.

(e) Germ cell mutagenicity

Based on available data, the classification criteria are not met.

(f) Carcinogenicity

Based on available data, the classification criteria are not met.

(g) Reproductive toxicity

Based on available data, the classification criteria are not met

(h) STOT – single exposure**Category 3**

Fresh, ready-mixed concrete is a wet product, so is not likely to give rise to dust exposure. However, dust may be generated if hardened concrete is cut, drilled or surface treatment is carried out. Exposure to this dust may irritate the throat and respiratory tract. Coughing, sneezing, and shortness of breath may occur following exposures in excess of occupational exposure limits

(i) STOT – repeated exposure**Category 2**

Fresh, ready-mixed concrete is a wet product, so is not likely to give rise to dust exposure. However, dust may be generated if hardened concrete is cut, drilled or surface treatment is carried out. There is an indication that exposure to this dust may give rise to Chronic Obstructive Pulmonary Disease. The effects are acute and due to high exposures. Exposure to respirable crystalline silica has been linked to the lung disease silicosis.

(j) Aspiration hazard

Not applicable.

Information on likely routes of exposure:

Contact with skin & eyes.

Dust inhalation is only likely if hardened concrete is cut, drilled or surface treated.

Ingestion is unlikely.

Potential health effects – inhalation, ingestion, skin and eyes:

Inhalation of dust from the cutting, drilling and surface treatment of hardened concrete may lead to respiratory problems including Chronic Obstructive Pulmonary Disease. Exposure to respirable crystalline silica has been linked to the lung disease silicosis.

Ingestion is unlikely, but if it does occur may lead to irritation of the mouth, throat and digestive tract. The high alkalinity of the product may also cause serious burns to mouth, throat and digestive tract.

Contact with skin may cause irritation, thickening, cracking, eczema and dermatitis. May also lead to severe burns due to the high alkalinity of fresh, ready-mixed concrete. Contact dermatitis may also occur through sensitisation due to the presence of soluble Cr(VI).

Contact with eyes can lead to damage of the cornea through mechanical abrasion, severe burns and blindness.

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Dust exposure may irritate the throat and respiratory tract causing coughing, sneezing, and shortness of breath. Symptoms may not occur until many years after exposure.

Skin contact may cause thickening, cracking or fissuring on the skin, eczema and severe burns.

Eye contact may lead to irritation and severe burns that may lead to permanent damage including blindness.

*Note that contact with strongly alkaline solutions such as fresh ready-mixed concrete can initially cause nerve damage and chemical burns may occur without the person being aware because they do not feel any pain.

Additional Information:
Not available.

12 ECOLOGICAL INFORMATION**12.1 Toxicity**

The product is not hazardous to the environment. The addition of large amounts of the product to water may however, cause a rise in pH and may, therefore, be toxic to aquatic life under certain circumstances.

12.2 Persistence and degradability

Not relevant. Once hardened, concrete presents no toxicity risk.

12.3 Bio-accumulative potential

Not relevant. Once hardened, concrete presents no toxicity risk.

12.4 Mobility in soil

Not relevant. Immobile in soil.

12.5 Results of PBT and uPvB assessment

Not relevant. Once hardened, concrete presents no toxicity risk

12.6 Other adverse effects

None.

13 DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

Alternative uses should be sought for any surplus concrete. Wet concrete waste should be disposed of in accordance with local authority guidance/regulations. Avoid entry of wet concrete waste into sewage or drainage systems or bodies of water, e.g. streams and rivers.

14 TRANSPORT INFORMATION**Special Carriage Requirements:**

Not classified as hazardous for transport. No special precautions required other than those mentioned in Section 8.

14.1 UN number
Not applicable.

14.2 UN proper shipping name
Not applicable.

14.3 Transport hazard classes
Not applicable.

14.4 Packing group
Not applicable.

14.5 Environmental hazards
Not applicable.

14.6 Special precautions for user
Not applicable.

14.7 Transport in bulk according to Annex II of MARPOL 73778 and the IBC code
Not applicable.

15 REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

Concrete is a mixture under REACH Regulation (EC) No. 1907/2006 and CLP Regulation (EC) No. 1272/2008 and is not subject to registration.

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out on this substance.

**SAFETY DATA SHEET
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Safety Data Sheet updated according to Regulation EC No 1907/2006 (REACH) as amended by Regulation (EU) No.2015/830.

Abbreviations and Acronyms

ADR/RID: European agreements on the transport of dangerous goods by roads/railway.
CAS: Chemical abstracts service
OELV: Operational Exposure Limit Value
REACH: Registration, Evaluation and Authorisation of Chemicals.
SDS: Safety Data Sheet
EINECS: European Inventory of Existing Chemical Substances
STOT: Specific Target Organ Toxicity.
PPE: Personal Protective Equipment.

Training Advice

Safe pass training is a legal requirement for all construction workers. Companies must ensure that their workers read, understand, and apply the requirements of the SDS and wear and use PPE. PPE must be worn in accordance with the manufacturer's instructions and users must be trained on how to use.

Disclaimer

The information in this Safety Data Sheet was believed to be correct at the time of issue. However, no warranty is made or implied as to the accuracy or completeness of this information. If you have purchased this product for supply to a third party for use at work, it is your duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. If you are an employer, it is your duty to tell your employees and others who may be affected by any hazards described in this sheet and any of the precautions which should be taken. This safety data sheet does not constitute the user's own assessment of workplace risk and it is the user's sole responsibility to take all necessary precautions when using this product.