SECTION 1. IDENTIFICATION OF SUBSTANCE/PREPARATION & COMPANY/UNDERTAKING

1.1 PRODUCT IDENTIFIER
PRODUCT NAME: READY-MIXED CONCRETE
Trade Name(s): Traditional Concrete and ‘Top...’ range of products

1.2 RELEVANT IDENTIFIED USES AND USES ADVISED AGAINST:
This safety datasheet applies to bulk Traditional Ready-mixed Concrete and the ‘Top’ range of products. There is a separate Safety Data Sheet for Topflow Screed A, and for bagged concrete products.
Concrete is used industrially, by professionals, and by consumers in building and construction work.
Any uses not described above are advised against.

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET
Tarmac
Portland House
Bickenhill Lane
Solihull
Birmingham
B37 7BQ
T 0800 917 8888
W www.tarmac.com
E enquiries@tarmac.com

1.4 EMERGENCY TELEPHONE NUMBER:
0800 917 8888 (during office hours only)

SECTION 2. HAZARD IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE ACCORDING TO REGULATION (EC) 1272/2018
Serious Eye damage (Category 1), H318
Skin sensitisation (Category 1), H317
Skin Irritation (Category 2), H315

2.2 LABELLING ACCORDING TO REGULATION (EC) NO 1272/2008 (CLP)
Pictograms

Signal word: DANGER

Hazard statement(s)
H318 Causes serious eye damage
H317 May cause an allergic skin reaction
H315 Causes skin irritation
Precautionary statement(s)

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 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.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

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.

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>EC No.</th>
<th>Index No.</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland Cement</td>
<td></td>
<td></td>
<td>Skin Irrit. 2; Eye Irrit. 1; STOT SE 3; Skin Sens. 1 H315, H317, H318, H335</td>
<td></td>
</tr>
<tr>
<td>65997-15-1</td>
<td>266-043-4</td>
<td></td>
<td></td>
<td>&lt;20%</td>
</tr>
<tr>
<td>Quartz (respirable fraction)</td>
<td></td>
<td></td>
<td>STOT RE 2 H373i</td>
<td>Variable, likely to be than 5%</td>
</tr>
<tr>
<td>14808-60-7</td>
<td>238-878-4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the Hazard-Statements mentioned in this Section, see Section 16.
SECTION 4. FIRST AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES:

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

Eye contact:
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.

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.

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.

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.

SECTION 5. FIRE FIGHTING MEASURES

Concrete is not flammable, combustible or explosive and will not facilitate or sustain the combustion of other materials.

5.1 SUITABLE EXTINGUISHING MEDIA:
Not applicable

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE:
None.

5.3 ADVICE FOR FIREFIGHTERS:

None, other than standard general advice:
Wear fire retardant clothing. Do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. Use water spray to cool containers. Prevent runoff from fire control from entering waterways. Large fires should only be dealt with by trained personnel.

5.4 FURTHER INFORMATION:
No data available.
SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:
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 MATERIALS 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 SECTION:
For disposal, see Section 13. For PPE and exposure limits, see section 8.

SECTION 7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING:
7.1.1 PROTECTIVE MEASURES:
Avoid skin and eye contact. Wet concrete can cause serious alkali burns if in direct contact with skin or eyes. Contact with concrete may also cause skin disease 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 which may occur in cement.

Do not sit or kneel on wet, un-hardened concrete without wearing the correct personal protective equipment. Where concrete enters boots or gloves, or saturates clothing, the article should be removed immediately and washed before further use. See Section 8 for more detail.

7.1.2 INFORMATION ON GENERAL OCCUPATIONAL HYGIENE:
Always wash hands if contaminated, and before eating, drinking and smoking. Do not eat or drink in work areas. Remove contaminated clothing before entering canteens, vehicles, offices and other ‘clean’ areas. Clean overalls as necessary to concrete permeating through clothing to skin underneath.

7.2 STORAGE:
The material is normally delivered in bulk and used upon receipt. Storage of product is unlikely. Do not use aluminium containers for transport, handling or storage.

7.3 SPECIFIC END USES:
See section 1.2. No other data available.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 CONTROL PARAMETERS:

8.1.1 COMPONENTS WITH OCCUPATIONAL EXPOSURE LIMITS:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No.</th>
<th>Reference period</th>
<th>Exposure Limit</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland cement</td>
<td>65997-15-1</td>
<td>8hr TWA</td>
<td>10mg/m³ (Total) 4mg/m³ (Respirable)</td>
<td>UK. EH40 WEL</td>
</tr>
<tr>
<td>Nuisance dust</td>
<td>n/a</td>
<td>8hr TWA</td>
<td>10mg/m³ (Total) 4mg/m³ (Respirable)</td>
<td>UK. EH40 WEL</td>
</tr>
<tr>
<td>Respirable crystalline silica</td>
<td>14808-60-7</td>
<td>8hr TWA</td>
<td>0.1mg/m³</td>
<td>UK. EH40 WEL</td>
</tr>
</tbody>
</table>

W.E.L. = Workplace Exposure Limit    T.W.A. = Time Weighted Average
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 (PPE):

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:
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.

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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:

(a) Appearance
Grey, granular slurry or paste. Colour may be added. Hardened concrete is a solid mass.

(b) Odour
Slight, earthy odour

(c) Odour threshold
No data available

(d) pH
11-13.5 (20°C in water, water:solid ratio = 1:2)

(e) Melting point/freezing point
>1250°C

(f) Initial boiling point and boiling range
Not applicable

(g) Flash point
Not applicable

(h) Evaporation rate
Not applicable

(i) Flammability
Not applicable
9.2 OTHER SAFETY INFORMATION

No data available

SECTION 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. 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:
Does not cause hazardous reactions.

10.4 CONDITIONS TO AVOID:
None

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.

SECTION 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.

Signs and symptoms of exposure:
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.

SECTION 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 BIOACCUMULATIVE 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 VPVB ASSESSMENT:
Not relevant. Once hardened, concrete presents no toxicity risk

12.6 OTHER ADVERSE EFFECTS:
Not available.
SECTION 13. DISPOSAL CONSIDERATION

13.1 WASTE TREATMENT METHODS:
The product is not classified as hazardous waste, but dispose of in accordance with local and national legal requirements. Avoid entry into water and sewage systems.
Allow fresh/wet product or residue to harden before disposal.

Hardened product can be readily recycled as construction and demolition waste

EWC Codes:
Construction and demolition waste = 17 01 01
Concrete & concrete sludge from production of concrete = 10 13 14

SECTION 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
ADR/RID: - IMDG: - IATA: -

14.2 UN PROPER SHIPPING NAME ADR/RID/IMDG/IATA
Not dangerous goods

14.3 TRANSPORT HAZARD CLASS(ES)
Not applicable

14.4 PACKAGING GROUP
Not applicable

14.5 ENVIRONMENTAL HAZARDS
Not applicable

14.6 SPECIAL PRECAUTIONS FOR USER
Not applicable

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE PRODUCT:
Health & Safety at Work etc. Act 1974.
Control of Substances Hazardous to Health (CoSHH) Regulations 2002 (as amended).
Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulations 2008 (as amended).

Environmental Protection Act 1990.
Hazardous Waste Regulations 2005 (as amended).
The marketing and use of concrete is subject to a restriction on the content of soluble Cr (VI) (REACH Annex XVII point 47 Chromium VI compounds).

15.2 CHEMICAL SAFETY ASSESSMENT:
A chemical safety assessment has not been carried out for this substance.

16. OTHER INFORMATION

16.1 INDICATION OF CHANGES:
This is a revision of the format of the Safety Data Sheet to include all the subsections specified by the REACH Regulations as amended by Regulation 453/2010, CLP symbols, and updates to EH40 (third edition - 2018).

16.2 RECOMMENDED USES AND APPLICATIONS:
See Section 1.2. This product must only be used by professionals employed by Tarmac, with appropriate environmental licenses in place.

16.3 ABBREVIATIONS:
CLP Classification, labelling and packaging (Regulation (EC) No 1272/2008)
COSHH Control of Substances Hazardous to Health Regulations 2002
EWC European Waste Catalogue
HSE Health and Safety Executive
PBT Persistent, Bio-accumulative and Toxic
PPE Personal Protective Equipment
RE Repeated Exposure
16.4 REFERENCES:
- HSE, 2005: EH40 - Workplace Exposure Limits (as amended).
- Suppliers Safety Datasheets
- In-house data
- PPE Regulations
- CoSHH Regulations
- CLP Regulations
- ECHA Guidance on the Compilation of Safety Data Sheets

16.5 FULL TEXT OF H- AND P-STATEMENTS REFERRED TO UNDER SECTIONS 2 AND 3.

Hazard statement(s)
- H318 Causes serious eye damage
- H317 May cause an allergic skin reaction
- H315 Causes skin irritation

Precautionary statement(s)
- 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.

16.6 TRAINING ADVICE:
Wear and use of PPE, including RPE.
Employers must ensure their employees understand and apply the requirements of this Safety Data Sheet and any risk assessments (including COSHH assessments) relating to the use of this product.

16.6 FURTHER INFORMATION:
Contact Product Technical Support at Tarmac Limited using the details given in Section 1.
Further copies of this Safety Data Sheet may be obtained from Tarmac.
Prepared in accordance with Annex II of the REACH Regulation (EC) 1907/2006