1 IDENTIFICATION OF THE MIXTURE AND OF THE COMPANY

1.1 Product identifier

Ready-mixed concrete, ready-mixed mortar, floor screed, hydraulically bound base, cementitious special mixture

Handelsnamen

Premium concretes

AERODUR TB, AERODUR HB, FERRODUR, FLUIDUR, LIQUIDUR, REWADUR, Bankettbeton, TERRAPLAN, VELODUR, VELODUR Floor, VERIDUR

Concretes with at least 30 % reduction in CO; savings during production; determined according to the CSC's CO_2 module in comparison to the industry reference concrete of the same strength using average Portland cement CEM I as defined by the German cement association - VDZ (2017)

ECODUR 30, ECODUR 30 R, ECODUR 40, ECODUR 40 R, ECODUR 50, ECODUR 50 R, ECODUR 60, ECODUR 60 R

Standard concretes according to DIN

Concretes according to DIN 1045-2

Concretes according to directives and guidelines

Liquid-proof (FD/FDE) concretes, concretes for massive structures, water-resistant concretes, concretes according to ZTV Ing. / ZTV STB / ZTV-W

Flowable fill according to FGSV code of practice

CANADUR

Mortars

MURADUR LM, MURADUR NM, M 5 and M 10 according to EN 998-2 general purpose masonry mortar

Floor screeds

ESTRIFLOOR CA, ESTRIFLOOR CT, screed mixes

Unique Formula Identifier (UFI)

For concrete strength classes up to C50/60 or LC55/60: UFI: P9SQ-JD6D-3002-79D7

For concrete strength classes from C55/67 or LC60/66: UFI: TCSQ-1DVS-D00J-WMY9

For cementitious binders: UFI: TCSQ-1DVS-D00J-WMY9

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

The mixture is used to manufacture concrete pre-cast elements, building blocks, for extension works, road construction, civil engineering, etc. Relevant identified uses of the mixture advised against are not known.

The mixture is used industrially by professionals as well as by consumers in building and construction work.

The identified uses are assigned to process categories and use descriptions according to the ECHA guidance R.12 (ECHA-2010-G-05) (see Table).

PROC	Identified Uses - Use Description
3	Use in closed batch process
5	Mixing or blending in batch process for formulation of preparations and articles
7	Industrial spraying
8a	Transfer of substance or preparation from/to vessels/large containers at non-dedicated facilities
8b	Transfer of substance or preparation from/to vessels/large containers at dedicated facilities
11	Non-industrial spraying
26	Handling of solid inorganic substances at ambient temperature

1.3 Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt

Company name:	Dyckerhoff Beton GmbH & Co. KG, Niederlassung Elbe-Spree
Full address:	Greifswalder Straße 80L 10405 Berlin
Telephone number:	+49 30 / 42 84 71 - 20
Company name:	Dyckerhoff Beton GmbH & Co. KG, Niederlassung Rhein-Main-Taunus
Full address:	Liebigstraße 16 65439 Flörsheim
Telephone number:	+49 6145 / 95 69 - 0
Company name:	Dyckerhoff Beton GmbH & Co. KG, Niederlassung Saar-Mosel
Full address:	Hartmanns-Au 1 61199 Saarbrücken
Telephone number:	+49 681 / 85 99 - 0
Company name:	Dyckerhoff Beton GmbH & Co. KG, Niederlassung Rhein-Ruhr
Full address:	Am Blankenwasser 18 41468 Neuss
Telephone number:	+49 2131-718160
Company name:	Dyckerhoff Beton GmbH und Co. KG, Niederlassung Hamburg
Full address:	Eversween 30 21107 Hamburg
Telephone number:	+49 40 / 30 99 37 - 0
Company name:	Dyckerhoff Beton GmbH & Co. KG, Niederlassung Rheinland-Pfalz
Full address:	Rheinstraße 159 56564 Neuwied
Telephone number:	+49 2631 / 808 - 600
Company name:	Dyckerhoff Transportbeton Thüringen GmbH & Co. KG
Full address:	An der Lache 27 99086 Erfurt
Telephone number:	+49 361 / 74 22 7 - 0
Company name:	Dyckerhoff Transportbeton Schmalkalden GmbH & Co. KG
Full address:	An der Lache 27 99086 Erfurt
Telephone number:	+49 361 / 74 22 7 - 0
Company name:	Dyckerhoff Beton GmbH & Co. KG, Niederlassung Mobile Anlagen
Full address:	Biebricher Straße 68 65203 Wiesbaden
Telephone number:	+49 172 / 750 04 73
Company name:	Dyckerhoff Beton GmbH & Co. KG, Niederlassung Weser-Ems
Full address:	Erlenstraße 12 48485 Neuenkirchen
Telephone number:	+49 5973 / 9535 - 25
Company name:	Nordenhamer Transportbeton GmbH & Co. KG
Full address:	Weserstraße 16 26931 Elsfleth
Telephone number:	+49 4404 / 95 11 - 11
Company name:	TRAMIRA Transportbetonwerk Minden-Ravensberg GmbH & Co. KG
Full address:	Schaumburger Weg 32 32423 Minden
Telephone number:	+49 571 / 33 07 7

E-Mail address of person responsible for the SDS: reach@dyckerhoff.com

1.4 Emergency telephone number

Emergency telephone number: +49 551 19240 (Poison Control Center Northern Germany)
Hours of operation: 24 h / 7 days

2. HAZARDS IDENTIFICATION

The mixtures contain a strong alkaline solution.

2.1 Classification of the mixture

Classification according to Regulation (EC) No 1272/2008

Hazard class and category	- Skin irritation, Category 2 (Skin Irrit. 2) - Serious eye damage, Category 1 (Eye Dam. 1)
Hazard statements	- H315 Causes skin irritation - H318 Causes serious eye damage

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms	
Signal word	Danger
Hazard statements	H315 Causes skin irritation 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+P315 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention. P302+P352+P332+P313 IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse.

2.3 Other hazards

The mixtures do not meet the criteria for PBT or vPvB in accordance with Annex XIII of REACH (Regulation (EC) No 1907/2006).

Regulation (EU) 2023/2055 on the restriction of microplastics

Concretes can contain ≥ 0.01% microplastic particles in accordance with Regulation (EU) 2023/2055 (see indication on the delivery note). However, when processed properly, the microplastic particles are embedded in solid concrete or modified in such a way that they no longer fall under the definition of microplastics and therefore no longer pose a threat to the environment. Follow the manufacturer's usage and disposal instructions to avoid the release of microplastics into the environment. Do not allow cleaning water to enter the environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable.

3.2 Mixtures

Name	Portland cement clinker		Flue dust from production of cement clinker	
EINECS number	266-043-4		270-659-9	
CAS number	65997-15-1		68475-76-3	
Registration number (REACH)	exempted		01-2119486767-17-xxxx	
Concentration range [wt.-%]	2 - 60		0 – 3	
Classification according to Regulation (EC) No 1272/2008	Skin Irrit. 2 Skin Sens. 1B Eye Dam. 1 STOT SE 3	H315 H317 H318 H335	Skin Irrit. 2 Skin Sens. 1B Eye Dam. 1 STOT SE 3	H315 H317 H318 H335

4. FIRST AID MEASURES

4.1 Description of first aid measures

General notes

No personal protective equipment is needed for first aid responders. First aid workers should avoid contact with the mixture.

Following contact with eyes

Do not rub eyes in order to avoid possible cornea damage as a result of mechanical stress. Remove contact lenses if any. Incline head to injured eye, open the eyelid(s) widely and flush eye(s) immediately by thoroughly rinsing with plenty of clean water for at least 20 minutes to remove all particles. Avoid flushing particles into uninjured eye. If possible, use isotonic water (0.9 % NaCl). Contact a specialist of occupational medicine or an eye specialist.

Following skin contact

Remove contaminated clothing, footwear, watches, etc. and clean thoroughly before re-using them.
Seek medical treatment in all cases of irritation or burns.

Following ingestion

Do not induce vomiting. If the person is conscious, wash out mouth with water and give plenty of water to drink.
Get immediate medical attention or contact the anti-poison centre.

4.2 Most important symptoms and effects, both acute and delayed

Eyes: Eye contact with the mixtures may cause serious and potentially irreversible injuries.

Skin: The mixtures may have an irritating effect on the skin after prolonged contact or may cause contact dermatitis after repeated contact. Prolonged skin contact with the mixtures may cause serious burns because they develop without pain being felt (for example when kneeling in wet mortar or concrete even when wearing trousers).

For more details see Reference (1).

Environment: Under normal use, the mixtures are not hazardous to the environment.

4.3 Indication of any immediate medical attention and special treatment needed

When contacting a physician, take this SDS with you.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

The mixtures are not flammable.

5.2 Special hazards arising from the mixture

The mixtures are non-combustible and non-explosive and will not facilitate or sustain the combustion of other materials.

5.3 Advice for fire-fighters

The mixtures pose no fire-related hazards. No need for special protective equipment for fire fighters.

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 8.2.2 and follow the advice for safe handling and use given under Section 7.

6.1.2 For emergency responders

Emergency procedures are not required.

6.2 Environmental precautions

Do not wash the mixtures down sewage and drainage systems or into bodies of water (e.g. streams).

6.3 Methods and material for containment and cleaning up

Collect the spillage and place in a container or on a foil. Allow material to dry and solidify before disposal as described under Section 13.

6.4 Reference to other sections

See sections 8 and 13 for more details.

7. HANDLING AND STORAGE

Do not handle or store near food and beverages or smoking materials.

7.1 Precautions for safe handling

7.1.1 Protective measures

Follow the recommendations as given under Section 8.

7.1.2 Information on general occupational hygiene

Do not handle or store near food and beverages or smoking materials.

Use protective gloves to avoid skin contact.

7.2 Conditions for safe storage, including any incompatibilities

The mixtures are not storable.

7.3 Specific end use(s)

No additional information for the specific end uses (see section 1.2).

8. EXPOSURE CONROL/PERSONAL PROTECTION

8.1 Control parameters

Limit value	Limit value type	Eposure	Reference
Soluble chromium(VI): 2 ppm	dermal	short term (acute) long term (repeated)	EN 196-10

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Measures to avoid skin contact according to state-of-the-art.

8.2.2 Individual protection measures such as personal protection equipment

General

Avoid contact with eyes and skin. During work avoid kneeling in fresh mortar or concrete wherever possible. If kneeling is absolutely necessary then appropriate waterproof personal protective equipment must be worn. Remove contaminated clothing.

Eye/face protection

Wear approved glasses or safety goggles according to EN 166 when handling the mixtures to prevent contact with eyes.

Skin protection

Use impervious, abrasion and alkali resistant gloves (made of low soluble Cr(VI) containing material) internally lined with cotton, boots, closed long-sleeved protective clothing as well as skin care products (including barrier creams) to protect the skin from prolonged contact with the mixtures. Particular care should be taken to ensure that the mixtures do not enter the boots.
In some circumstances, such as when laying concrete or screed, waterproof trousers or kneepads are necessary.

Respiratory protection

For spraying (PROC 7 und PROC 11), use appropriate respiratory protection, e.g. half-face mask with particle filter type FFP1 (e.g. according to EN 149, EN 140, EN 14387, EN 1827) or national standard.

8.2.3 Environmental exposure controls

Water: Environmental exposure control is relevant for the aquatic environment as emissions of the mixtures in the different life-cycle stages (production and use) mainly apply to ground and waste water. The aquatic effect and risk assessment cover the effect on organisms/ecosystems due to possible pH changes related to hydroxide discharges. The toxicity of other dissolved inorganic ions is expected to be negligible compared to the potential pH effect.

Soil: No special emission control measures are necessary for the exposure to the terrestrial environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Parameter	Value
Appearance	moist to liquid
Colour	Usually grey. The mixtures can also be coloured.
Odour	odourless
pH (T = 20°C)	11.0 – 13.5
Main particle size	1 – 32 mm
Density	1.00 – 3.50 g/cm^3

All other physical-chemical parameters according to Annex II of the Regulation (EC) No 1907/2006 as amended by Regulation (EU) No 453/2010 are not relevant.

9.2 Other information

Not applicable.

10. STABILITY UND REACTIVITY

10.1 Reactivity

The mixtures are hydraulic materials. A deliberate reaction occurs with the water contained in the mixtures causing to form a hardened mass which does not react with the environment.

10.2 Chemical stability

The mixtures are alkaline and incompatible with acids, with ammonium salts, with aluminium or other non-noble metals. The mixtures dissolve in hydrofluoric acid to produce corrosive silicon tetrafluoride gas. Contact with these incompatible materials should be avoided.

The mixtures should be used within 90 minutes after production. Afterwards the mixtures harden and form a solid mass.

10.3 Possibility of hazardous reactions

Not applicable.

10.4 Conditions to avoid

The subsequent addition of water should be avoided as this causes a reduction in the quality of the product.

10.5 Incompatible materials

Uncontrolled use of aluminium powder in the mixtures should be avoided as hydrogen is produced.

10.6 Hazardous decomposition products

The mixtures will not decompose into any hazardous products.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Hazard class	Cat.	Effect	Reference
Acute toxicity - dermal	-	Limit test (dry cement which is present in the mixtures, rabbit, 24 hours contact, 2000 mg/kg body weight - no lethality. Based on available data, the classification criteria are not met.	(3)
Akute toxicity - oral	-	No indication of oral toxicity from studies with cement and cement kiln dust which are present in the mixtures. Based on available data, the classification criteria are not met.	Literature survey
Skin corrosion/ irritation	2	Contact with the skin may cause thickening, cracking or fissuring of the skin. Prolonged contact in combination with abrasion may cause severe burns.	(3) and human experience
Serious eye damage/ irritation	1	Portland cement clinker (main constituent of cement and thus present in the mixtures) caused a mixed picture of corneal effects and the calculated irritation index was 128. Direct contact with the mixtures may cause corneal damage by mechanical stress, immediate or delayed irritation or inflammation. Direct contact by splashes of the mixtures may cause effects ranging from moderate eye irritation (e.g. conjunctivitis or blepharitis) to chemical burns and blindness.	(9), (10) and human experience
Skin sensitisation	1B	Some individuals may develop eczema upon exposure to the mixtures, caused either by 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 and is a combination of the two above mentioned mechanisms. If the mixture contains a soluble Cr(VI) reducing agent and as long as the mentioned period of effectiveness of the chromate reduction is not exceeded, a sensitising effect is not expected.	(4), (11)
Germ cell mutagenicity	-	No indication. Based on available data, the classification criteria are not met.	(12), (13)
Carcinogenicity	-	No causal association has been established between exposure to the mixtures and cancer.	(1), (14)
Reproductive toxicity	-	Based on available data, the classification criteria are not met.	No evidence from human experience

Medical conditions aggravated by exposure

Contact with the mixture may aggravate existing skin or eye diseases.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

The product is not hazardous to the environment. Ecotoxicological tests with Portland cement which is present in the mixtures on Daphnia magna [Reference (5)] and Selenastrum coli [Reference (6)] have shown little toxicological impact. Therefore LC50 and EC50 values could not be determined [Reference (7)]. There is no indication of sediment phase toxicity [Reference (8)]. The addition of large amounts of the mixtures 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 as the mixtures are inorganic mineralogical materials.

12.3 Bioaccumulative potential

Not relevant as the mixtures are inorganic mineralogical materials.

12.4 Mobility in soil

Not relevant as the mixtures are inorganic mineralogical materials.

12.5 Results of PBT and vPvB assessment

Not relevant as the mixtures are inorganic mineralogical materials.

12.6 Other adverse effects

Not relevant.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Allow to harden, avoid entry in sewage and drainage systems or into bodies of water (e.g. streams). Dispose of the hardened product as concrete waste according to the local legislation.

EWC entries: 10 13 14 (waste from manufacturing of cement - waste concrete or concrete sludge) or 17 01 01 (construction and demolition wastes - concrete).

14. TRANSPORT INFORMATION

The mixtures are not covered by the international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID), therefore no classification is required.

14.1 UN number

Not relevant.

14.2 UN proper shipping name

Not relevant.

14.3 Transport hazard class(es)

Not relevant.

14.4 Packing group

Not relevant.

14.5 Environmental hazards

Not relevant.

14.6 Special precautions for user

Not relevant.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not relevant.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the mixture

The product is a mixture according to Regulation (EC) No 1907/2006 (REACH) and is not subject to registration.
The marketing and use of cement and cement-containing mixtures is subject to a restriction on the content of soluble Cr(VI) (REACH Annex XVII point 47: Chromium(VI) compounds):

1. Cement and cement-containing mixtures shall not be placed on the market, or used, if they contain, when hydrated, more than 2 mg/kg (0.0002 %) soluble chromium(VI) of the total dry weight of the cement.
2. If reducing agents are used, then without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of cement or cement-containing mixtures is visibly, legibly and indelibly marked with information on the packing date, as well as on the storage conditions and the storage period appropriate to maintaining the activity of the reducing agent and to keeping the content of soluble chromium(VI) below the limit indicated in paragraph 1.
3. By way of derogation, paragraphs 1 and 2 shall not apply to the placing on the market for, and use in, controlled closed and totally automated processes in which cement and cement-containing mixtures are handled solely by machines and in which there is no possibility of contact with the skin.

National legislation/requirements

The recipient/user of the product is referred to relevant national measures, regulations and laws of that country where the product is used.

15.2 Chemical Safety Assessment

No chemical safety assessment is required for mixtures.

16. OTHER INFORMATION

16.1 Indication of changes

New version according to Regulation (EU) No 453/2010.

16.2 Abbreviations and acronyms

ADR/RID	Agreement on the transport of dangerous goods by road/Regulations on the international transport of dangerous goods by rail
CAS	Chemical Abstracts Service
EC50	Half maximal effective concentration
ECHA	European Chemicals Agency
EWC	European Waste Catalogue
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Average letal concentration
PBT	Persistent, bio-accumulative and toxic
PROC	Process category
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Regulation (EC) No 1907/2006)
SDS	Safety data sheet
vPvB	Very persistent, very bioaccumulative

16.3 Relevant hazard and precautionary statements

Hazard statements

H315 Causes skin irritation

H317 May cause an allergic skin reaction

H318 Causes serious eye damage

H335 May cause respiratory irritation

Precautionary statements

P102 Keep out of reach of children.

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

P305+P351+P338+P315 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

P302+P352+P332+P313 IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.

P362+P364 Take off contaminated clothing and wash it before reuse.

16.4 Key literature references and sources of data

(1) Portland Cement Dust - Hazard assessment document EH75/7, UK Health and Safety Executive, 2006: http://www.hse.gov.uk/pubns/web/portlandcement.pdf

(2) BGR 195 Benutzung von Schutzhandschuhen. Deutsche Gesetzliche Unfallversicherung e.V. (DGUV) Fachausschuss „Persönliche Schutzausrüstung“ der DGUV April 1994, aktualisiert Oktober 2007, siehe: http://www.bgn.de/9422?wc_lkm=7205

(3) Observations on the effects of skin irritation caused by cement, Kietzman et al, Dermatosen, 47, 5, 184-189 (1999).

(4) Epidemiological assessment of the occurrence of allergic dermatitis in workers in the construction industry related to the content of Cr(VI) in cement, NIOH, Page 11, 2003.

(5) U.S. EPA, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 3rd ed. EPA/600/7-91/002, Environmental Monitoring and Support Laboratory, U.S. EPA, Cincinnati, OH (1994a).

(6) U.S. EPA, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 4th ed. EPA/600/4-90/027F, Environmental Monitoring and Support Laboratory, U.S. EPA, Cincinnati, OH (1993).

(7) Environmental Impact of Construction and Repair Materials on Surface and Ground Waters. Summary of Methodology, Laboratory Results, and Model Development. NCHRP report 448, National Academy Press, Washington, D.C., 2001.

(8) Final report Sediment Phase Toxicity Test Results with Corophium volutator for Portland clinker prepared for Norcem A.S. by AnalyCen Ecotox AS, 2007.

(9) TNO report V8815/09, Evaluation of eye irritation potential of cement clinker G in vitro using the isolated chicken eye test, April 2010.

(10) TNO report V8815/10, Evaluation of eye irritation potential of cement clinker W in vitro using the isolated chicken eye test, April 2010.

(11) European Commission’s Scientific Committee on Toxicology, Ecotoxicology and the Environment (SCTEE) opinion of the risks to health from Cr (VI) in cement (Europäische Kommission, 2002): http://ec.europa.eu/health/archive/ph_risk/committees/sct/documents/out158_en.pdf

(12) Investigation of the cytotoxic and proinflammatory effects of cement dusts in rat alveolar macrophages, Van Berlo et al, Chem. Res. Toxicol., 2009 Sept; 22(9):1548-58

(13) Cytotoxicity and genotoxicity of cement dusts in A549 human epithelial lung cells in vitro; Gminski et al, Abstract DGPT conference Mainz, 2008.

(14) Comments on a recommendation from the American Conference of governmental industrial Hygienists to change the threshold limit value for Portland cement, Patrick A. Hessel and John F. Gamble, EpiLung Consulting, June 2008.

16.5 Training advice

In addition to health, safety and environmental training programs for their workers, companies must ensure that workers read, understand and apply the requirements of this SDS.

16.6 Disclaimer

The information on this data sheet reflects the currently available knowledge and is reliable provided that the product is used under the prescribed conditions and in accordance with the application specified on the packaging and/or in the technical guidance literature. Any other use of the product, including the use of the product in combination with any other product or any other process, is the responsibility of the user.

It is implicit that the user is responsible for determining appropriate safety measures and for applying the legislation covering his/her own activities.