

Cementitious Products in Contact with Drinking Water

Admixture Positive list

4MS Common Approach:

Part 1 –Transitional Admixture Constituents

Part 2 – Admixture Constituents under consideration

1st Revision:
24th November 2016

France, Germany, the Netherlands and the United Kingdom (4MS) work together in the framework of the 4MS Common Approach. This common approach aims for the convergence of the respective national approval schemes for materials and products in contact with drinking water.

The 4MS have adopted this document as their common basis for implementing the concept of acceptable admixture ingredients for cementitious materials in their national regulations. The document is subject to revisions agreed by the 4MS.

This document is separated into two parts. Part 1 of this document is the transitional admixture constituents that have been accepted by at least one of the 4MS as not requiring further testing. Part 2 of this document contains admixture constituents that require further investigation.

Further information may be obtained from any of the competent authorities of the 4MS.

Bundesministerium für Gesundheit (Deutschland)
Ministère du Travail, de L'Emploi et de la Santé (France)
Ministerie van Infrastructuur en Milieu (Netherland)
Department for Environment, Food and Rural Affairs (United Kingdom)

Introduction

This document has been prepared in accordance with the 4MS agreement on co-operation concerning convergence and mutual recognition.

The 4MS (France, Germany, the Netherlands and UK) have committed themselves to work towards common practices for the assessment and approval of products in contact with drinking water. Principles have already been established for use with metallic materials and for the organic materials by control of constituent substances and risk-based testing of finished products against defined acceptance criteria. These principles have been applied – insofar as they are relevant - to cementitious products and are based on an analysis of established national practices.

The document is in two separate but related parts:

- Part 1 – Transitional Admixture Constituents, and
- Part 2 – Admixture Constituents requiring further information

Part 1 of this document is composed out of information from the National Approval Systems of the 4 MS-Group (France, Germany, The Netherlands and UK) with the assistance of the admixture industry. It is based upon the current national requirements of the 4MS along with the current maximum dose (worst case) within the cement industry, this list is currently in a transitional concept before a decision to transfer into a fully accepted format. For some components due to CMR concerns MS have withdrawn the use of the component in admixtures, this is indicated on the table below.

Part 2 of this document is composed of a list of constituents which may be used within the cementitious industry as an admixture constituent, but further information is required before it can be transferred to Part 1. Some components on this list (indicated) have been placed on the REACH Annex XIV, for continued use individual MS authorization is required.

This document is derived from:

- German UBA-guidelines;
- List of Approved Products for use in Public Water Supply in the United Kingdom, Annex 2, Table 2.4 (<http://dwi.defra.gov.uk/drinking-water-products/approved-products/soslistcurrent.pdf>)
- List Adjuvants Avril 2000
- Netherlands – currently not covered in regulations

In its final form this document could be addressed to:

- the European Commission as a proposal for regulating organic substances used for cementitious products in contact with drinking water;
- Member States as a proposal for regulating organic substances used for cementitious products in contact with drinking water in their national acceptance schemes according to Article 10 of the Council Directive 98/83/EC on the Quality of Water Intended for Human Consumption (DWD).

Principles and approach

The Accepted Admixtures Constituents List (AACL) consists of the substances accepted for the production of an admixture used in cementitious PDWs.

For the listing of a substance an assessment of the substance including its toxicological evaluation and its possible reaction products has been carried out, or that it has been deemed as being a substance of a non-hazardous nature. As a result of the assessment some substances may be restricted in form of a limit value of the substance in the drinking water (Drinking Water Positive List Limit - DWPLL) or in form of a restriction of its use within the admixture.

The 4MS have compared their current practices and have identified some shared principles on which to base their common approach:

- Practice for drinking water can be based on that already in operation at the European level for foodstuff positive lists (EC Regulation No 10/2011) and administered by EFSA.
- When new substances are proposed for addition to the ACL, the preferred route to approval will be to subject them to the Assessment of Cementitious Products in contact with Drinking Water procedure.

Abbreviations

AACL - Accepted Admixtures Constituents List

BPR – EU Biocides Regulation 528/2012

CF – Conversion Factor (based on the S/V and contact time in a migration test to assess the toxicology impact in the operating situation) in d/dm

CMR – substances identified as carcinogenic, mutagenic and toxic for reproduction under Regulation 1272/2008

DWD – Council Directive 98/83/EC - Drinking Water Directive

DWPLL – Drinking Water Positive List Limit

EFSA – European Food Safety Authority

JMC – 4 MS Group Joint Management Committee

MS – Member State of the European Union

MTC – Maximum Tolerable Concentration

NAS – National Approval System

PDW – Product coming into contact with drinking water

PT6 – Product Type 6 (under BPR) *products used in the preservation of manufactured products, other than foodstuffs, feeding stuffs, cosmetics and medicinal products or medical devices by control of microbial deterioration to ensure shelf life. Products used as preservatives for the storage or use of rodenticide, insecticide or other baits. If a biocide is added to preserve or protect the admixture from microbiological attack while stored it falls under this category.*

PT10 - Product Type 10 (under BPR) *products used in the preservation of masonry, composite materials or other construction materials other than wood by the control of microbiological and algal attack. Where the admixture is considered to be a construction material.*

RG-CPDW – Regulators Group on Construction Products in contact with Drinking Water

SCF – Scientific Committee on Food

SML – Specific Migration Limit

TDI – Tolerable Daily Intake

UBA – Umweltbundesamt

WHO – World Health Organization

Part 1 – Transitional Admixture Constituents

<u>Substance</u>	<u>CAS No</u>	<u>MTC (in µg/l) if applicable¹⁵</u>	<u>Food contact material</u>	<u>SML (in mg/kg) if applicable</u>
Abietic acid	000514-10-3		Yes	
Acetic acid	000064-19-7		Yes ³	
Acetic anhydride	000108-24-7		Yes	
Alcohols, C6-12, ethoxylated	068439-45-2			
Alcohols, C12-14, ethoxylated	068439-50-9	1500		
Alcohols, C12-C16, ethoxylated	068551-12-2	1500		
Alcohols, C9-11 ethoxylated sulfates, Na salts	096130-61-9	1500		
Alcohols, C10-16, ethoxylated, sulfates, Na salts	068585-34-2	1500		
Alcohols, C12-14, ethoxylated, sulfates, Na salts	068891-38-3	1500		
Alcohols, C12-14, secondary	126950-60-5	1500		
Alcohols, C12-14, secondary ethoxylated	084133-50-6	250		5
Alkene (sulfonic acid, C14-16-alkane hydroxy & C14-16-alkene Na salts)	068439-57-6	1500		
Alkyl aryl sulfonate (sodium dodecylbenzinesulfonate)	025155-30-0	1500	Yes	30
Alkyl benzene sulfonate, Na (mono C10-14-alkyl derivatives Na)	085117-50-6	1500		
Alkyl dimethylamine oxide	070592-80-2 & 001643-20-5	1500		
Alkyl sulfate, Na (mono C10-16-alkyl esters)	068585-47-7	1500	Yes	
Alkylaryl sulfonate (Benzene sulfonic acid, C10-13 derivs, Na)	068411-30-3	1500	Yes	30
Alkylpolyethoxypolypropoxy benzylether	068154-99-4			
Aluminium formate	007360-53-4	30 (NL)*		
Aluminium hydroxide	021645-51-2	30 (NL)*	Yes	
Aluminium sulfate	010043-01-3	30 (NL)*	Yes	
Aluminium sulfate-14-hydrate	016828-12-9	30 (NL)*	Yes	
Aluminium sulfate-6-hydrate	017927-65-0	30 (NL)*	Yes	
Alumino silicate cenospheres	093924-19-7	30 (NL)*		

<u>Substance</u>	<u>CAS No</u>	<u>MTC (in µg/l) if applicable¹⁵</u>	<u>Food contact material</u>	<u>SML (in mg/kg) if applicable</u>
Amines, coco alkyldimethyl, N-oxides	061788-90-7	<0.1 amines (NL)		
Aminotris(methylphosphonic acid), ATMP	006419-19-8	<0.1 amines (NL)		
Ammonium stearate	001002-89-7		Yes	
Alkyl sulfate sodium (mono C9-13 alkyl esters)	072906-11-7	300	Yes	6
Anionic, docusate sodium	000577-11-7			
Ashes (residues)	068131-74-8			
Benzenesulfonic acid 4-C10-13-sec-alk derivs	085536-14-7			
1,2 Benzoisothiazol-3 (2H)-one (BIT) ¹	002634-33-5	25 ^a	Yes	
Benzylalcoholhemiformal	014548-60-8			
2-Benzyl-4-chloro phenol (Chlorophen) ¹	000120-32-1			
Biphenyl-2-ol ¹	000090-43-7			
2-Brom-2-nitropropan-1,3-diol (Bronopol) ¹	000052-51-7			
Butanedioic acid, sulfo-, C-(2-coco amidoethyl) esters, disodium salts	068784-08-7			
Butyl stearate	000123-95-5		Yes	
Calcium bis-dihydrogenorthophosphate	007758-23-8		Yes	
Calcium carbonate	000471-34-1		Yes	
Calcium carbonate (limestone)	001317-65-3		Yes	
Calcium chloride	010043-52-4		Yes	
Calcium formate	000544-17-2			
Calcium hydroxide	001305-62-0		Yes	
Calcium lignosulfonate	008061-52-7	12	Yes	0.24
Calcium nitrate	015245-12-2			
Calcium nitrate (anhydrous)	010124-37-5			
Calcium nitrate (tetrahydrate)	013477-34-4			
Calcium nitrite	013780-06-8			
Calcium stearate	001592-23-0		Yes	

<u>Substance</u>	<u>CAS No</u>	<u>MTC (in µg/l) if applicable¹⁵</u>	<u>Food contact material</u>	<u>SML (in mg/kg) if applicable</u>
Calcium sulfate	007778-18-9		Yes	
Capric acid (Decanoic acid)	052627-73-3		Yes	
Caprylic acid (Octanoic acid)	000124-07-2		Yes	
Carboxy methyl cellulose	009000-11-7		Yes	
Carboxy methyl cellulose, Na salt	009004-32-4		Yes	
Cellulose	009004-34-6		Yes	
Chlorocresol ¹	000059-50-7			
CIT (26172-55-4) / MIT (2682-20-4) blend ¹	055965-55-9	25 ^a	Yes ⁴	
Citric acid (anhydrous)	000077-92-9		Yes	
Citric acid, monohydrate	005949-29-1		Yes	
Coconut diethanolamide	061791-31-9			
Coconut diethanolamide (coco N,N-bis hydroxyethyl)	068603-42-9			
N-Coco sulfosuccinamate, disodium (Butanoic acid,4-amino-4-oxy-2-sulfo-, N-coco alkyl derivs)	084712-53-8			
Copper nitrate	003251-23-8			
Cyclohexapentylose (alpha-Dextrin)	010016-20-3		Yes	
beta-Dextrin	007585-39-9		Yes	
Dextrose / Maltodextrin	014431-43-7			
D-glucitol (Sorbitol)	000050-70-4		Yes	
2,2-dibromo-3-nitrilopropionamide (DBNPA) ¹	010222-01-2			
2,3-dihydroxypropyl (dihydrogen phosphate), Na salt	017603-42-8			
Dimethyl siloxane reaction product with silica	067762-90-7			
Disodium dodecylethoxylate sulphosuccinate	039354-45-5			
Disodium hydrogenorthophosphate	007558-79-4		Yes	
Dodecyldimethylamine oxide	001643-20-5			
Ethoxylated tallow amine	061791-26-2	<0.1 amines (NL)		
Ethyl cellulose	009004-57-3		Yes	

<u>Substance</u>	<u>CAS No</u>	<u>MTC (in µg/l) if applicable¹⁵</u>	<u>Food contact material</u>	<u>SML (in mg/kg) if applicable</u>
(Ethylenedioxy)-Dimethanol ¹	003586-55-8			
Fatty acids, C16-18 (Stearic acid)	067701-03-5		Yes	
Fatty acids, coco, reaction products with ethanolamine, ethoxylated	061791-08-0			
Fatty acids, tall oils	061790-12-3		Yes	
Formaldehyde	000050-00-0	750	Yes	15
Formic acid	000064-18-6		Yes	
Glucose	000050-99-7		Yes	
Glucose syrup - hydrogenated	068648-65-7			
Hexahydro-1,3,5-tris (hydroxyethyl)-s-triazine (N-formal)	004719-04-4			
Hydroxy ethyl cellulose	009004-62-0		Yes	
Hydroxy ethyl methyl cellulose	009032-42-2		Yes	
Hydroxy methyl cellulose	037353-59-6		Yes	
Hydroxyethylidiphosphonic acid	022987-21-9			
Iron sulfate	007782-63-0		Yes	
Kaolin	001332-58-7		Yes	
Lactic acid	000050-21-5		Yes ⁵	
Magnesium lignosulfonate	008061-54-9	12	Yes	0.24
Magnesium nitrate	001377-60-3			
Magnesium sulfate	007487-88-9		Yes	
Melamine formaldehyde, toluenesulfonamide polymer	068891-01-0			
Methyl carboxy methyl cellulose	037206-01-2		Yes	
Methyl cellulose	009004-67-5		Yes	
Methyl ethyl cellulose	009004-59-5		Yes	
Methyl hydroxypropyl cellulose	009004-65-3		Yes	
2-Methyl-4-isothiazolin-3-one	002682-20-4	25	Yes ²	0.50
Naphthalenesulfonic acids, reaction products with formaldehyde, , Na salts	091078-68-1			

<u>Substance</u>	<u>CAS No</u>	<u>MTC (in µg/l) if applicable¹⁵</u>	<u>Food contact material</u>	<u>SML (in mg/kg) if applicable</u>
Naphthalenesulfonic acid, polymer with formaldehyde, Ca salt,	037293-74-6			
2-Naphthalenesulfonic acid, polymer with formaldehyde, Na salt	036290-04-7			
2-n-Octyl-4-isothiazolin-3-on (OIT) ¹	026530-20-1	25^a		
Oleic acid	000112-80-1		Yes⁶	
Ortho-phenyl-phenate (OPP) ¹	000132-27-4			
1,5-Pentandial (Glutaraldehyde) ¹	000111-30-8			
Polyphosphoric acids, Na salts	068915-31-1			
Phosphonic acid	013598-36-2			
2-Phosphono-butane 1,2,4-tricarboxylic acid	037971-36-1			
Phosphoric acid	007664-38-2		Yes⁷	
Polycarboxylate ethers				
Polycarboxylic acid salt type Surfactant	097105-14-1			
Polyethylene glycol branched nonylphenyl ether phosphate	068412-53-3			
Polyethylene glycol nonylphenyl ether	037205-87-1			
Polyoxyalkylene alkylether fatty acid	072283-35-3	1500		
Polyphosphoric acid	008017-16-1		Yes	
Polysaccharide, Succinoglycan ⁸	073667-50-2			
Polysaccharide, Welan gum ⁹	096949-22-3			
Potassium carbonate	000584-08-7		Yes	
Potassium dihydrogenorthophosphate	007778-77-0		Yes	
Potassium hydrogencarbonate	000298-14-6		Yes	
Potassium hydroxide	001310-58-3		Yes	
Potassium oleate	000143-18-0		Yes	
Potassium silicate	001312-76-1		Yes	
Potassium sodiumtartrate	006381-59-5		Yes	
Potassium sulfate	007778-80-5		Yes	

<u>Substance</u>	<u>CAS No</u>	<u>MTC (in µg/l) if applicable¹⁵</u>	<u>Food contact material</u>	<u>SML (in mg/kg) if applicable</u>
Pyridine-2-thiol 1-oxide, Na salt ¹	003811-73-2			
Pyrophosphate, tetrapotassium salt	007320-34-5		Yes	
Pyrophosphoric acid	002466-09-3		Yes	
Quartz (silica chrySTALLINE)	014808-60-7		Yes	
Quaternary ammonium, C14-18, alkyltrimethyl chlorides	068002-63-1	300		
Quaternary ammonium compounds, (carboxymethyl)(3-cocoamidopropyl)dimethyl-hydroxides, inner salts	061789-40-0	300		
Resin acids and rosin acids	073138-82-6, 061790-51-0		Yes	
Rosin	008050-09-7		Yes	
Silica fume, amorphous	069012-64-2			
Silica fumed, amorphous	112945-52-5			
Silicon dioxide (amorphous)	007631-86-9		Yes ¹⁰	
Sodium acetate	000127-09-3		Yes	
Sodium aluminate (aluminium sodium oxide)	011138-49-1	30 (NL)*		
Sodium bicarbonate	000144-55-8		Yes	
Sodium bisulfite	007631-90-5		Yes	10 as SO ₂
Sodium carbonate	000497-19-8		Yes	
Sodium chloride	007647-14-5		Yes	
Sodium p-chloro-m-cresolate ¹	015733-22-9			
Sodium 2-,2-,2- dodecyloxy ethoxy ethyl sulfate	013150-00-0	1500		
Sodium dodecyl to pentadecyl ether sulfonates	091648-56-5	1500		
Sodium formate	000141-53-7			
Sodium glucoheptonate	031138-65-5			
Sodium gluconate	000527-07-1			
Sodium hydroxide	001310-73-2		Yes	
Sodium N-lauroylsarcosinate	000137-16-6			
Sodium lauryl sulfate	000151-21-3		Yes	

<u>Substance</u>	<u>CAS No</u>	<u>MTC (in µg/l) if applicable¹⁵</u>	<u>Food contact material</u>	<u>SML (in mg/kg) if applicable</u>
Sodium lignosulfonate	008061-51-6	12	Yes	0.24
Sodium metaphosphate	010124-56-8			
Sodium naphthalene sulfonic acid	009084-06-4			
Sodium nitrate	007631-99-4			
Sodium nitrite	007632-00-0	30	Yes	0.6
Sodium phosphate (anhydrous)	007758-80-7		Yes	
Sodium resinate	061790-51-0			
Sodium silicate (silicic acid Na salt)	001344-09-8		Yes	
Sodium sulfate	007757-82-6		Yes	
Sodium sulfite	007757-83-7		Yes	10 as SO ₂
Sodium thiocyanate	000540-72-7	?		
Starch, edible	009005-25-8		Yes	
Starch hydroxypropyl ether	009049-76-7			
Stearic acid	000057-11-4		Yes ¹¹	
Sucrose	000057-50-1		Yes	
Sulfite liquors (Lignosulfonate Ca)	068131-32-8	12	Yes	0.24
Sulfuric acid, mono-C12-14-alkyl esters, Na salts	085586-07-8	1500	Yes	
Sulfurous acid, monosodium salt, polymer with formaldehyde and 1,3,5-triazine-2,4,6-triamine	064787-97-9			
Syrups, hydrolysed starch	008029-43-4			
Syrups, hydrolysed starch, dehydrated	068131-37-3			
Syrups, hydrolysed starch, hydrogenated	068425-17-2		Yes ¹²	
Tall oil, Na salt	065997-01-5		Yes	
Tallow oleine	067701-06-8			
Tetrahydro-3,5-dimethyl-1,3,5-thiadiazine-2-thione ¹	000533-74-4			
2,4,7,9-Tetramethyl-5-decyne-4,7-diol, ethoxylated	009014-85-1			
Tri-isobutyl phosphate	000126-71-6			

<u>Substance</u>	<u>CAS No</u>	<u>MTC (in µg/l) if applicable¹⁵</u>	<u>Food contact material</u>	<u>SML (in mg/kg) if applicable</u>
Tricalcium orthophosphate	007758-87-4		Yes	
Triethanolamine (2,2,2-nitrioltriethanol)	000102-71-6		Yes	0.05 ¹³
Triethoxyoctylsilane	002943-75-1			
Trisodium phosphate	010101-89-0		Yes	
Water ¹⁴	007732-18-5		Yes	
Xylan (rosin wood)	009014-63-5		Yes	

*Aluminium – the combined total of aluminium salts used in admixtures must not lead to an increased aluminium leaching of 30 µg/l as Al in the final water. It should be noted that the cementitious product should be properly cured and that the surface sufficiently rinsed so that the pH meets the commissioning requirements or regulatory limits before samples for leaching are taken.

¹ Biocides – the biocide used in admixtures products is used solely to preserve the admixture up until the point at which it is used in the cementitious product. The maximum concentration of a biocide in an admixture is less than 0.5%, with the final concentration in the cementitious product being less than 0.001%. These substances may be subject to the biocidal products regulation (BPR) under product types PT6 & PT10. Users of this list should check the most up to date BPR inclusion/exclusion lists or consult national competent authorities before use. Where substances are used under PT10 permission shall be sought from the relevant authority prior to use.

²Only to be used in aqueous polymer dispersions and emulsions

³Restrictions for copper salts (5mg/kg) and manganese salts (0.6 mg/kg)

⁴Mixture 5-chloro-2-methyl-2H-isothiazol-3-one (75%) and 2-methyl-4-isothiazolin-3-one (25%)

⁵Restriction for manganese salt (0.6 mg/kg)

⁶Restriction for cobalt salt (0.05 mg/kg)

⁷Restriction for lithium salt (0.6 mg/kg) and manganese salt (0.6 mg/kg)

⁸Exopolysaccharide, derived from fermentation of *agrobacterium tumefaciens*

⁹Exopolysaccharide, derived from fermentation of *alcaligenes*

¹⁰For synthetic amorphous silicon dioxide primary particles 1-100 nm which are aggregated to a size of 0.1-1 µm which may form agglomerates within the size distribution of 0.3 µm to >1 mm size

¹¹Restriction for cobalt salt (0.05 mg/kg) and copper salt (5 mg/kg)

¹²Sorbitol (2-5%), maltitol (9-14%) and maltotritol (11-16%) NB this mixture also contains 67-76% hydrogenated oligosaccharides in compliance with the purity criteria for maltitol syrup E965(ii) as laid down in Commission Directive 2008/60/EC

¹³SML expressed as the sum of triethanolamine and the hydrochloride adduct expressed as triethanolamine

¹⁴In compliance with Commission Directive 98/83/EC

¹⁵Where substances are included in the European Regulation No 1272/2008 as CMR substances they will be removed from this listing as they are no longer authorized for use.

The above restrictions are based on the legislation from the food contact materials listing and the materials directory listing. Where the listing includes a specific salt(s) then the metal restriction has been applied. Where the listing includes a salt of an acid it has been classified as included on the food contact material listing.

Salts (including double salts and acid salts) of aluminium, ammonium, barium, calcium, cobalt, copper, iron, lithium, magnesium, manganese, potassium, sodium, and zinc of this substance are also covered by the above mentioned authorisation of use in plastics ((EU) No 10/2011 Art 6(3)) Plastic materials and articles shall not release the following substances in quantities exceeding the specific migration limits specified in annex II to (EU) No 10/2011 : barium (1 mg/kg), cobalt (0,05 mg/kg), copper (5 mg/kg), iron (48 mg/kg), lithium (0,6 mg/kg), manganese (0,6 mg/kg), zinc (25 mg/kg) ((EU) No 10/2011 Art 10)

Part 2 – Admixture Constituents requiring further information

Required Information and Assessment Procedure

The assessment procedure to obtain the insertion of a new substance is based on the information provided below:

- 1 Identity of the substance**
Name, synonyms, CAS number, impurities, its breakdown and reaction products
- 2 Physical and chemical properties**
- 3 Intended use of the substance**
- 4 Authorization of the substance**
Information concerning authorization for use of the substance in EU Member States and other countries, e.g. USA, Japan
- 5 Migration data on the substance**
- 6 Toxicological data**

<u>Substance in CAS No order</u>	<u>CAS No</u>	<u>Max Dose (Worst Case) wt % on concrete</u>	<u>Recommend for addition to REACH Annex XIV</u>
1,3-bis(hydroxymethyl)urea ¹	000140-95-4	<0.001	
1,6-Dihydroxy-2,5-dioxahexan	003586-55-8		
1-Hydroxy Ethylidene-1,1-diphosphonic acid (HEDP)	002809-21-4	0.06	
1-propene, 2-methyl-,homopolymer	009003-27-4		
2,2-dimethylpropane-1,3-diol	000126-30-7		
2,4,6, triamine 1,3,5 triazine	000108-78-1		
2,4-Dichloro-3,5-dimethylphenol (DCMX) ¹	000133-53-9	<0.001	
2,6-di-tert-butyl-p-cresol ¹	000128-37-0	<0.001	
2-Benzyl-4-chloro phenol (Chlorophen) ¹	000097-23-4	<0.001	
2-Methyl-2,4-pentandiol	000107-41-5		
2-Octyl-2H-isothiazol-3-on ¹	026530-20-1	<0.001	
2-Octyl-2H-isothiazool-3-on ¹	026583-20-1	<0.001	
2-Propenoic acid	000079-10-7		
2-propenoic acid polymer with methyl oxirane polymer - Na salt	220849-25-2		
2-Propenoic acid, 2-hydroxiethyl ester	000818-61-1		
2-Propenoic acid, telomer with sodium hydrogen sulfite, Na salt	068479-09-4		
3,5,7-Triaza-1-azoniatricyclo decane,1-(3-chloro-2-propyl)-chloride CTAC	004080-31-3		
3-Iodo-2-propynyl butyl carbamate (IPBC) ¹	055406-53-6	<0.001	
4-chloro-3,5-dimethylphenol (PCMX) ¹	000088-04-0	<0.001	
5-Chlor-2-methyl-2-H-isothiazol-3-on/2-Methyl-2-H-isothiazol-3-on ¹	055965-55-9	<0.001	
Alkanes, C13-16-iso-	068551-20-2	0.02	
Alkyletheramine	083713-01-3		
Alkoxyated Acetylenic Diol	182211-02-5		
Ammonia	007664-41-7	0.004	
Ammonium Hydroxide	000136-21-6	0.004	
Ammonium Hydroxide	001336-21-6	0.004	
Ammonium Persulfate	007757-54-0		
Azo metal complex dye	070304-36-8		
Barium Hydroxide	017194-00-2		
Bentonite	001302-78-9	0.2	
Benzenamine, N-phenyl-, styrenated	068442-68-2		
Benzine,1,1-oxybis-tetrapropylene derivatives, sulfated Na salts	119345-04-9		
Benzoic acid	000065-85-0		
Benzosulfonic acid, Na salt	001325-54-8		
Boric acid	010043-35-3		Yes

<u>Substance in CAS No order</u>	<u>CAS No</u>	<u>Max Dose (Worst Case) wt % on concrete</u>	<u>Recommend for addition to REACH Annex XIV</u>
Butyl Acrylate	000141-32-2		
Butyl Ether	000142-96-1		
Butylpropionate	000590-01-2		
C.I Red 120	061951-82-4		
C.I. Acid Blue 9	002650-18-2		
C.I. Acid Green 1	019381-50-1		
C.I. Acid Red 14	003567-69-9		
C.I.Acid Green 84	012234-91-2		
Caramel (Colour)	008028-89-5		
DG Biopolymer	125005-87-0		
DG Biopolymer	595585-15-2		
D-Glucopyranose	068515-73-1		
Dibromodicyanobutane ¹	035691-65-7	<0.001	
Diethanolamine (2,2-iminodiethanol)	000111-42-2	0.004	
Diethanolisopropanolamine - DEIPA	090170-43-7		
Diethylene glycol	000111-46-6		
Dimethylethanolamine (2-dimethylamino ethanol)	000108-01-0	0.004	
Diphenylamine	000122-39-4		
Dipropylene glycol	025265-71-8		
Dipropylene glycol n-buytlether	029911-28-2		
Disodium dihydrogen ethylenediamine tetraacetic acid,	000139-33-3	0.004	
EDTA (Edetic acid)	000060-00-4	0.004	
EDTA Na	000064-02-8	0.004	
Ethane-1,2-diol	000107-21-1		
(Ethylenedioxy) dimethanol ¹	003586-55-8		
Glycerol	000056-81-5		
Hydrated Magnesium Silicate (Sepiolith)	063800-37-3	0.26	
Hydrochloric acid	007647-01-0	0.004	
Hydrogen Peroxide	007722-84-1		
Hydrolysed starch	068412-29-3	0.15	
Hydroxyethylidene-diphosphonic acid	002809-21-4		
Hydroxy-propyl-farina	009049-76-7		
Magnesium Chloride	007786-30-3	0.15	
Maleic anhydride	000108-31-6		
Methacrylic acid	000079-41-4		
Methanol	000067-56-1		
Methyl methacrylate	000080-62-6		
Methyldiethanolamine (2,2- methylimidodi ethanol) MEDI	000105-59-9	0.004	

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Monoethanolamine (2-aminoethanol)	000141-43-5	0.004	
Morpholine	000110-91-8		
Nitric acid	007697-37-2	0.004	
Nitilotriacetic acid trisodium salt	005064-31-3		
Oxalic acid	000144-62-7		
Oxirane, polymer with oxirane, 2 - methyl mono butyl ether	009038-95-3		
Paraffin waxes / Hydrocarbon waxes	008002-74-2		
Paraffin waxes and hydrocarbon waxes, c19-38	097489-05-9		
Pentasodium hydrogen nitrilotris (methylphosphate)	002235-43-0		
Poly Aryl Ether	1190060-41-3		
Polydimethyl siloxane	009016-00-6	0.004	
Polydimethyl siloxane	063148-62-9	0.004	
Polyethylene Glycol	025322-68-3		
Polyethylene Glycol methylether	009004-74-4		
Polyethylene glycol monoallylether mw appr. 1100 (ntc)	027274-31-3		
Poly(ethylene glycol-co-propyleneglycol) monobutyl ether	009038-95-3		
Polypropylene Glycol	025322-69-4		
Polyvinyl alcohol	009002-89-5		
Polyvinyl alcohol	025213-24-5		
Potassium cumenesulfonate	028085-69-0		
Potassium Tripolyphosphate	013845-36-8		
Propane-1,2-diol	000057-55-6		
Propylene oxide	000075-56-9		
Resin acids and rosin acids, maleated, K salts	085409-27-4		
Ricinoleic acid	000141-22-0		
Rosin, fumarated	065997-04-8		
Silicic acid	001343-98-2		
Sodium Chloric acid	007775-09-9		
Sodium cumenesulfonate	028348-53-0		
Sodium C9 - C11 ethoxy Sulphate	160901-28-0		
Sodium Tetraborate	001330-43-4	0.06	Yes
Sodium Thiosulfate	007772-98-7	0.15	
Sodium Tripolyphosphate	007758-29-4		
Sulfoaluminate, Ca (hexacalcium hexaoxotris sulfato2- dialuminate12-	012004-14-7	0.26	
Sulfuric acid	007664-93-9	0.004	

<u>Substance in CAS No order</u>	<u>CAS No</u>	<u>Max Dose (Worst Case) wt % on concrete</u>	<u>Recommend for addition to REACH Annex XIV</u>
Tartaric acid	000087-69-4	0.04	
Tartrazine C.I.Yellow 23	001934-21-0		
Tetrahydroxyethylethylenediamine	049776-32-1		
Tetra sodium (1-hydroxethylidene) biophosphonate	003794-83-0		
Titanium dioxide	013463-67-7		
Tragacanth Gum	009000-65-1	0.2	
Tri butyl Phosphate	000126-73-8	0.004	
Tri iso propanolamine (1,1,1-nitrilopropane-2-ol) TIPA	000122-20-3		
Tripropylene glycol	024800-44-0		
Urea	000057-13-6		
Vinyl Acetate	000108-05-4		
Welan Gum	072121-88-1	0.15	
Xanthan Gum	011138-66-2	0.15	
Xylan (Rosin wood)	009014-63-5	0.02	
Zinc oxide	001314-13-2		

¹ Biocides – the biocide used in admixtures products is used solely to preserve the admixture up until the point at which it is used in the cementitious product. The maximum concentration of a biocide in an admixture is less than 0.5%, with the final concentration in the cementitious product being less than 0.001%. These substances may be subject to the biocidal products regulation (BPR) under product types PT6 & PT10. Users of this list should check the most up to date BPR inclusion/exclusion lists or consult national competent authorities before use.