



guardians of drinking water quality  
**DRINKING WATER INSPECTORATE**

***LIST OF APPROVED  
PRODUCTS AND PROCESSES***

***DECEMBER 2005***

Department for Environment,  
Food and Rural Affairs

The Welsh Assembly Government  
Llywodraeth Cynulliad Cymru

# CONTENTS

	<b>PAGE</b>
<b>INTRODUCTION</b>	
<b>1. About the approval process</b>	<b>5</b>
Basis of Approval	5
The Committee on Products and Processes	5
The Annual List of Approved Products	6
<b>2. Report 2005</b>	<b>7</b>
Committee Business	7
Communications with water industry and approval holders	7
Audit of approved products	7
European developments in construction products and treatment chemicals	7
<b>3. Membership of the Committee</b>	<b>9</b>
<b>THE ANNUAL LIST OF APPROVED SUBSTANCES AND PRODUCTS UNDER REGULATION 31</b>	
<b>PART A – CHEMICALS</b>	
<b>A. 1. Flocculants and Coagulants</b>	<b>11</b>
A.1.1 Products based on tannin	11
A.1.2 Products based on aluminium and iron	11
A.1.3 Products based on iron	11
<b>A. 2. Adsorbents</b>	<b>11</b>
<b>A. 3. Ion Exchange Resins Systems</b>	<b>12</b>
A.3.1 Ion exchange resins	12
A.3.2 Ion exchange resin based processes	12
<b>A. 4. Disinfectants or Cleaning Agents of Waterworks Apparatus and Distribution Systems</b>	<b>12</b>
<b>A. 5. Disinfectants or Cleaning Agents of Membranes</b>	<b>13</b>
<b>A. 6. Disinfectants for Emergency Use</b>	<b>14</b>
<b>A. 7. Products Based on Traditional Chemicals</b>	<b>14</b>
A.7.1 Traditional Chemicals	15
A.7.2 On-site electrolytic generation of chlorine	15
<b>A. 8 Other Chemicals</b>	<b>15</b>
<b>PART B – PRODUCTS USED FOR THE CONVEYANCE OF WATER</b>	
<b>B. 1 Pipes</b>	<b>16</b>
B.1.1 Polyethylene (PE) pipes	16
B.1.2 Barrier pipes	18

B.1.3	Polyvinylchloride (PVC) pipes	18
B.1.4	Acrylonitrile-butadiene-styrene copolymer (ABS)	18
B.1.5	Polyethylene terephthalate (PET)	18
B.1.6	Glass reinforced plastic (GRP) pipes	19
B.1.7	Cement mortar lined pipes	19
B.1.8	Pipes coated with factory applied nylon resins	19
B.1.9	Pipes coated with factory applied epoxy resin	20
B.1.10	Stainless steel pipes	20
<b>B. 2</b>	<b>Products for Emergency Use</b>	<b>21</b>
B.2.1.	Hoses	21
B.2.2.	Bowsers/tanks	22
<b>PART C – LINING /COATINGS AND SEALANT &amp; REPAIR MATERIALS</b>		<b>23</b>
<b>C.1</b>	<b><i>In-situ</i> Installed (tubular) pipe linings</b>	<b>23</b>
<b>C.2</b>	<b><i>In-situ</i> applied Pipe Coatings</b>	<b>23</b>
C.2.1	Coatings based on epoxy resins	23
C.2.2	Coatings based on polyurethane	24
<b>C.3</b>	<b>Site applied coatings for water retaining structures</b>	<b>24</b>
C.3.1	Coatings based on epoxy resins	24
C.3.2	Coatings based on polyurethane	25
<b>C.4</b>	<b>Flexible covers and linings for water retaining structures</b>	<b>25</b>
<b>C.5</b>	<b>Cementitious coatings</b>	<b>25</b>
<b>C.6</b>	<b>Sealant &amp; Repair Materials</b>	<b>26</b>
<b>PART D – MEMBRANE AND FILTRATION SYSTEMS</b>		<b>29</b>
<b>D.1</b>	<b>Membrane and Filtration Elements/Systems</b>	<b>29</b>
<b>D.2</b>	<b>Vessels and Containers for Membrane and Filtration Elements</b>	<b>30</b>
<b>D.3</b>	<b>Electrodialysis Water Treatment Units</b>	<b>30</b>
<b>PART E – OTHER WATER TREATMENT WORKS INSTALLATIONS</b>		<b>31</b>
<b>E.1</b>	<b>Tanks</b>	<b>31</b>
<b>E.2</b>	<b>Underdrains</b>	<b>31</b>
<b>E.3</b>	<b>Pressure vessels</b>	<b>32</b>
<b>E.4</b>	<b>Other Products USED for physical treatment of water</b>	<b>32</b>

## APPENDICES

<b>Appendix 1</b>	<b>Changes to Approvals and Amendments to the List of Approved Products</b>	<b>34</b>
1.1	Modified conditions of approval	34
1.2	List of products refused approval during 2004	34
1.3	Prohibition of use of substances and products	34
1.4	Revocation of approval	34
1.5	Approval of processes	34
1.6	Deletions from the list of approved products	35
1.6.1	Products deleted because they are no longer supplied or their approval has lapsed	35
1.6.1	Products deleted because they are covered by a BS EN	35
1.7	Changes in ownership or designation of approved products	35
1.7.1	Change in company name or ownership	35
1.7.2	Change in product designation	35
<b>Appendix 2</b>	<b>List of Relevant European Standards and authorised Components</b>	
2.1	British standards (BS EN) for chemicals used for treatment of water	36
2.2	British Standards (BS EN) for inorganic supporting and filtering materials	41
2.3	British Standards (BS EN) on the influence of organic Materials on water	42
2.4	List of Authorised Cement Admixtures	42
<b>Appendix 3</b>	<b>Contractors Approved for the <i>In-Situ</i> Applications of Polymeric Coatings</b>	<b>44</b>
3.1	Lining Contractors with full third party certification approved by WRc for the <i>in situ</i> application of polymeric linings	44
3.2	Lining Contractors with full third party certification approved by FaberMaunsell for the <i>in situ</i> application of polymeric linings	45
3.3	Lining Contractors with full third party certification approved by WRC-NSF for the <i>in situ</i> application of polymeric linings	45
3.3	Lining Contractors with full third party certification approved by RPS for the <i>in situ</i> application of polymeric linings	45
<b>Appendix 4</b>	<b>Listings</b>	
4.1	Manufacturers' and suppliers' addresses	46
4.2	Manufacturers' and suppliers' index	54
4.3	Product index	56

# INTRODUCTION

## 1. ABOUT THE APPROVALS PROCESS

Regulations 31 to 33 of the Water Supply (Water Quality) Regulations 2000<sup>1</sup> provide for the approval of substances, products and processes used in the provision of public water supplies. Approvals are issued by The Secretary of State for Environment, Food and Rural Affairs and The National Assembly for Wales (collectively referred to as the Authorities).

### *The Committee on Products and Processes*

The Committee on Products and Processes for Use in Public Water Supply (CPP) provides expert advice to Government Authorities in England and Wales on approval issues. As set out in the Memorandum of Understanding between the United Kingdom Drinking Water Regulators (March 2005 - <http://www.dwi.gov.uk/mou/mouukregulators.pdf>), the CPP provides a similar function for the authorities in Scotland and Northern Ireland, although the regulatory provisions are different.

Approvals issued by the Authorities in England and Wales are recognised throughout the United Kingdom and in many other parts of the world.

The Committee is an Advisory Non-Departmental Public Body. It consists of seven members with expertise in engineering, materials science, toxicology, chemical analysis, organic chemistry, water treatment and consumer relations. Details of the membership of the given are given in section 3. The Committee meets approximately every two to three months and the dates of Committee's meetings are posted on the CPP website: <http://www.dwi.gov.uk/cpp/ccmeet.shtm>.

The Drinking Water Inspectorate provides technical and administrative support to the Committee. The Committee's Technical Secretariat can be contacted at [cpp@defra.gsi.gov.uk](mailto:cpp@defra.gsi.gov.uk)

### *Basis of approval.*

When considering an application for approval, the Committee considers only whether the use of a substance or product will adversely affect the quality of water, or cause a risk to the health of consumers. The Committee does not assess fitness for purpose and approval by the Authorities cannot be taken as a favourable assessment of the performance or technical merits of a product. The Committee cannot recommend approval of products that will not be placed on the United Kingdom market.

Applications are considered for all construction products used in contact with water in water treatment processes, water supply pipelines (including raw water pipelines) and drinking and raw water storage installations. In addition the Committee considers water treatment chemicals and filtration media which are not covered by a published BS EN standard; products (individual chemicals or filter media) that conform with a BS EN standard may be used without the approval of the Authorities.

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<sup>1</sup> In Wales, the Water Supply (Water Quality) Regulations 2001 (Wales)

Approved products have not been assessed for suitability for use with regeneration chemicals. For such use, specific testing after exposure to the appropriate aggressive chemicals should be undertaken.

A series of Advice Sheets gives an overview of the regulatory requirements and information that must be provided in support of applications. These advice sheets are available on the CPP website: <http://www.dwi.gov.uk/cpp/guidance.shtm>. Currently, the sheets available are:

1. Overview of the application process
2. Instructions for Use (IFU) document
3. Treatment chemicals, filter media & ion exchange resins
4. Changes to Approved Products
5. Approval of products made from recognised materials
6. Approval of membrane filtration systems & associated equipment
7. Construction products for water retaining structures in water collection, treatment and distribution systems

The Committee also publishes a series of test protocols for use in assessing the suitability of products for use with drinking (see the CPP website:

<http://www.dwi.gov.uk/cpp/guidance.shtm>). Currently, the protocols available are:

0. Designated Test Laboratory requirements
  1. Reporting Requirements
  2. Non-metallic products: General Method
  3. Cement admixtures and concrete
  4. Metallic products: general Method
  - 5.1 Water Treatment Units – Reverse osmosis, nano and micro filtration membrane elements and systems
  - 5.2 Water treatment Units – Electrodialysis modules
6. Filter Media and ion exchange resins

### *The Annual List of Approved Products*

A list is published each year of all substances, products and processes for which approval has been granted, refused, revoked or modified, or for which their use has been prohibited. This document is posted on the DWI website: <http://www.dwi.gov.uk/cpp/pagea.shtm>.

Unconsolidated “Update” listings will be provided during 2006, giving details of changes and additions to the List of Approved Products & Processes -Issue December 2005. These updates will be available about 4-6 weeks after each meeting of the CPP from the same website.

## 2. REPORT FOR 2005

### *Committee Business*

During 2005 the Committee met on five occasions and 105 applications for approval were considered, including 51 new applications. The Authorities approved 53 products, re-instated 2 products and none was refused approval. The Authorities gave approval to the modification of conditions to 5 currently listed products.

### *Communications with water industry and approval holders*

DWI communicates with the water industry and approval holders through Regulation and Information letters. Regulation 25 and 31 letters, which were issued before 1<sup>st</sup> January 2004 and 1<sup>st</sup> April 2005 (respectively), are now replaced with DWI Information letters

Three Regulation 31 letters were issued in 2005:

- **1/2005** introduced the 2004 list of approved products
- **2/2005** introduced an amended version of the 2004 list of approved products
- **3/2005** gave notice of intention to modify the conditions of approval to *In-Situ* coatings

One relevant DWI Information Letter was issued in 2005:

- **09/2005** gave guidance on the approval and use of packing materials in water treatment processes

The CPP also issues Information Bulletins, from time-to-time, to Regulation 31 practitioners working for water suppliers. One Information Bulletin was issued in 2006 regarding the revocation of the approval of one product.

Copies of Regulation 31 and relevant Information letters, together with Information bulletins are available on the website: [http://www.dwi.gov.uk/cpp/25\\_31reg.shtm](http://www.dwi.gov.uk/cpp/25_31reg.shtm).

### *Audit of approved products*

A requirement for audit of approved products was introduced in July 2002 and the programme of auditing, which started in Autumn 2002, has continued throughout 2005. To date 252 products have been audited (73 in 2005) and 11 formerly approved products have been removed from the 2004 List of Approved products. Some products have been removed from the list because they are no longer available; in 4 cases, approval has been revoked because the product failed the audit tests or because the approval holder had failed to comply with a condition of approval. Full details of products removed and revoked from the 2004 List are given in Appendix 1 of this report.

### *European developments in treatment chemicals and construction products*

The majority of chemicals and filter materials for drinking water treatment are now the subject of European standards. A full listing of the relevant standards published by BSI Standards in its BS EN series is contained in Appendices 1.6 and 1.7. Appendix 1.8 lists the

European standards for testing the effects of organic materials on water intended for human consumption.

DWI provides the UK's regulatory representation on the European Commission's Expert Group - Construction Products Drinking Water. This Group is advising the Commission on the development of the European Acceptance Scheme (EAS) for drinking water construction products. The EAS will hopefully provide harmonised arrangements throughout the European Union for testing and acceptance of drinking water construction products.

DWI has a number of initiatives underway preparing for the eventual transition from national to European requirements for testing and certification. These include:

- Meetings to disseminate information about the EAS and its implications for the UK (details of current activities are on our website: [www.dwi.gov.uk/cpp/seminar.shtml](http://www.dwi.gov.uk/cpp/seminar.shtml)).
- Research to assess the impact of European test requirements for the UK water industry and its suppliers (details of research outputs are posted on the Foundation for Water research website: [www.fwr.org.uk](http://www.fwr.org.uk)).
- Where appropriate, early implementation of European test methods for some construction products.

Currently it is anticipated that the EAS will replace the testing and certification responsibilities of the Water Regulations Advisory Scheme (WRAS) and the approval powers of the Government Authorities. In preparation for the EAS, WRAS and the Committee now use jointly designated test laboratories.

### **3. MEMBERSHIP OF THE COMMITTEE**

The Committee was established as an advisory Non-Departmental Public Body in May 1998. All appointments to the Committee are made in accordance with the guidelines issued by the Office of the Commissioner of Public Appointments. The current membership as of December 2005 is:

#### **Chairman:**

**Mr Owen Hydes OBE** was nominated by the Royal Society of Chemistry. He is an independent consultant.

#### **Members:**

**Mrs Joy Fraser** is an independent member appointed to represent consumers' interests.

**Dr John Greig** was nominated by the British Toxicology Society as an expert in toxicology. He is an independent consultant.

**Dr Roger Stokes** was nominated by the Institute of Materials, Minerals and Mining as an expert on construction products and materials used in the water industry. He is an independent consultant.

**Mr Geoff Tute MBE** was nominated by Water UK as an expert in civil engineering, water treatment and water operations. He is an employee of Southern Water.

**Mr Robin Walls** was nominated by the Royal Society of Chemistry as an expert in analytical chemistry and quality assurance. He is an independent consultant.

Mr Steve Scott was appointed after open competition for a specialist organic chemist. He is an independent consultant.

#### **Advisers:**

**Mr John Ashworth** is a civil servant in the Drinking Water Inspectorate and is nominated by Defra as an adviser on the Regulations, and implementing the CPP' s recommendations.

**Mr Stephen Robjohns** is a civil servant in the Department of Health and is nominated by that Department as an adviser on the effects of chemicals and materials on human health.

#### **Technical Secretariat:**

**Ms Yamide Dagnet Sépho:** Technical Secretary

The Technical Secretary is a civil servant employed by the Drinking Water Inspectorate.

## LIST OF APPROVED PRODUCTS

*All approved products must be used in accordance with the specific conditions of approval, listed against the product names in Part I-IV. In addition, the following general conditions of approval apply to all approved products:*

- (1) That use is in accordance with an Instructions for Use document. Approval holders must provide water companies with copies of the Instructions for Use Document that was considered by the Committee when approval was recommended.*
- (2) That the approval of the Government Authorities is obtained on condition that there shall be:*
  - no change in the formulation of the approved product, including change in source or identity of raw materials;*
  - no change in the manufacturing process, including location of manufacture;*
  - no change in designation of the approved product;*
  - no change in name or ownership of the organisation holding the approval.*
- (3) That the producer shall ensure that the product is tested for conformity with its formulation, and the source or identity of its raw materials, at such intervals and by such persons, as may be determined by the Secretary of State. The results of such testing shall be sent to the Authorities.*
- (4) No Claim of “Approval by DWI” is permitted. For further information on acceptable claims, please see the following website:*  
<http://www.dwi.gov.uk/cpp/pdf/FAQ2.pdf>

## **PART A CHEMICALS**

As a consequence of the publication of European standards (BS EN) for drinking water treatment chemicals, products that conform to a BS EN may be used without the approval of Government Authorities, providing that national conditions of use listed in Appendix 2.1. are followed. These products are therefore no longer listed in this publication.

**BS EN standards for drinking water treatment chemicals do not contain mandatory requirements for attestation of conformity. Water undertakers are expected to stipulate appropriate attestation requirements in their procurement contracts. A full list of chemicals which are the subject of a BS EN is given in appendix 2.1**

The following chemicals are either not covered by a BS EN standard, or do not conform fully with the scope and/or requirements of a published BS EN. For all of the chemicals listed the following general condition of approval applies:

*The method of use and the purity of these products shall be such that, in the case of water for public supply, the water so treated meets the requirements of the Water Supply (Water Quality) Regulations 2000 (2001 in Wales) where appropriate additional specific conditions of approval are listed against the product.*

### **A.1. FLOCCULANTS AND COAGULANTS**

#### **A.1.1. Products based on tannin**

*The dose used must not exceed 10 mg l<sup>-1</sup> of active material.*

**GE Betz Ltd**  
Klaraid PC 4000

#### **A.1.2. Products based on aluminium and iron**

*For these products the dose must not exceed 150 mg l<sup>-1</sup> of the product as supplied.*

**Clinty Chemicals Ltd**  
Ferric Aluminium Sulfate

#### **A.1.3. Products based on iron**

**High Chemicals (UK) Ltd**  
Econofloc 11  
Econofloc 15

### **A.2. ADSORBENTS**

*The contact bed containing the product must be adequately backwashed in accordance with the Instructions for Use document and then rinsed with 5 bed volumes of water passed downflow to waste.*

**Bayer AG**  
Bayoxide E33

**GEH Wasserchemie Gmbh**

GEH ferric hydroxide

**Purolite International Ltd**

Macronet - MN200

### ***A.3. ION EXCHANGE RESINS SYSTEMS***

#### **A.3.1. Ion exchange resins**

**Orica UK Ltd - Watercare Europe**

MIEX DOC Resin

**Purolite International Ltd**

Purolite A520E nitrate selective anion exchange resin

**Rohm and Haas Ltd**

AMBERLITE PWA5

IMAC HP 336

IMAC HP 555

#### **A.3.2. Ion exchange resin based processes**

**BOC**

IXL Process

### ***A.4. DISINFECTANTS OR CLEANING AGENTS OF WATERWORKS APPARATUS AND DISTRIBUTION SYSTEMS***

*Permission or consent for disposal of any wastewater generated to a sewer or watercourse must be obtained from the relevant water service company or Environment Agency, as appropriate.*

**Aquabiotics Pty Ltd**

BoreSaver Liquid

BoreSaver Ultra C

**Carus Chemical Company**

Carusol 20 Liquid Permanganates

Carusol 40 Liquid Permanganates

**EPSCO Ltd**

Carela Bio-Des

Carela Bio-Plus

Carela Bio-Plusforte

Carela Novopur

Carela RS 100

**Panton McLeod Ltd**

PM33

PM55  
PM88

**Permacare - Membrane Separations Group**  
Resintreat

**ROAM Chemie NV**  
Huwa-San TR50

For this product the following condition applies:

- (i) the dose of product is such that the concentration of silver in the water does not exceed 80 mg l<sup>-1</sup>; and*
- (ii) Consumers are exposed to water containing silver for only as long as is required to restore conventional treatment, and for no more than 90 days in any period of a year, whichever is applicable.*

**Tevan BV**  
Herlisil

For this product the following condition applies:

- (i) the dose of product is such that the concentration of silver in the water does not exceed 80 mg l<sup>-1</sup>; and*
- (ii) Consumers are exposed to water containing silver for only as long as is required to restore conventional treatment, and for no more than 90 days in any period of a year, whichever is applicable.*

## ***A.5. DISINFECTANTS OR CLEANING AGENTS OF MEMBRANES***

**Ashland Drew Industrial Division**  
AmeROyal 363

**Atkinson Chemicals Ltd**  
Kinro 1020  
Kinro 1020D  
Kinro 1406  
Kinro 1406N  
Kintrol 556  
Kintrol 556C

**Avista Technologies (UK) Ltd**  
RoClean 111  
RoClean P303  
Vitec 3000  
Vitec 4000  
Vitec 5000

**GE Betz Ltd**  
Hypersperse MDC150  
Hypersperse MDC220

**Genesys International Ltd**  
Genesol 38  
Genesol 40  
Genesys HR  
Genesys LF

Genesys MG  
Genesys SI  
Genesys SW

**Gulf Specialized Water Services Company**

GulfChem GS300  
GulfChem GS500  
GulfChem GS510  
GulfChem GS520  
GulfChem GS530

**Permacare - Membrane Separations Group**

Permaclean 77  
Permaclean 99  
PermaTreat 191  
Resintreat

**Rohm and Haas Ltd**

Acumer 1100  
Acumer 4035  
Acumer 4450  
Acumer 4800

## ***A.6. DISINFECTANTS FOR EMERGENCY USE***

For products in this section the following conditions apply:

- (i) the dose of product is such that the concentration of silver in the water does not exceed 80 mg l<sup>-1</sup>; and*
- (ii) Consumers are exposed to water containing silver for only as long as is required to restore conventional treatment, and for no more than 90 days in any period of a year, whichever is applicable.*

**Aqua Cure plc**

ACHY SHP  
Aqua Dosa Sanitaser

**ROAM Chemie NV**

Huwa-San TR5  
Huwa-San TR50  
Tiosan

**Swissteril International 5755 Ltd**

Sanosil Super 25  
Steril

## ***A.7. PRODUCTS BASED ON TRADITIONAL CHEMICALS***

### ***A.7.1. Traditional Chemicals***

The following traditional chemicals (not covered by a specific BS EN) are considered by the Committee to be unobjectionable on health grounds for the treatment of water.

For products in this section the following general condition applies:

*The method of use and the purity of these products shall be such that, in the case of water for public supply, the water so treated meets the requirements of the Water Supply (Water Quality) Regulations 2000 (2001 in Wales).*

Calcium chloride

Calcium sulphate

Citric acid (food grade) - for use only in cleaning of membranes

Crushed flint (e.g. Flintag)

Ferrous chloride

Magnesium carbonate

Magnesium hydroxide

Magnesium oxide

Magnesium sulphate - use only for re-mineralisation with RO membrane systems

Magnetite

Sodium chloride

Sodium sulphate

### **A.7.2. On-site electrolytic generation of chlorine**

Products in this section are not fully covered by BS EN 901 and must conform to the following conditions of use:

*(i) The method of use and the purity of the output of these products shall be such that, in the case of water for public supply, the water so treated meets the requirements of the Water Supply (Water Quality) Regulations 2000 and 2001 in England and Wales.*

*(ii) The treated water must not contain more than 700 µg/l chlorate.*

#### **Aztec Environmental Controls**

Sodium hypochlorite generated by the ElectroCell Process

#### **Proton Water Services Ltd**

PRO-SEC System

#### **Severn Trent Services**

Clortec cell

#### **Wallace and Tiernan Ltd**

Sodium hypochlorite generated by the OSEC system

#### **Waterman Environmental Services Ltd**

MIOX Electrolytic Sodium Hypochlorite Generators

## **A.8. OTHER CHEMICALS**

### **Lithium Salts**

For this product the following condition applies:

*The use of lithium salts for meter calibration in water mains is acceptable providing that the maximum concentration of lithium in water supplied to consumers does not exceed 0.10 mg l<sup>-1</sup> at any time (the analytical method used for lithium determination should have an accuracy better than ±0.01 mg l<sup>-1</sup> at 0.10 mg l<sup>-1</sup>)*

## **PART B PRODUCTS USED FOR THE CONVEYANCE OF WATER**

### ***B.1. PIPES***

#### **B.1.1. Polyethylene (PE) pipes**

##### **Asset International Ltd**

Weholite Pipe

##### **CemPipe Ltd**

Cempipe HTH 752

##### **DYKA B.V.**

Dyka Blue HDPE -100 Pressure Pipes

Dyka Blue HDPE -80 Pressure Pipes

##### **Dyka Plastics NV**

Dyka Blue PE80 Pressure Pipes

##### **Egeplast Werner Strumann GmbH &Co**

Egelen PE 100 Blue

##### **Fusion Group plc**

SDR 11 PSD PE-X BP80

##### **Fusion Provida**

Fusion Black 100

Fusion Black 80

##### **GPS (Glynwed Pipes Systems)**

Durapipe F Black PE100

Durapipe F Dark Blue Polyethylene Pipe

Durapipe S Black PE Pipe

GPS B Black PE100 Pipe

GPS B Black Polyethylene Pipe

GPS B Light Blue Polyethylene Pipe

GPS B Polyethylene Pipe

GPS F Blue Polyethylene Pipe

GPS N Black PE100 Pipe

GPS N Blue PE 100 Pipe

GPS N Blue PE 80 Pipe

GPS Q Black Polyethylene Pipe

GPS S Black PE100 Pipe

GPS S Dark Blue Polyethylene Pipe

##### **Hepworth Building Products**

Black MDPE Pipe Type D

Blue MDPE Pipe Types A, B, C & E

##### **KWH Pipe (UK) Ltd**

KWH Hostalen CRP 100 Black

KWH Hostalen CRP100 Blue

**NKT Flexibles**

AQFLEX

**Polypipe (Ulster) Ltd**

Polypipe MDPE Pipe

**Polypipe Building Products Ltd**

Polypipe HDPE Pipe

Polypipe MDPE Pipe

TUB121

TUB124

**Quality Plastics Ltd**

Qualplast Polyethylene Pipe

**Simona UK Ltd**

Simona PE100 Pressure Pipe (type TRST RO) blue

Simona PE100 SPS-Drinking Water Pipes (type TRST-SPC RO)

**Subterra - a division of Enterprise Managed Services Ltd**

Subcoil

**Uponor Ltd**

Aldyl BPB Black Polyethylene Pipe

Aldyl BPDB Dark Blue Polyethylene Pipe

Aldyl BPLB Light Blue Polyethylene Pipe

Aldyl EHDB Black Polyethylene Pipe

Aldyl F Light Blue Polyethylene Pipe

Aldyl NCB Black Polyethylene Pipe

Aldyl NCDB Dark Blue Polyethylene Pipe

Aldyl NCLB Light Blue Polyethylene Pipe

Aldyl SB Polyethylene Pipe

Aldyl SDB Dark Blue Polyethylene Pipe

Aldyl SLB Blue Polyethylene Pipe

Aldyl X Dark Blue Polyethylene Pipe

Aldyl XF Black Pipe

BB Black Polyethylene Pipe

BDB Dark Blue HD Polyethylene Pipe

BHDB Black Polyethylene Pipe

BLB Light Blue MD Polyethylene Pipe

Profuse (DN)

**Wavin Plastics Ltd**

SupaSure Polyethylene Pipe

Wavin TS

Wavin TS3

WavinBlack Pipe

WavinJet Pipe

WavinSure Polyethylene Pipe

## **B.1.2. Barrier pipes**

### **GPS (Glynwed Pipes Systems)**

GPS Protecta-Line  
GPS Protecta-Line PE100  
GPS Secura-Line Pipe Type B  
GPS Secura-Line Pipe Type N  
GPS Secura-Line Pipe Type S

### **Uponor Ltd**

Profuse (BHD)  
Puriton (BPRB)

### **Wavin Plastics Ltd**

Trigon

## **B.1.3. Polyvinylchloride (PVC) pipes**

Please note that all approved PVC pipes are made with non-lead stabilisers.

### **Dyka (UK) Ltd**

Dyka BiOroc Pipe

### **Hepworth Building Products**

Hepworth PVC-A Hep30 (blue) - 16 mm to 710 mm  
Hepworth PVC-U Watermain (grey) - 3/8th to 24 inches

### **Uponor Ltd**

Mondial MOPVC pipe  
Mondial PVC-O (NGS) Polyvinyl Chloride Pipe  
Uponor A-Tech (PVC-A) Pipe

### **Wavin Ireland Ltd**

Aquaforce (with non-lead stabiliser)  
Wavinmain EN 1452 NGS

### **Wavin Plastics Ltd**

Wavin Apollo (with Calcium Zinc Stabilisation)  
Wavin Apollo Pipe (with non-lead stabiliser)

## **B.1.4. Acrylonitrile-butadiene-styrene copolymer (ABS)**

### **Durapipe UK**

Durapipe ABS Pipe  
Durapipe ABS Pipe Type F

## **B.1.5. Polyethylene terephthalate (PET)**

### **Wavin Plastics Ltd**

Neofit

## **B.1.6. Glass reinforced plastic (GRP) pipes**

### **Future Pipe Industries B.V.**

Wavistrong Series - for use upstream of a Reverse Osmosis unit only

### **Iniziative Industriali SpA (Sarplast)**

Plastiwind - for use upstream of a Reverse Osmosis unit only

## **B.1.7. Cement mortar lined pipes**

For Products in this section, the following conditions applies:

*Before connection to the supply, the water undertaker or their appointed agent, must carry out tests to establish that migration from the cement mortar lining will not cause a contravention of the upper prescribed concentration for hydrogen ion in the Water Supply (Water Quality) Regulations 2000 (England) and 2001 (Wales).*

### **B.1.7.1. Cement Mortar Lined Pipes without seal coat**

#### **Frazer & Tabberer Ltd**

FT Pipelines Cement Lined Pipes

#### **Fuchs Rohr GmgH**

CSP Water Pipes

#### **Saint-Gobain Pipelines plc**

Saint-Gobain Pipelines System CL

Saint-Gobain Pipelines System CL (Icoment)

#### **Sertubi**

Sertubi Ductile Iron Pipe with Internal Lining in Blast Furnac Cement Mortar

### **B.1.7.2. Cement Mortar Lined Pipes with seal coat**

#### **Buderus Guss GmbH**

Cement Mortar Lining coated with Hunting Waterline sealcoat

#### **Electrosteel Castings Ltd**

Electrofresh Plus Pipe lined with Copon Hycote 162 PWX

#### **Frazer & Tabberer Ltd**

CSP water pipe lined with Copon Hycote 162 PWX

#### **Saint-Gobain Pipelines plc**

Saint-Gobain Pipeleines "PaM Natural Pipeline Components"

Saint-Gobain Pipelines Snowcrete (comprising low alkali cement mortar lining with acrylic sealcoat)

Saint-Gobain Pipelines System XL

## **B.1.8. Nylon Pipes**

### **Leyfos Plastics Limited**

Rilsan Nylon Green Coated Pipes and Fittings

## **B.1.9. Pipes coated with factory applied epoxy resin**

### **Barnard Ltd**

Pipes lined with RESICOAT R4-FB HKC71R  
Pipes lined with Scotchkote 206N

### **Barrier Limited**

Barrier Pipeline

### **BSR Pipeline Services Ltd**

BSR/EPW/003 - Pipegard P300  
BSR/EPW/004 - Copon Hycote PWX

### **Conline Coatings B.V.**

Conline Coatings Pipes

### **Freeflow Pipesystems**

Pipes Lined with Scotchkote 206N

### **Northpoint Ltd**

Pipes lined with Scotchkote 206N  
Pipes lined with Resicoat R4-FB HKCO4R

### **Orrmac Coatings Limited**

Pipes and Fittings lined with Resicoat R4-FB HKC71R

### **Pipeline Protection Services Ltd**

Pipes lined with: Copon Hycote 162 PWX

### **Plastic Coatings Ltd**

Pipes lined with: Scotchkote 206N

## **B.1.10. Stainless steel pipes**

### **ABC Stainless Ltd**

Q Pipe System

### **AJ Engineering & Construction Services Ltd**

AJE Stainless Steel Pipe Systems

### **Alpha Plus Ltd**

Stainless Steel Pipework

### **Damstahl Stainless Ltd**

Damstahl FF  
Damstahl PT  
Damstahl SE  
Damstahl SP

### **DH Stainless Ltd**

Stainless Steel Metric Bore and ANSI welded Pipes

### **Dustacco Engineering Ltd**

DE Stainless Steel Systems

**George Green (Keighley) Ltd**

Rising Main Pipework 25NB - 700NB & Associated Fittings

**J.K. Fabrications Limited**

JKF 304 and 316 Stainless Steel Pipelines

**Lancashire Fittings Ltd**

Lancashire Fittings Stainless Steel Pipe

Lancashire Fittings Stainless Steel Tube

**Outokumpu Stainless Ltd**

Outokumpu Stainless Steel Pipes

**Powerrun Project Management Ltd**

Powerrun fabricated stainless steel pipework

**Sandvik Materials Technology Ltd**

Sandvik 3R12

Sandvik 3R60

Sandvik 3R64

Sandvik 3R65

Sandvik 3R66

Sandvik SAF2205

Sandvik SAF2507

**Scottish Water Solutions**

Stainless Steel Borehole Riser Pipework

**Stainless Metric Stock Ltd**

Stainless Metric Stock - SMS100

**Staptina Engineering Services Ltd**

Staptina 316L Pipework

**Vexamus Water Ltd**

304 Stainless Steel Thin Wall Pipework 50NB to 1000NB

316 Stainless Steel Thin Wall Pipework 50NB to 1000NB

**Weir Materials & Foundries**

ZERON 100 super duplex stainless steel pipe work and components

***B.2. PRODUCTS FOR EMERGENCY USE***

For products in this section the following condition applies:

*These products are for emergency use only and may not be permanently installed in or used in conjunction with any system for treating or distributing public water supplies.*

**B.2.1. Hoses**

**Snap-Tite Europe. B.V.**

Layflat Emergency Hose - Type 122

## **B.2.2. Bowsers/tanks**

### **JFC Manufacturing (Europe) Ltd**

Emergency Water Tank

### **Kingspan Environmental Containers**

Emergency Potable Water Storage Tanks

### **Trailer Engineering**

Emergency Drinking Water Bowsers

### **Western Trailers**

Emergency bowsers/tanks

Mobile bowsers/tanks

### **Whale Tankers Ltd**

Medium Capacity Whale Drinking Water Bowser

Whale Drinking Water Bowser

## **PART C LINING /COATINGS AND SEALANT & REPAIR MATERIALS**

### **C.1. IN-SITU INSTALLED (TUBULAR) PIPE LININGS**

**Angus Fire Armour Ltd**  
Thermopipe

### **C.2. IN-SITU APPLIED PIPE COATINGS**

*Currently, for the in situ application of epoxy resin, contractors must refer to the "In-Situ Epoxy Resin Lining - Operational Requirements and Code of Practice" 3<sup>rd</sup> Edition - ISBN 1-898920 45 1, and, for the in-situ application of rapid-setting polymeric linings, contractors must refer to the "In-Situ Rapid-Setting Polymeric Lining - Operational Guidance and Code of Practice" - ISBN 0-9539278-0-6.*

*However, Regulation 31 Letter 3/2005 gave notice under Regulation 31(10)(b) of the Secretary of State's intention to modify the conditions of approval. This modification takes effect from 1st April 2007. The effect of the modification will be to require water companies and lining contractors to adhere to the requirements of "In-situ Resin Coating of Water Mains Operational Requirements".*

*Appointed organisations to accredit resin lining contractors and equipments and to provide training to lining operatives and Utility Representatives, are encouraged to refer to the new documents during training.*

#### **C.2.1. Coatings based on epoxy resins**

*These products must be applied by a certified contractor (See appendix 4 B) who has fulfilled the requirements for applying a particular coating (lining) in accordance with the operational requirements set out in "In-situ Epoxy Resin Lining – Operational Requirements and Code of Practice - 3<sup>rd</sup> edition (ISBN 1-898920-45-1), published in 2001 by WRc.*

**E Wood Ltd**  
Cupon Hycote 162 PWX

**Fosroc Ltd**  
Nitoline WP  
Nitoline WP2

**Hunting Industrial Coatings Ltd**  
Hunting Waterline

**Leigh's Paints**  
Pipegard P300

**Mercol Products Ltd**  
Geopox GX 014

**Subterra - a division of Enterprise Managed Services Ltd**  
ELC 173/90

## **C.2.2. Coatings based on polyurethane**

*These products must be applied by a certified contractor (See appendix 4 B) who has fulfilled the requirements for applying a particular fast setting polymeric material in line with the requirements of In Situ Rapid-Setting Polymeric Lining. Operational Guidelines and Code of Practice (ISBN No. 0-9539278-0-6) published in October 2000.*

### **E Wood Ltd**

Copon Hycote 160PW (Activator L0120)  
Copon Hycote 169  
Copon Hycote 169HB  
Copon Hycote 169LV

### **Fosroc Ltd**

Nitoline RSM

### **Subterra - a division of Enterprise Managed Services Ltd**

Fast-Line  
Fast-Line plus

## **C.3. SITE APPLIED COATINGS FOR WATER RETAINING STRUCTURES**

### **C.3.1. Coatings based on epoxy resins**

The following conditions apply unless otherwise indicated:

- (i) the minimum cure time is 16 hours; and*
- (ii) the minimum cure temperature is 3°C.*

### **Corroless Corrosion Control**

Corroguard 595

### **E Wood Ltd**

Copon Hycote 162 PW  
Thortex Chemi-Tech PW

### **Hunting Industrial Coatings Ltd**

Hunting Waterline

### **Leigh's Paints**

Pipegard P300

### **Mercol Products Ltd**

Geopox GX 014

### **Sika Ltd.**

Sikagard 62

For this product the following condition applies:

*The product must be cured in accordance with the cure curves provided in the instructions for use. The required cure time can be calculated by the user from the minimum daily temperature at the site of application. If the temperature cannot be measured and recorded then a minimum cure period of 21 days must be used.*

**Subterra - a division of Entreprise Managed Services Ltd**  
ELC 173/90

### **C.3.2. Coatings based on polyurethane**

**E Wood Ltd**

Copon Hycote 165 PW

For this product the following condition applies:

*The product must be cured for a minimum period of 7 days at a minimum temperature of 7° C*

Copon Hycote 165 PW-PR

For this product the following condition applies:

*The product must be cured for a minimum period of 7 days at a minimum temperature of 7° C*

**ITW Irathane International**

Aqualine 650 with Irabond BC50

For this product the following condition applies:

*The product must be cured for a minimum of 21 days at a minimum temperature of 7°C*

### **C.4. FLEXIBLE COVERS AND LININGS FOR WATER RETAINING STRUCTURES**

**DRC Polymer Products Ltd**

Hylam FPA

**Sarnafil Ltd**

Sarnafil MPG 980-20

**Stevens Geomembranes - JPS Elastomerics**

Stevens Polypropylene Geomembrane

### **C.5. CEMENTITIOUS COATINGS**

**British Cement Association**

Cemline I

For this product the following condition applies:

*Use of these generic products must conform to the In-situ cement mortar lining-Operational Guidelines and Codes of Practice published by Water Research Centre plc, 1990 (ISBN 0902156 84 5).*

Cemline II

For this product the following condition applies:

*Use of these generic products must conform to the In-situ cement mortar lining-Operational Guidelines and Codes of Practice published by Water Research Centre plc, 1990 (ISBN 0902156 84 5).*

**Flexcrete Ltd**

Flexcrete Cementitious Coating 851 Grey

Flexcrete Cementitious Coating 851 White

Monolevel 844SP

**Fosroc Ltd**

Nitocote CM 210

For this product the following condition applies:

*The minimum cure time is 7 days.*

**Fullstop Technology Ltd**

Xypex Admix C-1000 NF

Xypex Concentrate

Xypex Modified

**ITW Irathane International**

Irathane CR 94

**MBT Feb**

Mainline

For this product the following condition applies:

*This product has been approved for use only in contact with water of alkalinity greater than 40 mg l-1 CaCO3*

ThoroSeal FX 100

ThoroSeal Plaster Mix/Acryl 60

ThoroSeal/Acryl 60

**Sika Ltd.**

Sikatop-Seal 107

For this product the following condition applies:

*The product must be cured for a minimum 7 days at a minimum temperature of 7°C.*

**Vandex UK Ltd**

Vandex BB 75

Vandex BB White

Vandex Concrete Grey

Vandex Mineralit

Vandex Premix

Vandex Pure

Vandex Super

Vandex Uni Mortar 1

## ***C.6. SEALANT & REPAIR MATERIALS***

**Flexcrete Ltd**

Fastfill

Monomix

Monomix WS

Steel Reinforcement Protector 841

**Fosroc Ltd**

Renderoc Plug 20

**Fullstop Technology Ltd**

Xypex Patch'n Plug

**ITW Irathane International**

## Irathane Plug

### **MBT Feb**

Dryjoint/Acryl 60

Structurite/Acryl 60

Thoroflex 200 expansion joint system

For this product the following condition applies:

*This product must be cured for a minimum of 21 days at a minimum temperature of 7°C*

### **Natural Cement Distribution Ltd**

NATCEM 35

Shotcrete 513

### **Samuel Cooke & Co Ltd**

Fastplug Cement

### **Sika Ltd.**

Plastocrete OC

For this product the following condition applies:

*This product is approved for use with Portland BS12 cement.*

### **Sika 1**

For this product the following condition applies:

*This product is approved for use with Portland BS12 cement.*

### **Sika 101 HD**

For this product the following condition applies:

*The minimum cure time is 21 days.*

### **Sika 4a**

Sika AER

For this product the following condition applies:

*This product is approved for use with Portland BS12 cement.*

### **Sika Monotop 610/612**

For this product the following condition applies:

*The product must be cured in accordance with the cure curves provided in the instructions for use. The required cure time can be calculated by the user from the minimum daily temperature at the site of application. If the temperature cannot be measured and recorded then a minimum cure period of 21 days must be used. (The approval for this product applies solely to this product and does not include primer materials.)*

### **Sikacem 133 Gunitite**

For this product the following condition applies:

*The minimum cure time is 21 days.*

### **Sikadur Combiflex Using Sikadur 31 Rapid**

For this product the following condition applies:

*This product must be cured in accordance with the cure curves provided in the instructions for use. The required cure time can be calculated by the user from the minimum daily temperature at the site of application. If the temperature cannot be measured and recorded then a minimum cure period of 15 days must be used.*

**Sikatop 121**

For this product the following condition applies:  
*The minimum cure time is 21 days.*

**Sikatop 122**

For this product the following condition applies:  
*The minimum cure time is 21 days.*

**Sikatop 122HB**

For this product the following condition applies:  
*The minimum cure time is 21 days.*

**Vandex UK Ltd**

**Vandex Plug**

## **PART D MEMBRANE AND FILTRATION SYSTEMS**

Note: A list of membranes considered by the Drinking Water Inspectorate to be capable of continuously removing or retaining particles greater than 1-micron diameter is available on the DWI website at: <http://www.dwi.gov.uk/regs/crypto/approval.shtm>

For products in this section the following general condition applies:  
*Products must be installed upstream of any final point of disinfection.*

### **D.1. MEMBRANE AND FILTRATION ELEMENTS/SYSTEMS**

#### **Amazon Filters Ltd**

Amazon Supagard Cartridge Filters

Amazon Supaspun II Cartridge Filters

#### **Arkal Filtration Systems CS Ltd**

Spinclean 3 SK 2-2 Filter

#### **Atkins Fulford Ltd**

Filtomat Microcheck System

Filtomat Microfibre MT 33P Filter Unit

Filtomat Microfibre MT 38P Filter Unit

#### **Hydranautics BV**

HYDRAcap

#### **Kalsep UK Ltd**

Fibrotex Aqua Filter Elements

Kalmem Polyethersulphone Hollow Fibre Element

PBT Fibrotex Filter Element

#### **Koch Membrane Systems**

ROGA 8133 UF-D

Targa Modules V and H

TFC 2822 HF-370-D Membrane Element

TFC 2832 HF-560-D Membrane Element

TFC 4820 HR-D Membrane Element

TFC 4820 ULP-D Membrane Element

TFC 4920 S-D Membrane Element

TFC 8822 HR-400-D Membrane Element

TFC 8822 XR-400-D Membrane Element

TFC 8823 ULP-365-D Membrane Element

TFC 8823 ULP-400-D Membrane Element

TFC 8832 XR-575-D Membrane Element

TFC 8923 S-400-D Membrane Element

#### **Memcor Ltd**

Memcor Continuous Microfiltration (CMF) M1/M2 System

Memcor Continuous Microfiltration (CMF) M10 System

Memcor Continuous Microfiltration (CMF-L) L10 System, with polypropylene or PVDF membranes

Memtec 602202/602247 PVdF Hollow Fibre Membranes in the CMF System

Memtec 602202/602247 PVdF Hollow Fibre Membranes in the CMF-S System

**Pall Europe Ltd**

Pall Microza USV-6203 micro-filtration modules  
Pall 'Ultipor' 'GF Plus' filter type MWH27

**PCI Membranes**

C10 Module  
CA202 membrane  
CA222 membrane  
ES404 membrane  
Ultrabar (incorporating Kalmem membrane)

**Pridesa Proyectos e Instalaciones de Desalación**

Amazon Cartridge Filter PA-9B-1500

**X-FLOW**

S-150 FSFC Membrane Filtration Elements  
S-225 FSFC Membrane Filtration Elements  
SXL-150 FSFC Membrane Filtration Elements  
SXL-225 FSFC Membrane Filtration Elements

**Zenon Environmental Inc**

ZeeWeed 1000a Membrane Filtration Module  
ZeeWeed 500b Membrane Filtration System

## ***D.2. VESSELS AND CONTAINERS FOR MEMBRANE AND FILTRATION ELEMENTS***

**Memcor Ltd**

Memcor CMF-S Submerged Continuous Microfiltration system)  
Memcor EF  
Zytel 77G33L GYB493 (filter membrane housing)  
Zytel FE5448 GYB493 (filter membrane housing)

## ***D.3. ELECTRODIALYSIS WATER TREATMENT UNITS***

**Ionics (UK) Ltd**

Ionics Electrodialysis Reversal Water Treatment Unit

## **PART E OTHER WATER TREATMENT WORKS INSTALLATIONS**

### ***E.1. TANKS***

#### **ABC Stainless Ltd**

ABC Storage, process tanks and vessels  
Replacement GAC Tank

#### **AJ Engineering & Construction Services Ltd**

AJE Stainless Steel Tank

#### **APT Marine Engineering Ltd**

Replacement Water Clarifier Tank

#### **Forbes Technology Ltd**

Cheetah tanks (polypropylene)  
Lion Range (polypropylene inner surface backed with glassfibre laminate)  
Lynx tanks (PVC inner surface backed with glassfibre laminate)

#### **J.K. Fabrications Limited**

JKF 304 and 316 Stainless Steel Tanks

#### **Permastore Ltd**

Isofusion (vitreous enamelled tank)

#### **Powerrun Project Management Ltd**

Stainless Steel Grade 316L Potable Water Reservoir Tanks

#### **Silotank (Digestors, Silos & Tanks) Ltd**

Connaught Range of Tanks  
Connaught Range of Towers  
Leinster Range of Thermoplastic Tanks  
Leinster Range of Towers

#### **Vulcan Tanks Ltd**

Aquastore

### ***E.2. UNDERDRAINS***

#### **AMT Systems Ltd**

Lateral Filter Underdrain System  
Monolithic Floor Filter Underdrain System

#### **F.B Leopold Co Inc**

HDPE Universal Underdrain and IMS Cap

#### **Severn Trent Water Purification Ltd**

Tetra LP Block System

### ***E.3. PRESSURE VESSELS***

**Compressor & Power Engineers Ltd**  
CPE Pressure Vessels - 316L Stainless Steel  
CPE Pressure Vessels-304 Stainless Steel

**Midas Technologies (GB) Ltd**  
Aqua-HiLo

**Portobello Fabrications Ltd**  
Saturator/Degasser Vessel

**Quantum Engineering Developments Ltd**  
Quantum Pressure Vessels- 304L  
Quantum Pressure Vessels- 316L

### ***E.4. OTHER PRODUCTS USED FOR PHYSICAL TREATMENT OF WATER***

**Delkor Ltd**  
Spiral Separator

**Forbes Technology Ltd**  
Cheetah Pall rings DW40

**Johnson Filtration Systems**  
Screens, Casing and Accessories for Water Wells

**Nijhuis Water Technology b.v.**  
IPF and NPF model of Dissolved Air Flotation units

**OTV Ltd**  
Lamellar Separator Plates Type GA and H

**Paques B.V.**  
Astraseparators ARS-standard

**Passavant-Roediger-Anlagenbau GmbH**  
Lamellar Separator plates

**Purac Ltd**  
Saturator Vessel Pall Rings

**Scottish Water Solutions**  
Stainless steel baffle walls for Floc/DAF cells

**Severn Trent Services**  
Rapid Gravity Filter Air Header

**Veolia Water Systems Ltd**  
Package Actiflo and Multiflo

**Vexamus Water Ltd**

Dynasand Sand Filter DS5000AD

Dynasand Sand Filter DST30D

Lamella Plate Pack LP255

Lamella Plate Separators Flocculation Tank

Lamella Plate Separators LP Range (LP80, LP100, LP140, LP170, LP190)

Lamella Plate Separators LS Range (LS25, LS40, LS60, LS100, LS120, LS165)

Lamella Plate Separators LT Range (LT15, LT25, LT40, LT60)

## **CHANGES TO APPROVALS AND AMENDMENTS TO THE LIST OF APPROVED PRODUCTS**

### **1.1 Modified Conditions of Approval**

Regulation 31 Letter 3/2005 gave notice under Regulation 31(10)(b) of the Secretary of State's intention to modify the conditions of approval for *in-situ* polymeric coatings. This modification takes effect from 1st April 2007. This letter is available on our website: <http://www.dwi.gov.uk/cpp/reg31/current.shtm>.

Water companies and lining contractors will be required to adhere to the requirements of "*In-situ* Resin Coating of Water Mains Operational Requirements". That document and "Code of Practice: *In Situ* Lining of Water Mains" are already posted on the Inspectorate's website: <http://www.dwi.gov.uk/cpp/neworcopindex.shtm>. For further information please see Appendix 3.

### **1.2 List of Products refused Approval under Regulation 31 (4) (a) during 2005**

None.

### **1.3 Prohibition of use of Substances and Products during 2005**

During 2005, the Government Authorities did not prohibit the use of any substances or products.

### **1.4 Revocation of Approval during 2005**

During 2005 the Government Authorities issued notices of revocation of approval for the purposes of Regulation 31 for the following products:

<b>Company Name</b>	<b>Product Name</b>
A & Fabrications Ltd	Dirty Wash Water Cleaning System
Rivitswade	Pipes lined with Copon Hycote 162 PWX
Creto Interation Inc	Evercrete DPS
Evercrete Corporation	

### **1.5 Approval of Processes**

During 2005 the Government Authorities have neither prohibited the use of any processes nor required any water undertaker to apply for approval of any process.

## 1.6 Deletions from the list of approved products in 2005

### 1.6.1 Products deleted because they are no longer supplied or their approval has lapsed

Company Name	Product Name
Pollex AB	Pollex "Tube-In" System
Pumpenboese SBF Hagusta	Hagusta Water steel Products made of stainless steel
Sarnafil Ltd	Sarnafil MPG 980-20
Europipe	Pipes Lined with Copon Hycote 162 PWX
Rivitswade UK	Pipes Lined with Copon Hycote 162 PWX
Gallagher & McKinney	Rising Main Pipework 25NB – 700NB & Associated fittings
Land & Marine Environmental Ltd	Sanicil 100

### 1.6.2 Products deleted because they are covered by a BS EN

None

## 1.7 Changes in ownership or designation of approved products in 2005

The following companies have had ownership of existing product approvals transferred to other companies, or have changed the name of the product:

### 1.7.1 Change in company name or ownership

COMPANY NAME	
Old	New
Kalsep Ltd	Kalsep UK Ltd
Ionex Ltd	BOC

### 1.7.2 Change in product designation

Company	PRODUCT NAME	
	Old	New
Hydranautics (formerly Kalsep)	Kalmem (formerly owned by Kalsep Ltd)	HYDRAcap
BOC	Eliminate Process (formerly owned by Ionex Ltd)	IXL Process

## APPENDIX 2

### LIST OF RELEVANT EUROPEAN STANDARDS AND AUTHORISED COMPONENTS

#### 2.1. British Standards BS EN for Chemicals used for Treatment of Water

**For all of the chemicals listed the following general national condition of use applies:**

*The method of use and the purity of these products shall be such that, in the case of water for public supply, the water so treated meets the requirements of the Water Supply (Water Quality) Regulations 2000 and 2001 in England and Wales.*

<b>BS EN</b>	<b>Chemical</b>	<b>Additional National Conditions of Use</b>
13194: 2000	Acetic acid	None
1302: 1999	Aluminium based co-agulants – Analytical methods	None
881: 2004	Aluminium chloride, aluminium chloride hydroxide and aluminium chloride hydroxide sulfate (monomeric)	None
935: 2004	Aluminium iron (III) chloride (monomer) and aluminium iron (III) chloride hydroxide (monomeric)	None
887: 2004	Aluminium iron (III) sulfate	None
878: 2004	Aluminium sulfate	None
12122: 1999	Ammonia solution	None
12123: 2005	Ammonium sulfate	None
1421: 2005	Ammonium chloride	None
1407: 1998	Anionic and nonionic polyacrylamides	(i) no batch must contain more than 0.020% of free acrylamide monomer based on the active ingredient content; (ii) the dose must average no more than 0.25 mg l <sup>-1</sup> and never exceed 0.50 mg l <sup>-1</sup> of the active ingredient; (iii) an upper limit for the content of free acrylamide monomer must be stated by the supplier for every batch; (iv) the method used for the analysis for free acrylamide monomer is entitled 'Determination of Acrylamide' published in the series 'Methods for the Examination of Waters and Associated Materials' by the Environment Agency.
1018: 1998	Calcium carbonate	None
12485: 2001	Calcium carbonate, high-calcium lime and half burnt dolomite - Test methods	None

900: 2000	Calcium hypochlorite	None
1204: 2005	Calcium tetrahydrogen bis(orthophosphate)	None
936: 1998	Carbon dioxide	None
1410: 1998	Cationic polyacrylamides	<p>(i) no batch must contain more than 0.020% of free acrylamide monomer based on the active ingredient content;</p> <p>(ii) the dose must average no more than 0.25 mg l<sup>-1</sup> and never exceed 0.50 mg l<sup>-1</sup> of the active ingredient;</p> <p>(iii) an upper limit for the content of free acrylamide monomer must be stated by the supplier for every batch; and</p> <p>(iv) the method used for the analysis for free acrylamide monomer is entitled 'Determination of Acrylamide' published in the series 'Methods for the Examination of Waters and Associated Materials' by the Environment Agency.</p>
937: 1999	Chlorine	None
12671: 2000	Chlorine dioxide	The combined concentration of chlorine dioxide, chlorite and chlorate should not exceed 0.5mg l <sup>-1</sup> as chlorine dioxide in the water entering supply.
12386: 1999	Copper sulfate	None
1202: 2005	Dipotassium hydrogen orthophosphate	None
1199: 2005	Disodium hydrogen orthophosphate	None
1205: 2005	Disodium dihydrogen pyrophosphate	None
13176: 2000	Ethanol	None
1017: 1998	Half-burnt dolomite	None
12175: 2001	Hexafluorosilicic acid	None
12518: 2000	High-calcium lime	None
939: 2000	Hydrochloric acid	Permission or consent for disposal of any wastewater generated to a sewer or watercourse must be obtained from the relevant water service company or Environment Agency, as appropriate.
902: 2000	Hydrogen peroxide	<p>Permission or consent for disposal of any wastewater generated to a sewer or watercourse must be obtained from the relevant water service company or Environment Agency, as appropriate.</p> <p>Current approval for the use of products containing silver salts in relation to emergency disinfection of water intended for human consumption is subject to the following conditions of approval:</p> <ul style="list-style-type: none"> <li>the concentration of silver in the water does not</li> </ul>

		<p><i>exceed 80 µg l<sup>-1</sup>; and</i></p> <ul style="list-style-type: none"> <li><i>consumers are exposed to water containing silver for only as long as necessary to restore conventional treatment, and for no more than a total of 90 days in any period of a year.</i></li> </ul> <p><i>These conditions ensure that there is only a limited exposure of the consumer to silver.</i></p>
888: 2004	Iron(III) chloride	None
891: 1994	Iron(III) chloride sulfate	None
889: 2004	Iron(II) sulfate	None
890: 2004	Iron(III) sulphate liquid	None
14664: 2004	Iron(III) sulphate, solid	None
12126: 1999	Liquefied ammonia	None
13177: 2002	Methanol	None
1406: 1998	Modified starches	<i>The dose must not exceed 5 mg l<sup>-1</sup> of active ingredient.</i>
1204: 1998	Monocalcium phosphate	None
1201: 1998	Monopotassium hydrogen orthophosphate	None
1197: 2000	Mono zinc phosphate solution	None
12876: 2000	Oxygen	None
1278: 1999	Ozone	None
974: 2003	Phosphoric acid	<i>Permission or consent for disposal of any wastewater generated to a sewer or watercourse must be obtained from the relevant water service company or Environment Agency, as appropriate.</i>
1408: 1998	Poly(diallyldimethylammonium chloride)	<i>The dose used must not exceed 10 mg l<sup>-1</sup> of active ingredient.</i>
883: 2004	Polyaluminium chloride hydroxide and polyaluminium chloride hydroxide sulfate	None
885: 2004	Polyaluminium chloride hydroxide silicate	None
886: 2004	Polyaluminium hydroxide silicate sulfate	None
1409: 1998	Polyamines	<p><i>(i) The average dose should be 2.5 mg l<sup>-1</sup> and never exceed 5 mg l<sup>-1</sup> of active ingredient;</i></p> <p><i>(ii) no batch must contain more than 40 mg of 3-monochloropropane 1,2-diol per kg of active ingredient;</i></p> <p><i>(iii) the analytical system used for determining the batch</i></p>

		<p>content must have a limit of detection no greater than 4 mg kg<sup>-1</sup> and a maximum total standard deviation no greater than 4 mg kg<sup>-1</sup> at 40 mg kg<sup>-1</sup>. Both estimates must have at least 10 degrees of freedom and have been determined from batches of analyses carried out on not less than five separate days; and</p> <p>(iv) the supplier must state for every batch an upper limit for the content of 3-monochloropropane 1,2-diol.</p>
1201: 2005	Potassium dihydrogen orthophosphate	None
12672: 2000	Potassium permanganate	None
12678: 2000	Potassium peroxomonosulfate	None
1211: 2005	Potassium tripolyphosphate	None
1205: 1998	Sodium acid pyrophosphate	None
1405: 1998	Sodium alginate	the dose used must not exceed 0.5 mg l <sup>-1</sup> of active ingredient
882: 2004	Sodium aluminate	None
1208: 2005	Sodium calcium polyphosphate	None
897: 1999	Sodium carbonate	None
973: 2002	Sodium chloride for regeneration of ion exchangers	None
938: 2000	Sodium chlorite	<p>(i) the dose must be such that the combined concentration of chlorine dioxide, chlorite and chlorate does not exceed 0.5 mg l<sup>-1</sup> as chlorine dioxide in water potentially entering supply; and</p> <p>(ii) permission or consent for disposal of any wastewater generated to a sewer or water course must be obtained from the relevant water service company or Environment Agency, as appropriate.</p>
12931: 2000 12932: 2000 12933: 2000	Sodium dichloroisocyanurate, anhydrous Sodium dichloroisocyanurate, dihydrate Trichloroisocyanuric acid	<p><b>Conditions if product is used as a cleaning agent:</b></p> <p>(i) the dose must be such that the final concentration in the water used to wash installations does not exceed 1000 mg l<sup>-1</sup> of free available chlorine;</p> <p>(ii) that following cleaning and disinfection, the installation is flushed to ensure that the residual chlorine concentration is acceptable to consumers; and</p> <p>(iii) permission or consent for disposal of any wastewater generated to a sewer or watercourse must be obtained from the relevant water service company or Environment Agency, as appropriate.</p> <p>Water companies should check with their suppliers to ensure that products to be cleaned and disinfected will not be adversely affected by the concentration of chlorine to be employed.</p> <p><b>Conditions if product is used as an emergency disinfectant:</b></p> <p>(i) where circumstances are such that the water being treated is not grossly contaminated and a controlled contact time of not less than 15 minutes between dosing</p>

		<p><i>and taking it into use can be maintained, not more than 10 mg l<sup>-1</sup> of sodium dichloro-isocyanurate compound should be applied and not more than 1mg l<sup>-1</sup> of free residual chlorine should be present at the end of the relevant contact time. It is recommended that consumers should be exposed to such waters containing chloro-isocyanurates for only as long as is required to restore conventional treatment, or for no more than 90 days in any period of a year, whichever is applicable;</i></p> <p><i>(ii) under circumstances where water sources may be grossly contaminated, to ensure inactivation of most likely harmful organisms, up to 20 mg l<sup>-1</sup> sodium dichloro-isocyanurate may be added, with a recommended contact time of 15 minutes before use. It is recommended that consumption of water dosed at this rate of treatment should be for only as long as is necessary before it is possible to effect control of the residual chlorine after contact to 1 mg l<sup>-1</sup>, and then to follow the requirements set out in condition (i); and</i></p> <p><i>(iii) should it be necessary for specific groups of consumers to be exposed to water containing chloro-isocyanurates for periods greater than 90 days either continuously or in a year, it is recommended that independent medical advice be obtained from a person who is not under the control of the water undertaker.</i></p>
1198: 2005	Sodium dihydrogen orthophosphate	None
12121: 1999	Sodium disulfite	None
12173: 2005	Sodium fluoride	None
12174: 2001	Sodium hexafluorosilicate	None
898: 1998	Sodium hydrogen carbonate	None
12120: 1999	Sodium hydrogen sulfite	None
896: 1999	Sodium hydroxide	None
901: 2000	Sodium hypochlorite	<p><i>The method of use and the purity of these products shall be such that, in the case of water for public supply, the water so treated meets the requirements of the Water Supply (Water Quality) Regulations 2000 and 2001 in England and Wales.</i></p>
12926: 2000	Sodium peroxodisulfate	None
1212: 2005	Sodium polyphosphate	None
1209: 1998	Sodium silicate	None
12124: 1999	Sodium Sulfite	None
12125: 1999	Sodium thiosulfate	None
1210: 2005	Sodium tripolyphosphate	None

1019: 1996	Sulfur dioxide	None
899: 2003	Sulfuric acid	None
1207: 2005	Tetrapotassium pyrophosphate	None
1206: 2005	Tetrasodium pyrophosphate	None
1203: 2005	Tripotassium orthophosphate	None
1200: 2005	Trisodium orthophosphate	None

## 2.2 British Standards BS EN for Inorganic Supporting and Filtering Materials Used for Treatment of Water Intended for Human Consumption

**For all of the products listed the following general national condition of use applies;**  
*The method of use and the purity of these products shall be such that, in the case of water for public supply, the water so treated meets the requirements of the Water Supply (Water Quality) Regulations 2000 and 2001 in England and Wales.*

<b>BS EN</b>	<b>Title</b>	<b>Additional National Conditions of Use</b>
12909: 1999	Anthracite	None
12912: 2005	Barite	None
13754: 2003	Bentonite	None
14456: 2004	Bone charcoal	<i>The contact bed containing the product must be adequately back-washed (until backwash water is clear of fines) to remove any readily leachable materials before connection to the supply.</i>
12905: 1999	Expanded aluminosilicate	None
12910: 1999	Garnet	None
13753: 2002 12915 - 1: 2003 12915 - 2: 2003 12907: 2003	Granular activated alumina Granular activated carbon. Part 1: Virgin GAC Granular activated carbon. Part 2: Reactivated GAC Pyrolised coal material	<i>(i) the contact bed containing the product must be adequately back-washed (until backwash water is clear of fines) to remove any readily leachable materials before connection to the supply; and (ii) before connection to the supply, the water undertaker or their appointed agent must carry out tests on the filtrate water to establish that use of the contact bed will not cause any adverse effect on the quality of water to be put into supply. These tests must include measurement of chlorine demand and a qualitative odour assessment, as well as tests to confirm that leaching of activating agents or any other substance used in the preparation or regeneration of the product will not cause a contravention of the standards prescribed in the Water Supply (Water Quality) Regulations 2000 and 2001 in England and Wales.</i>
12901: 1999	Inorganic supporting and filtering materials –	None

	Definitions	
12902: 2004	Inorganic supporting and filtering materials – Methods of test	None
14369: 2003	Iron-coated granular activated alumina	None
13752: 2003	Manganese dioxide	None
13752: 2003	Manganese dioxide	None
12911: 1999	Manganese greensand	None
12903: 2003	Powered activated carbon	The dose must not exceed 100 mg l <sup>-1</sup> .
12913: 2005	Powdered diatomaceous earth	None
12914: 2005	Powdered perlite	None
12906: 1999	Pumice	None
12904: 2005	Silica sand and silica gravel	None

### 2.3 British Standards (BS EN) on the Influence of Materials on Water Intended for Human Consumption

BS EN	Title
1420-1: 1999	Influence of organic materials on water intended for human consumption – Determination of odour and flavour assessment of water in piping systems
13052-1: 2001	Influence of materials on water intended for human consumption – Organic materials – Determination of colour and turbidity of water in piping systems – Part 1: Test method
12873-1: 2003	Influence of materials on water intended for human consumption – Influence due to migration – Part 1: Test method for non-metallic and non-cementitious factory made products
14395-1: 2004	Influence of materials on water intended for human consumption – Organoleptic assessment of water in storage systems – Part 1: Test method
12873-2: 2005	Influence of materials on water intended for human consumption – Influence due to migration – Part 2: Test method for non-metallic and non-cementitious site – applied materials

### 2.4 List of Authorised Cement Admixture Components

Regulation 25/31 letters 6/2000 and 03/2003 gave details of the arrangements for authorisation of civil engineering use of concrete in water retaining structures in treatment and distribution systems. The following list gives the chemical identity of admixture components considered acceptable for use in cement admixtures for use in concrete in contact with water in water retaining structures, providing the admixture is not added to the concrete at a concentration exceeding the manufacturer's recommended dose.

<b>ADMIXTURE COMPONENT</b>	<b>USED AS</b>
Abietic acid salts	Air entrainer
Aluminates, sodium or potassium	Accelerator
Aluminium hydroxides, amorphous	Accelerator
Anionic surfactants	Air entrainer
Butyl stearate	Waterproofing/ water repellent
Carbonate, sodium or potassium	Accelerator
Cellulose ethers	Stabiliser/pumping aid
Citric acid	Retarder
Decanoate, sodium	Air entrainer
Dimethylsiloxane, poly-	Defoamer agent for plasticisers/ superplasticisers
Dodecyl benzene sulphonate, sodium	Air entrainer
Fatty acid soaps	Waterproofing/ water repellent
Formate, calcium	Accelerator
Gluconic acid salts	Water reducer/ plasticiser
Heptonic acid salts	Water reducer/ plasticiser
Lauryl ether sulphate, sodium	Air entrainer
Lignosulphonates	Water reducer/ plasticiser
Nitrate, calcium, sodium or potassium	Accelerator
Oleic acid and salts	Waterproofing/ water repellent
Oxalate, lithium	Accelerator
Polysaccharides	Water reducer/ plasticiser
Phosphate, dibutyl	Defoamer agent for plasticisers/ superplasticisers
Phosphate, tributyl	Defoamer agent for plasticisers/ superplasticisers
Phosphates (inorganic)	Retarder
Phosphonates (organic)	Retarder
Polycarboxylate/ polyether copolymer	Superplasticiser
Silicates, sodium	Accelerator
Starch ethers	Stabiliser/pumping aid
Stearate salts	Waterproofing/ water repellent
Sucrose	Retarder
Sulphonated melamine formaldehyde condensate	Superplasticiser
Sulphonated naphthalene formaldehyde condensate	Superplasticiser
Tartaric acid	Retarder
Thiocyanate, sodium	Accelerator
Triethanolamine	Water reducer/ plasticiser

**Note 1:** Biocides/ preservative and agents, antifoam/ air control agents, present in the admixture at less than 1.0% in total and the dilution water used in cement admixture formulations are excluded from the requirement for authorisation.

**Note 2:** The use of ferrous or stannous sulphate is acceptable as reducing agents to control concentrations of hexavalent chromium (VI) in cement.

**Note 3:** Fibre additions to concrete - , the use of polymeric or carbon reinforcing fibres should not be a cause for concern, providing that either -

- a. concrete made with them, at the proposed concentration/level conforms with the requirements of BS 6920 odour and flavour and growth of aquatic microorganisms tests OR
- b. the reinforcing fibres have already met the requirements of BS 6920

## APPENDIX 3

### CONTRACTORS APPROVED FOR THE *IN SITU* APPLICATION OF POLYMERIC COATINGS

The conditions of approval for *in-situ* application of polymeric coatings to water pipes require contractors to obtain third party certification. In addition, the relevant operational guidance and code of practice document specifies that all contractors must complete successfully a supervised lining trial.

Currently, for the *in situ* application of epoxy resin, contractors must refer to the "*In-Situ* Epoxy Resin Lining - Operational Requirements and Code of Practice" 3<sup>rd</sup> Edition - ISBN 1-898920 45 1; for the *in-situ* application of rapid-setting polymeric linings, contractors must refer to the "*In-Situ Rapid-Setting Polymeric Lining* - Operational Guidance and Code of Practice" - ISBN 0-9539278-0-6

However, Regulation 31 Letter 3/2005 gave notice under Regulation 31(10)(b) of the Secretary of State's intention to modify the conditions of approval. This modification takes effect from 1st April 2007.

The effect of the modification *inter alia*, will be to require water companies and lining contractors to adhere to the requirements of "*In-situ* Resin Coating of Water Mains Operational Requirements". That document and "Code of Practice: *In Situ* Lining of Water Mains" are already posted on the Inspectorate's website: [www.dwi.gov.uk/cpp/neworcopindex.shtm](http://www.dwi.gov.uk/cpp/neworcopindex.shtm) Appointed organisations to accredit resin lining contractors and equipments and to provide training to lining operatives and Utility Representatives, are encouraged to refer to the new documents during training. Details of the requirements for the appointed organisations can be obtained from the Technical Secretary. To date, four organisations have been appointed: WRc, FaberMaunsell, WRc-NSF and RPS.

The following tables list the lining contractors which have been approved by each of the appointed organisation and have achieved full third party certification. The resins for which the lining contractor have been approved are listed against the company names.

#### 3.A Lining Contractors with full third party certification approved by WRc for the *in situ* application of polymeric linings

Contractor	Material
Alfred McAlpine Utility Services	Mercol Geopox GX 014
Balfour Beatty Utilities Ltd	ELC 173/90 and Mercol Geopox GX 014
Doocey Pipelines Ltd	ELC 173/90
DVS Pipeline Ltd	Fosroc Nitoline WP
Fastflow Pipeline Services Ltd	Mercol Geopox GX 014 and Copon Hycote 169
Laing Utilities Ltd	ELC 173/90, Fosroc Nitoline WP, and Fosroc Nitoline WP2
Pipeway Ltd	ELC 173/90
PN Daly Ltd	Fosroc Nitoline WP2
Subterra Ltd	ELC 173/90

Information on the status of the third party certification of lining contractors and information on recently approved lining contractors can be obtained from Mr Paul Conroy, WRc, Frankland Road, Blagrove, Swindon, Wiltshire SN5 8YF. Telephone: 01793 865082, Fax: 01793 865001.

### **3.B Lining Contractors with full third party certification approved by FaberMaunsell for the *in situ* application of polymeric linings**

<b>Contractor</b>	<b>Material</b>
Balfour Beatty Utilities Ltd	Copon Hycote 169 and Copon Hycote 169 HB**
May Gurney Ltd	Copon Hycote 169
DVS Pipelines Ltd	Fosroc Nitoline RSM*
Laing O'Rourke	Copon Hycote 169, Fosroc Nitoline RSM*, Copon Hycote 169 HB** and Copon Hycote 169 LV
Subterra Ltd	Fast-Line Plus
CaL Solutions Ltd.	ELC 173/90**

\* issue with product patent

\*\* interim approval given

Further information regarding the accreditation regime or the current status of approved lining contractors is available from Clive Compson of FaberMaunsell, Environment Division, Bush House, Prince Street, Bristol, BS1 4QD, Telephone: 0117 9017000, Fax: 0117 9017099, E-mail: [clive.compson@fabermaunsell.com](mailto:clive.compson@fabermaunsell.com)

### **3.C Lining Contractors with full third party certification approved by Wrc-NSF for the *in situ* application of polymeric linings**

<b>Contractor</b>	<b>Material</b>
DVS Pipelines Ltd	Copon Hycote 169HB

Further information regarding the accreditation regime or the current status of approved lining contractors is available from Ken Reed or Ian Warren from WRC-NSF, Fern Close, Pen-y-Fan Industrial Estate, Oakdale Gwent, NP11 3EH, Telephone: 01495 236260; E-mail: [lining-audit@wrcnsf.com](mailto:lining-audit@wrcnsf.com)

### **3.D Lining Contractors with full third party certification approved by RPS for the *in situ* application of polymeric linings**

None

Further information is available from Jed Knox, RPS Water Services, Telford House, 105 Dalton Avenue, Birchwood Park, Warrington, Cheshire WA3 6YF Telephone: 01925 847960; E-mail: [knoxj@rpsgroup.com](mailto:knoxj@rpsgroup.com)

## APPENDIX 4 - LISTINGS

### 4.1 Manufacturers' and suppliers' addresses

**ABC Stainless Steel Ltd**  
Empson Road  
Eastern Industry  
Peterborough  
PE1 5UP  
**Tel: 01733 314515**

**Alpha Plus Ltd**  
Unit 12, Wharncliffe  
Industrial Complex,  
Station Road, Deepcar,  
Sheffield, South Yorkshire  
S36 2UZ  
**Tel: 0114 283 0774**

**AMT Systems Ltd**  
Unit 14, West Stocwith Park  
Stockwith Road  
Misterton  
Doncaster  
DN10 4ES  
**Tel: 01427 890022**

**Angus Fire Armour Ltd**  
Station Road  
Bentham  
Lancaster  
LA2 7NA  
**Tel: 01524 261947**

**APT Marine Engineering Ltd**  
Humber Bank South  
Fish Doks  
Grimsby  
North East Lincolnshire  
DN31 3SD

**Aqua Cure plc**  
Aqua Cure House  
Hall Street  
Southport, Merseyside  
PR9 0SE  
**Tel: 01704 516 916**

**Aquabiotics Pty Ltd**  
14 Goongarrie Street  
Bayswater 6053

Western Australia  
**Tel: 0061 89379 2911**

**Arkal Filtration Systems CS Ltd**  
Kibbutz Bet Zera  
MP Jordan Valley 15135  
Israel  
**Tel: 00972 6 6775140**

**Ashland Drew Industrial Division**  
Pesetastraat 5  
2991 XT Barendrecht  
The Netherlands  
**Tel: 0031 10 5497 5000**

**Asset International Ltd**  
Stephenson Street  
Newport  
South Wales  
NP19 4XH  
**Tel: 01633 273081**

**Atkins Fulford Ltd**  
Edgworth Road  
Sudbury  
Suffolk  
CO10 6TG  
**Tel: 01787 374141**

**Atkinson Chemicals Ltd**  
24 High Street  
Twyford  
Reading  
Berkshire  
RG10 9AB  
**Tel: 01734 342289**

**Avista Technologies (UK) Ltd**  
Waterside House  
PO Box 28612  
Edinburgh  
EH14 5ZL  
**Tel: 01189 669645**

**Aztec Environmental Controls**  
Sittingbourne Industrial  
Park  
Crown Quay Lane  
Sittingbourne  
Kent  
ME10 3JG  
**Tel: 01795 476241**

**Barnard Ltd**  
Lower Tower Street  
Birmingham  
B19 3NL  
**Tel: 0121 359 5531**

**Barrier Limited**  
Pearl Buildings  
Stephenson Street  
Willington Quay  
Wallsend  
NE28 6UE  
**Tel: 0191 262 0510**

**Bayer AG**  
Rheinuferstr. 7-9  
LS-M SC TO/SP  
Building R 54  
D 47829 Krefeld  
GERMANY  
**Tel: 0049 21 51 88 37 90**

**BOC Ltd**  
The Priestley Centre  
10 Priestley Road  
The Surrey Research Park  
Guildford, Surrey  
GU2 5XY  
**Tel: 01483 579 857**

**British Cement Association**  
Riverside House  
4 Meadows Business Park  
Station Approach  
Blackwater  
Camberley  
Surrey

GU17 9AB  
**Tel: 01276 608700**

**BSR Pipeline Services Ltd**  
Brenda Road  
Hartlepool  
S25 2EG  
**Tel: 01429 527286**

**Buderus Guss GmbH**  
Pipe Coating Division  
Sophienstraße 52-54  
Germany  
**Tel: 0049 64 41 49 15 62**

**Carus Chemical Company**  
315 5<sup>th</sup> Street  
PERU IL 61329  
USA  
**Tel: 001 815 223 1500**

**CemPipe Ltd**  
Pipeway House  
Bishopstone Lane  
Sayers Common  
Hassocks  
West Sussex  
BN6 9HG  
**Tel: 01444 230011**

**Clinty Chemicals Ltd**  
215 Doury Rd  
Ballymena  
CO Antrim  
BT43 6SS

**Compressor & Power  
Engineers Ltd**  
Apollo  
Lichfield Road In Est  
Tamworth  
B79 7TA  
**Tel: 01827 68710**

**Conline Coatings B.V.**  
Adriaan van Heelstraat 19  
Postbus 96  
3140 ab maassluis  
The Netherlands  
**Tel: +31 (010) 5931400**

**Corroless Corrosion  
Control**

Kelvin Way  
West Bromwich  
West Midlands  
B70 7JZ  
**Tel: 0121 524 2235**

**Damstahl Stainless Ltd**  
Halesfield 4  
Telford  
Shropshire  
TF7 4AP  
**Tel: 01952 583999**

**Delkor Ltd**  
Winderfield Road  
Paulton  
Bristol  
BS39 7RF  
**Tel: 01761 417079**

**DH Stainless Ltd**  
Springvale Mill  
Waterside Road  
Haslingdon, Lancashire  
BB4 SE2  
**Tel: 01706 230066**

**DRC Polymer Products  
Ltd**  
1 Regal Lane, Soham  
Ely, Cambs  
CB7 5BA  
**Tel: 01353 720989**

**Durapipe UK**  
Wallsall Road  
Norton Canes  
Cannock  
Staffordshire WS11 9NS  
**Tel: 01543 279909**

**Dustacco Engineering Ltd**  
Tower works  
Stoneygate Road  
Newmilns  
Ayshire  
KA16 9AJ  
**Tel: 01560 321394**

**Dyka B.V.**  
Postbus 33  
8330 AA Steenwijk  
The Netherlands

**Dyka Plastics NV**  
Nolimpark 4004  
Sturfzandstraat 47  
B-3900 Overpelt  
Belgium  
**Tel: 0032 11 80 04 20**

**Dyka (UK) Ltd**  
65-69 Ellingham Way  
Ashford, Kent  
TN23 6JU  
**Tel: 01233 634438**

**E Wood Ltd**  
Standard Way  
Northallerton  
North Yorkshire  
DL6 2XA  
**Tel: 01609 780170**

**Egeplast Werner  
Strumann GmbH &Co**  
Nordwalder Strasse 80  
D-48282 Emsdetten  
Germany

**Electrosteel Castings Ltd**  
30 B. T. Road  
P. O. Sukechar  
Dist. 24 Parganas (North)  
West Bengal  
INDIA  
**Tel: 0091 33 553 2958/2987**

**EPSCO Ltd**  
Arran Road  
Perth  
Perthshire  
Scotland  
PH1 3DZ

**F B Leopold Co Inc**  
227 S. Division Street  
Zelienople, PA 16063  
USA  
**Tel: 001 412 452 6300**

**Filtermax UK Ltd**  
Units 4 & 5 Priority  
Enterprise Park  
Ty-Verlon  
Barry CF63 2BE  
South Wales  
**Tel: 01446 743688**

**Flexcrete Ltd**  
PO Box 7  
London Road  
Preston  
Lancashire  
PR1 4AJ  
**Tel: 01772 259477**

**Forbes Technology Ltd**  
Denver, Downham Market  
Norfolk  
PE38 0DR  
**Tel: 01366 388941**

**Fosroc Ltd**  
Drayton Manor Business  
Park, Coleshill Road,  
Tamworth  
Staffs, B78 3TL  
**Tel: 01827 262222**

**Frazer & Tabberer Ltd**  
Unit 6  
Riland Industrial Estate  
Sutton Coldfield  
West Midlands  
B75 7BB  
**Tel: 0121 311 2606**

**Freeflow Pipesystems Ltd**  
Autobase Industrial Park  
Tipton Road  
Tividale  
Oldbury  
West Midlands, B69 3HE  
**Tel: 0121 522 3552**

**Fuchs Rohr GmbH**  
In Der Steinwiese 31  
D-57074 Siegen  
Germany

**Fullstop Technology Ltd**  
Caiden House  
Canal Road  
Timperley  
Cheshire  
WA14 1TE  
**Tel: 0161 962 8093**

**Fusion Group plc**  
Smeakley Wood Close  
Chesterfield Trading Est  
Chesterfield  
S41 9PZ  
**Tel: 01246 260111**

**Fusion Provida**  
Smeakley Wood Close  
Chesterfield Trading Est  
Chesterfield  
S41 9PZ  
**Tel: 01246 260111**

**Future Pipe**  
Level 1, Whitlock House  
6 Earls Court Road  
LONDON  
W8 6EA  
**Tel: 020 7938 4942**

**GE Betz Ltd**  
Foundry Lane  
Ditton  
Widnes  
Cheshire  
WA8 8UD  
**Tel: 0151 424 5351**

**George Green (Keighley) Ltd**  
Parkwood Works  
Parkwood Street  
Keighley  
West Yorkshire  
BD21 4PN  
**Tel: 01535 603728**

**GE Plastics ABS Europe B.V.**  
1 Plasticaan  
PO Box 117  
4600 AC Bergen Op Zoom  
The Netherlands

**GEH Wasserchemie GmbH**  
Heinrich Hasemeier Straße  
33  
D-49076 Osnabrück  
Germany  
**Tel: 0049 541 12 20 09**

**George Green (Keighley) Ltd**  
Parkwood Works  
Parkwood Street  
Keighley  
West Yorkshire  
BD21 4PN  
**Tel: 01535 603728**

**Genesys International Ltd**  
Genesys House  
204 Lent Rise Road  
Burnham  
Bucks  
SL1 7AB  
**Tel: 01628 667605**

**GPS (Glynwed Pipe Systems)**  
Walsall Road  
Norton Canes  
Cannock  
Staffordshire  
WS11 3NS  
**Tel: 01543 279909**

**Gulf Specialised Water Services Ltd**  
PO Box 158  
Plymouth  
PL6 7WE  
**Tel: 01752 773071**

**Hepworth Building Products Ltd**  
Edlington Lane,  
Edlington,  
Doncaster,  
DN12 1BY  
**Tel: 01709 856300**

**High Chemicals (UK) Ltd**  
Unit 18  
Tafarnaubach Industrial  
Estate  
Tredegar

Gwent  
NP2 3AA  
**Tel: 01495 717007**

**Hunting Industrial Coatings Ltd**  
European Headquarters  
Derby Road  
Widnes  
Cheshire WA8 9ND  
**Tel: 0151 495 3505**

**Hydranautics BV**  
**Hydranautics BV**  
PO Box 4006  
Pangbourne  
RG8 7WB  
**Tel: 0118 984 3106**

**Iniziative Industriali SpA (Sarplast)**  
Via Roginanina 14  
Localita Macchiaverde  
56040 Santa Luce (Pisa)  
ITALY  
**Tel: 0039 050 691 745**

**BOC**  
Water Treatment  
Technologies  
26 Nailsworth Mills Estate  
Nailsworth  
Gloucestershire  
GL6 0BS  
**Tel: 01453 836621**

**Ionics (UK) Ltd**  
Unit 1, Gnd Floor, HQ3  
225 Hook Rise South,  
SURBITON, KT6 7LD  
**Tel: 020 8391 7980**

**ITW Irathane International**  
Brunel Close  
Park Farm Industrial Estate  
Wellingborough  
Northamptonshire  
NN8 6QX  
**Tel: 01933 675099**

**JFC Manufacturing (Europe) Ltd**  
Maes Y Clawydd Industrial Estate  
Maesbury Road  
Oswestry  
Shropshire  
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## 4.2 Manufacturers and suppliers index

<b>A</b>	
ABC Stainless Ltd .....	20, 31
AJ Engineering & Construction Services Ltd .....	20, 31
Alpha Plus Ltd .....	20
Amazon Filters Ltd .....	29
AMT Systems Ltd .....	31
Angus Fire Armour Ltd .....	23
APT Marine Engineering Ltd .....	31
Aqua Cure plc .....	14
Aquabiotics Pty Ltd .....	12
Arkal Filtration Systems CS Ltd .....	29
Ashland Drew Industrial Division .....	13
Asset International Ltd .....	16
Atkins Fulford Ltd .....	29
Atkinson Chemicals Ltd .....	13
Avista Technologies (UK) Ltd .....	13
Aztec Environmental Controls .....	15
<b>B</b>	
Barnard Ltd .....	20
Barrier Limited .....	20
Bayer AG .....	11
BOC .....	12
British Cement Association .....	25
BSR Pipeline Services Ltd .....	20
Buderus Guss GmbH .....	19
<b>C</b>	
Carus Chemical Company .....	12
CemPipe Ltd .....	16
Clinty Chemicals Ltd .....	11
Compressor & Power Engineers Ltd .....	32
Conline Coatings B.V. ....	20
Corroless Corrosion Control .....	24
<b>D</b>	
Damstahl Stainless Ltd .....	20
Delkor Ltd .....	32
DH Stainless Ltd .....	20
DRC Polymer Products Ltd .....	25
Durapipe UK .....	18
Dustacco Engineering Ltd .....	20
Dyka (UK) Ltd .....	18
DYKA B.V. ....	16
Dyka Plastics NV .....	16
<b>E</b>	
E Wood Ltd .....	23, 24, 25
Egeplast Werner Strumann GmbH & Co .....	16
Electrosteel Castings Ltd .....	19
EPSCO Ltd .....	12
<b>F</b>	
F.B Leopold Co Inc .....	31
Flexcrete Ltd .....	25, 26
Forbes Technology Ltd .....	31, 32
Fosroc Ltd .....	23, 24, 26
Frazer & Tabberer Ltd .....	19
Freeflow Pipesystems .....	20
Fuchs Rohr GmgH .....	19
Fullstop Technology Ltd .....	26
Fusion Group plc .....	16
Fusion Provida .....	16
Future Pipe Industries B.V. ....	19
<b>G</b>	
GE Betz Ltd .....	11, 13
GEH Wasserchemie GmbH .....	12
Genesys International Ltd .....	13
George Green (Keighley) Ltd .....	21
GPS (Glynwed Pipes Sytems) .....	16, 18
Gulf Specialized Water Services Company .....	14
<b>H</b>	
Hepworth Building Products .....	16, 18
High Chemicals (UK) Ltd .....	11
Hunting Industrial Coatings Ltd .....	23, 24
Hydranautics BV .....	29
<b>I</b>	
Iniziative Industriali SpA (Sarplast) .....	19
Ionics (UK) Ltd .....	30
ITW Irathane International .....	25, 26
<b>J</b>	
J.K. Fabrications Limited .....	21, 31
JFC Manufacturing (Europe) Ltd .....	22
Johnson Filtration Systems .....	32
<b>K</b>	
Kalsep UK Ltd .....	29
Kingspan Environmental Containers .....	22
Koch Membrane Systems .....	29
KWH Pipe (UK) Ltd .....	16
<b>L</b>	
Lancashire Fittings Ltd .....	21
Leigh's Paints .....	23, 24
Leyfos Plastics Limited .....	19
<b>M</b>	
MBT Feb .....	26, 27
Memcor Ltd .....	29, 30
Mercol Products Ltd .....	23, 24
Midas Technologies (GB) Ltd .....	32
<b>N</b>	
Natural Cement Distribution Ltd .....	27
Nijhuis Water Technology b.v. ....	32
NKT Flexibles .....	17
Northpoint Ltd .....	20
<b>O</b>	
Orica UK Ltd .....	12
Orrmac Coatings Limited .....	20
OTV Ltd .....	32

Outokumpu Stainless Ltd .....	21	Severn Trent Water Purification Ltd .....	31
<b>P</b>		Sika Ltd.....	24, 26, 27
Pall Europe Ltd.....	30	Silotank (Digestors, Silos & Tanks) Ltd	31
Panton McLeod Ltd.....	12	Simona UK Ltd.....	17
Paques B.V. ....	32	Snap-Tite Europe. B.V. ....	21
Passavant-Roediger-Anlagenbau GmbH	32	Stainless Metric Stock Ltd.....	21
PCI Membranes .....	30	Staptina Engineering Services Ltd.....	21
Permacare - Membrane Separations Group		Stevens Geomembranes - JPS	
.....	13, 14	Elastomerics .....	25
Permastore Ltd .....	31	Subterra.....	23, 24, 25
Pipeline Protection Services Ltd .....	20	Subterra - .....	17
Plastic Coatings Ltd.....	20	Subterra Ltd.....	44
Polypipe (Ulster) Ltd.....	17	Swissteril International 5755 Ltd.....	14
Polypipe Building Products Ltd .....	17	<b>T</b>	
Portobello Fabrications Ltd .....	32	Tevan BV.....	13
Powerrun Project Management Ltd..	21, 31	Trailer Engineering.....	22
Pridesa Proyectos e Instalaciones de		<b>U</b>	
Desalación.....	30	Uponor Ltd .....	17, 18
Proton Water Services Ltd.....	15	<b>V</b>	
Purac Ltd .....	32	Vandex UK Ltd .....	26, 28
Purolite International.....	12	Veolia Water Systems Ltd.....	32
Purolite International Ltd .....	12	Vexamus Water Ltd.....	21, 33
<b>Q</b>		Vulcan Tanks Ltd .....	31
Quality Plastics Ltd .....	17	<b>W</b>	
Quantum Engineering Developments Ltd		Wallace and Tiernan Ltd .....	15
.....	32	Waterman Environmental Services Ltd.	15
<b>R</b>		Wavin Ireland Ltd.....	18
ROAM Chemie NV.....	13, 14	Wavin Plastics Ltd.....	17, 18
Rohm and Haas Ltd.....	12, 14	Weir Materials & Foundries .....	21
<b>S</b>		Western Trailers .....	22
Saint-Gobain Pipelines plc .....	19	Whale Tankers Ltd .....	22
Samuel Cooke & Co Ltd .....	27	<b>X</b>	
Sandvik Materials Technology Ltd .....	21	X-FLOW.....	30
Sarnafil Ltd.....	25	<b>Z</b>	
Scottish Water Solutions .....	21, 32	Zenon Environmental Inc .....	30
Sertubi .....	19		
Severn Trent Services.....	15, 32		

### 4.3 Product Index

304 Stainless Steel Thin Wall Pipework 50NB to 1000NB .....	21	BoreSaver Ultra C .....	12
316 Stainless Steel Thin Wall Pipework 50NB to 1000NB .....	21	BSR/EPW/003 - Pipegard P300 .....	20
A		BSR/EPW/004 - Copon Hycote PWX... C	20
ABC Storage, process tanks and vessels	31	C10 Module .....	30
ACHY SHP .....	14	CA202 membrane .....	30
Acumer 1100 .....	14	CA222 membrane .....	30
Acumer 4035 .....	14	Calcium chloride.....	15
Acumer 4450 .....	14	Calcium sulphate .....	15
Acumer 4800 .....	14	Carela Bio-Des .....	12
AJE Stainless Steel Pipe Systems.....	20	Carela Bio-Plus.....	12
AJE Stainless Steel Tank.....	31	Carela Bio-Plusforte .....	12
Aldyl BPB Black Polyethylene Pipe .....	17	Carela Novopur.....	12
Aldyl BPDB Dark Blue Polyethylene Pipe .....	17	Carela RS 100.....	12
Aldyl BPLB Light Blue Polyethylene Pipe .....	17	Carusol 20 Liquid Permanganates .....	12
Aldyl EHDB Black Polyethylene Pipe...17		Carusol 40 Liquid Permanganates .....	12
Aldyl F Light Blue Polyethylene Pipe....17		Cement Mortar Lining coated with Hunting Waterline sealcoat .....	19
Aldyl NCB Black Polyethylene Pipe .....	17	Cemline I .....	25
Aldyl NCDB Dark Blue Polyethylene Pipe .....	17	Cemline II .....	25
Aldyl NCLB Light Blue Polyethylene Pipe .....	17	Cempipe HTH 752.....	16
Aldyl SDB Dark Blue Polyethylene Pipe .....	17	Cheetah Pall rings DW40 .....	32
Aldyl SLB Blue Polyethylene Pipe .....	17	Cheetah tanks (polypropylene).....	31
Aldyl X Dark Blue Polyethylene Pipe....17		Citric acid (food grade).....	15
Aldyl XF Black Pipe .....	17	Clortec cell.....	15
Amazon Cartridge Filter PA-9B-1500 ...30		Conline Coatings Pipes.....	20
Amazon Supagard Cartridge Filters .....	29	Connaught Range of Tanks .....	31
Amazon Supaspun II Cartridge Filters ..29		Connaught Range of Towers .....	31
AMBERLITE PWA5 .....	12	Copon Hycote 160PW (Activator L0120) .....	24
AmeROyal 363 .....	13	Copon Hycote 162 PW .....	24
AQFLEX .....	17	Copon Hycote 162 PWX .....	23
Aqua Dosa Sanitaser .....	14	Copon Hycote 165 PW .....	25
Aquaforce (with non-lead stabiliser) .....	18	Copon Hycote 165 PW-PR.....	25
Aqua-HiLo.....	32	Copon Hycote 169 .....	24
Aqualine 650 with Irabond BC50.....	25	Copon Hycote 169HB .....	24
Aquastore.....	31	Copon Hycote 169LV.....	24
Astraseparators ARS-standard.....	32	Corroguard 595.....	24
B		CPE Pressure Vessels - 316L Stainless Steel.....	32
Barrier Pipeline.....	20	CPE Pressure Vessels-304 Stainless Steel .....	32
Bayoxide E33 .....	11	Crushed flint (e.g. Flintag).....	15
BB Black Polyethylene Pipe .....	17	CSP water pipe lined with Copon Hycote 162 PWX.....	19
BDB Dark Blue HD Polyethylene Pipe..17		CSP Water Pipes.....	19
BHDB Black Polyethylene Pipe.....	17	D	
Black MDPE Pipe Type D .....	16	Damstahl FF .....	20
BLB Light Blue MD Polyethylene Pipe.17		Damstahl PT .....	20
Blue MDPE Pipe Types A, B, C & E....16		Damstahl SE .....	20
BoreSaver Liquid .....	12	Damstahl SP .....	20
		DE Stainless Steel Systems .....	20
		Dryjoint/Acryl 60 .....	27

Durapipe ABS Pipe .....	18	GPS B Black PE100 Pipe .....	16
Durapipe ABS Pipe Type F .....	18	GPS B Black Polyethylene Pipe .....	16
Durapipe F Black PE100 .....	16	GPS B Light Blue Polyethylene Pipe ....	16
Durapipe F Dark Blue Polyethylene Pipe .....	16	GPS B Polyethylene Pipe .....	16
Durapipe S Black PE Pipe .....	16	GPS F Blue Polyethylene Pipe .....	16
Dyka BiOroc Pipe .....	18	GPS N Black PE100 Pipe .....	16
Dyka Blue HDPE -100 Pressure Pipes ...	16	GPS N Blue PE 100 Pipe .....	16
Dyka Blue HDPE -80 Pressure Pipes .....	16	GPS N Blue PE 80 Pipe .....	16
Dyka Blue PE80 Pressure Pipes .....	16	GPS Protecta-Line .....	18
Dynasand Sand Filter DS5000AD .....	33	GPS Protecta-Line PE100 .....	18
Dynasand Sand Filter DST30D .....	33	GPS Q Black Polyethylene Pipe .....	16
E		GPS S Black PE100 Pipe .....	16
Econofloc 11 .....	11	GPS S Dark Blue Polyethylene Pipe ....	16
Econofloc 15 .....	11	GPS Secura-Line Pipe Type B .....	18
Egelen PE 100 Blue .....	16	GPS Secura-Line Pipe Type N .....	18
ELC 173/90 .....	23, 25	GPS Secura-Line Pipe Type S .....	18
ELC-QED 173/90 .....	44	GulfChem GS300 .....	14
Electrofresh Plus Pipe lined with Copon		GulfChem GS500 .....	14
Hycote 162 PWX .....	19	GulfChem GS510 .....	14
Emergency Potable Water Storage Tanks .....	22	GulfChem GS520 .....	14
Emergency bowsers/tanks .....	22	GulfChem GS530 .....	14
Emergency Drinking Water Bowsers .....	22	H	
Emergency Water Tank .....	22	HDPE Universal Underdrain and IMS Cap .....	31
ES404 membrane .....	30	Hepworth PVC-A Hep30 (blue) - 16 mm to 710 mm .....	18
F		Hepworth PVC-U Watermain (grey) - 3/8th to 24 inches .....	18
Fastfill .....	26	Herlisil .....	13
Fast-Line .....	24	Hunting Waterline .....	23, 24
Fast-Line plus .....	24	Huwa-San TR5 .....	14
Fastplug Cement .....	27	Huwa-San TR50 .....	13, 14
Ferric Aluminium Sulfate .....	11	HYDRAcap .....	29
Ferrous chloride .....	15	Hylam FPA .....	25
Fibrotex Aqua Filter Elements .....	29	Hypersperse MDC150 .....	13
Filtomat Microcheck System .....	29	Hypersperse MDC220 .....	13
Filtomat Microfibre MT 33P Filter Unit	29	I	
Filtomat Microfibre MT 38P Filter Unit	29	IMAC HP 336 .....	12
Flexcrete Cementitious Coating 851 Grey .....	25	IMAC HP 555 .....	12
Flexcrete Cementitious Coating 851 White .....	25	Ionics Electrodialysis Reversal Water Treatment Unit .....	30
FT Pipelines Cement Lined Pipes .....	19	IPF and NPF model of Dissolved Air Flotation units .....	32
Fusion Black 100 .....	16	Irathane CR 94 .....	26
Fusion Black 80 .....	16	Irathane Plug .....	27
G		Isofusion (vitreous enamelled tank) .....	31
GEH ferric hydroxide .....	12	IXL Process .....	12
Genesol 38 .....	13	J	
Genesol 40 .....	13	JKF 304 and 316 Stainless Steel Pipelines .....	21
Genesys HR .....	13	JKF 304 and 316 Stainless Steel Tanks.	31
Genesys LF .....	13	K	
Genesys MG .....	14	Kalmem Polyethersulphone Hollow Fibre Element .....	29
Genesys SI .....	14		
Genesys SW .....	14		
Geopox GX 014 .....	23, 24		

Kinro 1020.....	13	MIOX Electrolytic Sodium Hypochlorite	
Kinro 1020D.....	13	Generators .....	15
Kinro 1406.....	13	Mobile bowsers/tanks .....	22
Kinro 1406N.....	13	Mondial MOPVC pipe.....	18
Kintrol 556 .....	13	Mondial PVC-O (NGS) Polyvinyl	
Kintrol 556C.....	13	Chloride Pipe.....	18
Klaraid PC 4000 .....	11	Monolevel 844SP .....	25
KWH Hostalen CRP 100 Black .....	16	Monolithic Floor Filter Underdrain	
KWH Hostalen CRP100 Blue .....	17	System .....	31
L		Monomix .....	26
Lamella Plate Pack LP255.....	33	Monomix WS .....	26
Lamella Plate Separators Flocculation		N	
Tank .....	33	NATCEM 35 .....	27
Lamella Plate Separators LP Range .....	33	Neofit.....	18
Lamella Plate Separators LS Range .....	33	Nitocote CM 210 .....	26
Lamella Plate Separators LT Range .....	33	Nitoline RSM.....	24
Lamellar Separator plates .....	32	Nitoline WP .....	23
Lamellar Separator Plates Type GA and H		Nitoline WP2 .....	23
.....	32	O	
Lancashire Fittings Stainless Steel Pipe .21		Outokumpu Stainless Steel Pipes .....	21
Lancashire Fittings Stainless Steel Tube 21		P	
Lateral Filter Underdrain System .....	31	Package Actiflo and Multiflo.....	32
Layflat Emergency Hose - Type 122.....	21	Pall Microza USV-6203 micro-filtration	
Leinster Range of Thermoplastic Tanks.31		modules .....	30
Leinster Range of Towers .....	31	Pall 'Ultipor' 'GF Plus' filter type MWH27	
Lion Range (polypropylene inner surface		.....	30
backed with glassfibre laminate .....	31	PBT Fibrotex Filter Element .....	29
Lithium Salts .....	15	Permaclean 77.....	14
M		Permaclean 99.....	14
Macronet - MN200.....	12	PermaTreat 191.....	14
Magnesium carbonate.....	15	Pipegard P300.....	23, 24
Magnesium hydroxide.....	15	Pipes and Fittings lined with Resicoat R4-	
Magnesium oxide .....	15	FB HKC71R.....	20
Magnesium sulphate.....	15	Pipes lined with RESICOAT R4-FB	
Magnetite.....	15	HKC71R.....	20
Mainline.....	26	Pipes lined with Resicoat R4-FB	
Medium Capacity Whale Drinking Water		HKCO4R.....	20
Bowser .....	22	Pipes lined with Scotchkote 206N.....	20
Memcor CMF-S Submerged Continuous		Pipes Lined with Scotchkote 206N.....	20
Microfiltration system) .....	30	Pipes lined with Scotchkote 206N.....	20
Memcor Continuous Microfiltration		Pipes lined with: Copon Hycote 162 PWX	
(CMF) M1/M2 System.....	29	.....	20
Memcor Continuous Microfiltration		Pipes lined with: Scotchkote 206N.....	20
(CMF) M10 System .....	29	Plastiwind .....	19
Memcor Continuous Microfiltration		Plastocrete OC .....	27
(CMF-L) L10 System, with		PM33 .....	12
polypropylene or PVDF membranes..29		PM55 .....	13
Memcor EF.....	30	PM88 .....	13
Memtec 602202/602247 PVdF Hollow		Polypipe HDPE Pipe .....	17
Fibre Membranes in the CMF System29		Polypipe MDPE Pipe.....	17
Memtec 602202/602247 PVdF Hollow		Powerrun fabricated stainless steel	
Fibre Membranes in the CMF-S System		pipework.....	21
.....	29	Profuse (BHD).....	18
MIEX DOC Resin .....	12	Profuse (DN).....	17

PRO-SEC System.....	15	Sika 4a .....	27
Puriton (BPRB) .....	18	Sika AER .....	27
Purolite A520E nitrate selective anion exchange resin.....	12	Sika Monotop 610/612 .....	27
Q		Sikacem 133 Gunite.....	27
Q Pipe System .....	20	Sikadur Combiflex Using Sikadur 31 Rapid .....	27
Qualplast Polyethylene Pipe.....	17	Sikagard 62.....	24
Quantum Pressure Vessels- 304L.....	32	Sikatop 121 .....	28
Quantum Pressure Vessels- 316L.....	32	Sikatop 122 .....	28
R		Sikatop 122HB .....	28
Rapid Gravity Filter Air Header .....	32	Sikatop-Seal 107.....	26
Renderoc Plug 20 .....	26	Simona PE100 Pressure Pipe (type TRST RO) blue .....	17
Replacement GAC Tank .....	31	Simona PE100 SPS-Drinking Water Pipes (type TRST-SPC RO).....	17
Replacement Water Clarifier Tank.....	31	Sodium chloride.....	15
Resintreat.....	13, 14	Sodium hypochlorite generated by the ElectroCell Process .....	15
Rilsan Nylon Green Coated Pipes and Fittings .....	19	Sodium hypochlorite generated by the OSEC system.....	15
Rising Main Pipework 25NB - 700NB & Associated Fittings.....	21	Sodium sulphate .....	15
RoClean 111 .....	13	Spinclean 3 SK 2-2 Filter .....	29
RoClean P303 .....	13	Spiral Separator .....	32
ROGA 8133 UF-D .....	29	Stainless Metric Stock - SMS100.....	21
S		Stainless steel baffle walls for Floc/DAF cells .....	32
S-150 FSFC Membrane Filtration Elements.....	30	Stainless Steel Borehole Riser Pipework.....	21
S-225 FSFC Membrane Filtration Elements.....	30	Stainless Steel Grade 316L Potable Water Reservoir Tanks.....	31
Saint-Gobain Pipeleines “PaM Natural Pipeline Components”.....	19	Stainless Steel Metric Bore and ANSI welded Pipes.....	20
Saint-Gobain Pipelines Snowcrete .....	19	Stainless Steel Pipework.....	20
Saint-Gobain Pipelines System CL .....	19	Staptina 316L Pipework .....	21
Saint-Gobain Pipelines System CL (Icoment).....	19	Steel Reinforcement Protector 841 .....	26
Saint-Gobain Pipelines System XL .....	19	Steril.....	14
Sandvik 3R12 .....	21	Stevens Polypropylene Geomembrane ..	25
Sandvik 3R60 .....	21	Structurite/Acryl 60 .....	27
Sandvik 3R64 .....	21	Subcoil .....	17
Sandvik 3R65 .....	21	SupaSure Polyethylene Pipe .....	17
Sandvik 3R66 .....	21	SXL-150 FSFC Membrane Filtration Elements .....	30
Sandvik SAF2205.....	21	SXL-225 FSFC Membrane Filtration Elements .....	30
Sandvik SAF2507.....	21	T	
Sanosil Super 25 .....	14	Targa Modules V and H .....	29
Sarnafil MPG 980-20 .....	25	Tetra LP Block System.....	31
Saturator Vessel Pall Rings .....	32	TFC 2822 HF-370-D Membrane Element .....	29
Saturator/Degasser Vessel .....	32	TFC 2832 HF-560-D Membrane Element .....	29
Screens, Casing and Accessories for Water Wells .....	32	TFC 4820 HR-D Membrane Element....	29
SDR 11 PSD PE-X BP80 .....	16	TFC 4820 ULP-D Membrane Element..	29
Sertubi Ductile Iron Pipe with Internal Lining in Blast Furnac Cement Mortar .....	19	TFC 4920 S-D Membrane Element.....	29
Shotcrete 513 .....	27	TFC 8822 HR-400-D Membrane Element .....	29
Sika 1 .....	27		
Sika 101 HD.....	27		

TFC 8822 XR-400-D Membrane Element .....	29	Vitec 4000.....	13
TFC 8823 ULP-365-D Membrane Element .....	29	Vitec 5000.....	13
TFC 8823 ULP-400-D Membrane Element .....	29	W	
TFC 8832 XR-575-D Membrane Element .....	29	Wavin Apollo (with Calcium Zinc Stabilisation).....	18
TFC 8923 S-400-D Membrane Element	29	Wavin Apollo Pipe (with non-lead stabiliser) .....	18
Thermopipe .....	23	Wavin TS .....	17
Thoroflex 200 expansion joint system ...	27	Wavin TS3 .....	17
Thoroseal FX 100 .....	26	WavinBlack Pipe .....	17
Thoroseal Plaster Mix/Acryl 60 .....	26	WavinJet Pipe .....	17
Thoroseal/Acryl 60.....	26	Wavinmain EN 1452 NGS .....	18
Thortex Chemi-Tech PW .....	24	WavinSure Polyethylene Pipe .....	17
Tiosan .....	14	Wavistrong Series.....	19
Trigon.....	18	Weholite Pipe .....	16
TUB121 .....	17	Whale Drinking Water Bowser .....	22
TUB124 .....	17	X	
U		Xypex Admix C-1000 NF .....	26
Ultrabar (incorporating Kalmem membrane) .....	30	Xypex Concentrate .....	26
Uponor A-Tech (PVC-A) Pipe.....	18	Xypex Modified.....	26
V		Xypex Patch'n Plug.....	26
Vandex BB 75 .....	26	Z	
Vandex BB White .....	26	ZeeWeed 1000a Membrane Filtration Module .....	30
Vandex Concrete Grey .....	26	ZeeWeed 500b Membrane Filtration System .....	30
Vandex Mineralit.....	26	ZERON 100 super duplex stainless steel pipe work and components.....	21
Vandex Plug .....	28	Zytel 77G33L GYB493 (filter membrane housing).....	30
Vandex Premix .....	26	Zytel FE5448 GYB493 (filter membrane housing).....	30
Vandex Pure .....	26		
Vandex Super .....	26		
Vandex Uni Mortar 1 .....	26		
Vitec 3000 .....	13		