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COMMITTEE ON CHEMICALS AND MATERIALS OF CONSTRUCTION FOR USE IN PUBLIC WATER SUPPLY AND SWIMMING POOLS

FIFTEENTH STATEMENT

MARCH 1989

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Issued by

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Department of the Environment Drinking Water Division Romney House 43 Marsham Street London SNIP 3PY

Enquiries: Mr O D Hydes, Room A4.39, tel Ol 276 8213

# COMMITTEE ON CHEMICALS AND MATERIALS OF CONSTRUCTION FOR USE IN PUBLIC WATER SUPPLY AND SWIMMING POOLS

FIFTEENTH STATEMENT

MARCH 1989

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Issued by

Department of the Environment Drinking Water Division Romney House 43 Marsham Street LONDON SW1P 3PY

Enquiries to Secretary Mr O D Hydes, Room A439, tel 01-276-8213

COMMITTEE ON CHEMICALS AND MATERIALS OF CONSTRUCTION FOR USE IN PUBLIC WATER SUPPLY AND SWIMMING POOLS

FIFTEENTH STATEMENT

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#### TERMS OF REFERENCE

1. The Committee, set up in 1966 by the then Minister of Housing and Local Government, currently has the following terms of reference:-

"To assess the possible hazards to the public health of chemicals, materials of construction and protective coatings proposed for the treatment and provision of water for public supply and also for swimming pools, and to consider the effect of those uses on the environment generally, and to advise on the conditions ensuring their safety in use."

2. The current policy of the Committee is to consider only voluntary applications for approval of products, as being unobjectionable on health grounds for the purposes supplied, which are made by manufacturers and suppliers. At present the Committee's approvals are advisory and have no statutory basis.

3. The new Water Bill published in November 1988 proposes that the Secretary of State should have a power to make regulations with respect to the use by water undertakers of such processes and substances, and of products that contain or are made with such substances or materials, as he considers might affect the quality of any water supplied. Any regulations could approve or forbid the use of processes, substances or products. The Committee and its method of operation is being reviewed in the light of this proposal.

# THE FIFTEENTH STATEMENT

4. Appendices I to V of this statement give complete lists of those products that the Committee considers, subject to certain conditions, to be unobjectionable on health grounds for the treatment of or to be in contact with water for the purposes indicated. The Committee have not commented on the technical merits of any of these products and their inclusion in these lists must not be taken to imply any recommendation as to their effectiveness in use.

5. Appendix VI gives a list of "traditional" or commonly used and accepted chemicals which the Committee believes present no hazard to health when used for the treatment of water provided they are used in accordance with the manufacturers' instructions and at the normally accepted concentrations and points of application and, in the case of water for public supply, the water so treated meets the requirements of the EC Directive relating to the Quality of Water intended for Human Consumption (80/778/EEC). Products which meet these requirements are also listed in Appendix VI.

#### EXPLANATORY NOTE

6. The Committee issues an Explanatory Note as a guide for manufacturers and suppliers who wish to apply to the Committee for approval of their products. It outlines the background to the Committee, its functions and policy and details the kind of information which the Committee requires to enable it to consider an application for approval. The Explanatory Note is available from the Secretary of the Committee.

### MATERIALS OF CONSTRUCTION AND THE WATER FITTINGS BYELAWS SCHEME

7. There is some confusion in the water industry about the roles of the Committee and the United Kingdom Water Fittings Byelaws Scheme (WFBS), operated by the Water Research Centre, with respect to the approval of materials of construction.

8. The Committee has non-statutory responsibility for materials used at water treatment works and in the water undertaker's part of the distribution system. It is concerned primarily with those materials with major use, such as pipes, constructional concretes and pipe and reservoir linings, where there can be a large surface area in contact with water.

9. The WFBS is a statutory scheme operated under the Water Act 1973 and its objectives are to make provision throughout the United Kingdom for the assessment and testing of water fittings to ascertain whether they comply with regulations and byelaws for preventing waste, undue consumption, misuse or contamination of water. The scheme is thus responsible for water fittings, which will include materials, "used on consumer's premises.

10. Clearly some materials and fittings may be used on both the consumer's and water undertaker's side of the curtilage. Liaison arrangements, partly through a common member, ensure that the Committee and the Scheme receive common advice on materials and their effect on water quality.

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CURRENT MEMBERSHIP OF THE COMMITTEE

### <u>Chairman</u>

Mr A H Goodman BSc, CChem, MRSC, MIWEM

# <u>Members</u>

Dr J S Colbourne BSc, PLD, FIMLS

- Mr I R Monteath BSc, CEng, MICE, MIWEM
- Dr J W Ridgway BSc, PhD, MIWEM
- Mr J E Saunders FRSC, CChem, MIWEM

Dr M Waring MA, MB, FRCS

#### Secretary

Mr O D Hydes BSc, CChem, MRSC

#### Former Members

The following members retired from the Committee since the issue of the Fourteenth Statement in December 1984:

Dr S M Cromwell

Dr A L M Fingret

Dr G K Matthew

Mr A S R Mutch

Mr N G Semple

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Dr E Windle-Taylor

Department of Health

United Kingdom Water Fittings Byelaws Scheme

Department of the Environment

Department of the Environment

United Kingdom Water Fittings

Scottish Development Department

Byelaws Scheme

Welsh Office

Water Research Centre

Department of Health

Department of Health

Welsh Office

Scottish Development Department

Consultant

The Committee thanks these members for their valuable service.

# AMENDMENTS

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Since the Fourteenth Statement was published the following changes have been made to the list (there have also been some alterations in the numbering/lettering of some of the appendices and some changes in manufacturers' names and addresses):

# ADDITIONS

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APPENDIX I(1)A	CALGON	R150
	DUOFLOCS	86. 87, 88, 89, 90, 91, 92, 94, 95. 96, 97, 98, 99, 100, 101
	FLOCAIDS	<b>110, 111, 211, 212, 213, 214, 215, 310, 311, 312, 313, 314, 600, 601, 602</b>
	GOLKEMS	A219, A225, A228, A230, N184
	HATASPERSES	300. 301
	KLAR-AIDS	4171. 4173. 4174
	LAPOFLOC SERIES 8000	N50 WG, N100 WG, N150 WG, N200 WG, N250 WG, N300 WG, N350 WG, N400 WG, X50 WG, K107 WG, K115 WG, K125 WG, K140 WG, K190 WG, K240 WG
	MAGNAFLOC	LT25S
	PRAESTOLS	311 TR, 321 TR, 2515 TR, 2530 TR, 2540 TR
	PROSEDIMS	AS11, AS21, AS22, AS23, ASP6, NS5 Q-100, R-100, R-300, R-400
	ROHAFLOCS	F050, SF170, SF380, SF580
	SUPERFLOC	A95
APPENDIX I(1)D	DAI PAHL FLOCCULANT	ſ
APPENDIX I(1)E	KLAR-AID	4000
APPENDIX I(1)G	HATASPERSE	305
APPENDIX I(1)H	LAPOFLOC	1000, 2000
APPENDIX I(1)I	HATASPERSE	307
	KEMAZUR	4553
	ULTRION	8109
APPENDIX I(2)A	MAGNATREAT	P03
APPENDIX I(2)F	CLARIFLOC	
	CLARIFLOCS	80, 100
APPENDIX II(2)	BRICHLOR PLUS CHLOP	RINE GRANULES
	BRICHLOR CHLORINE TABLETS	
	FLEXITABS CHLORINE	TABLETS

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APPENDIX III(1)	A-152	
	ACRIFLOWS	A, G
	ALBRIVAPS	A, AF1, AF7, B. DSB, DSB-1, DSB-S, L, SD, SD1, (Witton Chemical Ltd)
	ALBRIVAPS	DSB-1, DSB-S, L, SD, SD1, (Albright and Wilson Ltd)
	AQUARITE	P30
	BELGARD	EV 2000
	BETZ	415, 419, ANTIFOAM EVAP AF, CORROGEN, SULFITE 3, SULFITE FG
	CORREXITS	2928, 2929, 2930
	C-TREAT 6	
	D5401, D5402, D5403	, D8062
	EVAPORATOR TREATMEN	T 2343
	HATAVAP	
	NALCO	D-4247
	NALFLOCS	9-324, D-4247
	POC	HS 2020
	POLYCHECKS	90, 5200
	PRODECOR	ST 200
	QUALTREATS	501, 501A
APPENDIX III(2)	AQUAFEEDS	AF-100, AF-600, AF-615, AF-625, AF-635
	BETZ	415, 419, 604
	CYANAMER	P80
	D8062	
	KINRO	1020
	NALCO	D-4247
	NALFLOC	D-4247
	POLYCHECK	80
APPENDIX IV(1)A	DGDS	
	FINATHENE	3802-BLUE
	MARLEX	3802 BLUE XC 901, B BLACK, 5400 BLACK
APPENDIX IV(1)C	MICROPOZ	
	POZAMENT MAINLINE	
APPENDIX IV(2)	NITOCOTE, NITOCOTE	PL2 428
	NITOLINE	PL2
	MACROPOLS	M1000, M2000
APPENDIX V(1)A	ACL 80 PLUS	
	BRISWIM FAST DISSOL	VING CHLORIDE TABLETS
	FLEXITABS CHLORINE	TABLETS
	CRYSTALENE	

A-580 APPENDIX V(2) ALGICIDES 5322, DS 5342 BRISWIM ALGICIDE LIQUID GLOKILL PQ HATACIDE 28 HOWES OLYMPIC ALGAECIDE KINTROLS 524, 580 KLEENPOOL ALGICIDE APPENDIX V(3) FI-CLOR CLEANSE HICAT-1 APPENDIX V (4) POOL CURE APPENDIX VI(1) CHLORINE DIOXIDE SODIUM BISULPHITE SODIUM CHLORITE SODIUM METABISULPHITE APPENDIX VI(2)A A-112 ALKATREATS 2, 20 BERKBENT CE CHEMISOL 325 CHLOROS CILLIT 55 HARD ECONOFLOC 7 6, 7, 11, 71, 72, 73, 74, 75 HIGHFLOC 200, 486, 558, 860, 5431, 5929 FLOGARDS H1, H2, H3, H4, HE, CS IMPULSANS PWT POTABLE WATER TREAT QUANTOPHOS H SP 2290 BRISWIMS CHLORINE NEUTRALISER, IRON/CALCIUM SEQUESTRANT APPENDIX VI(2)B ۰. CHEMISOL 325 CHLOROS CHLORYTE PHOSTREAT PWT

DELETIONS (Products no longer available or changed in name).

APPENDIX 1(1)A	AQUAFLOC	4270
	FLOCMISERS	TS 10, 20, 21, 42, 73, 100, TS 110, 130, 150
	MAGNAFLOCS	LT21, LT28, LT29
	TRW90AP, TRW91AP, T	TRW93AP, TRW95AP, TRW900P, TRW91CP, TRW80NP
APPENDIX 1(1)B	BUFLOC	30/TAPA
	OAKITE CLARIFIER SP	73
APPENDIX 1(1)G	ARICAT	2000
	TR SPL 1	
APPENDIX 1(1)I	ARICATS	2100, 2200
	TR SPL 3, TR SPL 7	
APPENDIX 1(2)C	AQUABON, CARNEBON	
APPENDIX 1(2)E	ANTHRASORB (granula	ar)
	ANTHRASORB (powder)	
APPENDIX II(1)	ACL 85	
APPENDIX III(1)	DURAVAP	
	FLOCON ANTISCALANTS	5 247N, 280
	HATASPERSE	17
APPENDIX IV(2)	NITOCOTES	PL2, PL2 Fast Set, PL2 Green
	DYNAPOL	1500
APPENDIX V(1)A	ACL	85
	DUOCHLORINE DUOFIX	
APPENDIX V(2)	ALGICIDE	DS 5432
	FI-CLOR CLEANSE	
	FINALGAE	
APPENDIX VI(2)A	FERRIGRANULE	
	HANFLOC	
APPENDIX VI(2)B	ALIFAT-FLUSSIG, KOP	REKTA-H, TRICHLORIN-K
	SODIUM BISULPHATE	

#### APPENDIX 1

COMPLETE LIST OF PRODUCTS FOUND BY THE COMMITTEE TO BE UNOBJECTIONABLE ON HEALTH GROUNDS FOR THE TREATMENT OF WATER FOR PUBLIC SUPPLY

#### I(1) COAGULANTS AND COAGULANT AIDS

### I(1)A PRODUCTS BASED ON POLYACRYLAMIDE OR ACRYLAMIDE/ACRYLATE COPOLYMERS

For these products the following conditions apply:

i. No batch must contain more than 0.050% of free acrylamide monomer based on the active polymer content. This condition applies until 31 August 1989. From 1 September 1989 the maximum permitted content of free acrylamide monomer in these products will be reduced from 0.050% to 0.025%.

ii. The dose used must average no more than 0.25 mg/l and never exceed 0.50 mg/l of the active polymer.

iii. An upper limit for the content of free acrylamide monomer must be stated by the supplier for every batch.

iv. The method to be used for the analysis for free acrylamide monomer is that published in the series Methods for the Examination of Waters and Associated Materials entitled 'Determination of Acrylamide Monomer in Waters and Polymers 1987' (HMSO, 1988).

ACCOFLOCS A100 PWG, A110 PWG, A120 PWG, A130 PWG, A150 PWG, N100 PWG Cyanamid of Great Britain Ltd

ACCURAC 620

SUPERFLOCS 992. A95 (PWG), A100 (PWG). A110 (PWG), A115 (PWG), A120 (PWG), A130 (PWG), A137 (PWG), A150 (PWG), C100 (PWG), C110 (PWG), C420 (PWG), N100 (PWG), N300 (PWG)

> AH 912 PWG. AN 905 PWG. AN 910 PWG. AN 913 PWG. AN 923 PWG. AN 934 PWG. AN 945 PWG. AN 956 PWG. FA 920H PWG. FO 9107 PWG. FO 9115 PWG. FO 9125 PWG. FO 9140 PWG. FO 9190 PWG. FO 9240 PWG

SNF Floerger

ALBRIFLOCS A22. A41. A58. N12. N36Albright and Wilson LtdAQUAFLOCS 4171. 4173. 4174Grace Dearborn LtdKLAR-AIDS 4171. 4173. 4174Grace Dearborn Ltd

CALGON R150 Chemviron Speciality Chemicals SA/NV 233, 243, 245 POLYMERS Q-100, R-100, R-300, R-400 CHEMIFLOCS 220P, 405P, 410P, 412P,413P, 423P, 434P, 445P, 456P, 6107P, Chemifloc Ltd 6115P, 6125P, 6140P, 6190P CLEARFLOCS C10A, C11A, C12A Clearway Water Treatment DECAPOLS A11P, A30P, A33P, A36P, A39P, Fospur Ltd A45P, C10P, C11P, C300P, C330P, N10P, N11P, N50P, N100P FLOCBELS F2, F3, F5, F6, F7, F8 DUOFLOCS 86, 87, 88, 89, 90, 91, 92, 94, Duolite International SA 95, 96, 97, 98, 99, 100, 101 FLOCAIDS 110, 111, 211, 212, 213, 214, National Starch and Chemical 215. 310. 311, 312. 313, 314 Ltd 600, 601, 602 FLOCMISERS 50, Watermiser Ltd GOLKEMS 101, 124, A155, A165, A169, Goldcrest Chemicals Ltd A170, A171, A219, A225, A228. A230, C121, C133, C146, C164, N184 PURIFLOCS N17, A22, A23, A24, A28, A29, A69, A81, N127 HATASPERSES 300, 301 Houseman (Burnham) Ltd HERCOFLOCS 812, 815, 818, 821, 839 Hercules Powder Co Ltd N50WG, N100WG, N150WG, LAPOFLOC Laporte Inorganics SERIES 8000 N200WG, N250WG, N300WG, N350WG, N400WG, X50WG. K107WG, K115WG. K125WG. K140WG, K190WG, K240WG MAGNAFLOCS LT20, LT22, LT22S, LT24, LT25, Allied Colloids Ltd LT25S, LT26, LT27 MILLFLOCS A25 PWG, A30 PWG, A40 PWG, Crosmill Flocculants Ltd A50 PWG, A70 PWG, A80 PWG, A90 PWG, C12 PWG, C15 PWG, C20 PWG, C25 PWG, C30 PWG, C40 PWG, N10 PWG, N20 PWG NALFLOCS A378, A3700, A3701, A3720, Nalfloc Ltd A3721, A3730, A3731

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PRAESTOLS 311TR, 321TR, 2515TR, 2530TR, Chemische Fabrik 2540TR Stockhausen Gmbh PROSEDIMS AS11, AS21, AS22, AS23, ASP6, Degremont Laing Ltd ASP20, ASP25, ASP27, ASP32, ASP34, ASP37, ASP40, ASP45, CSP7, CSP15, CSP40, CSP50, NS5 ROHAFLOCS F050, SF170, SF380, SF580 Cornelius Chemical Co. Ltd SANPOLYS 305 (PWG). A510 (PWG). Mitsubishi Corporation A520 (PWG), N500 (PWG) SEVFLOCS A10, A11, A12, A13, N10 Severn Water Services TILCON FLOCCULANTS A1, A3, N1 Tilcon Water Treatment Services TOL FLOC TFL 1761 Petrolite Ltd WATERFLOCS 312, 314, 316, 323, 325, 421, 422, 622, 623, 624, 625, 626, Water Management Chemicals Ltd 921 I(1)B PRODUCTS BASED ON POLYACRYLIC ACID Currently there are no approved products available in this category. I(1)CPRODUCTS BASED ON STARCH For these products the following conditions apply: i. The dose used must not exceed 3 mg/l. FOSTARCHS 4P. 5P. 6P Fospur Ltd WISPROFLOC P Tunnel Avebe Starches Ltd ii. The dose used must not exceed 5 mg/l. NS2 GOLKEM Goldcrest Chemicals Ltd MAGNAFLOC WS612 Allied Colloids Ltd WISPROFLOC N Tunnel Avebe Starches Ltd PRODUCTS BASED ON SODIUM ALGINATE I(1)DFor these products the following conditions apply: The dose used must not exceed 1 mg/l. i. MANUGEL GMB Kelco/AIL ii. The dose used must not exceed 3 mg/l. DAI PAHL FLOCCULANT LS Raw Materials Ltd

# I(1)E PRODUCTS BASED ON TANNIN

For these products the following conditions apply: The dose used must not exceed 10 mg/l of active material. FLOCCOTAN A ) Grace Dearborn Ltd KLARAID 4000) 35% active material PRODUCTS BASED ON QUATERNARY AMMONIUM POLYELECTROLYTE I(1)FFor these products the following condition applies: The dose used must not exceed 10 mg/l of the active polymer. CATFLOC Chemviron Speciality Chemicals SA/NV CATFLOCS A, C, R, S, T, T-1, 21, 121 M-502, M-503, M-506 SUPERFLOCS C585, C587, C589 Cyanamid of Great Britain Ltd I(1)G PRODUCTS BASED ON POLYAMINE For these products the following conditions apply: The dose used must not exceed 10 mg/l. i. CLEARFLOC C21C Clearway Water Treatment DECAPOL C100P Fospur Ltd SUPERFLOC Cyanamid of Great Britain C521 Ltd TOL FLOTE FR1889 Petrolite Ltd The dose used must not exceed 33 mg/1. ii. HATASPERSE 305 Houseman (Burnham) Ltd I(1)HPRODUCTS BASED ON ALUMINIUM For these products the following conditions apply: The dose used must not exceed 200 mg/1. i. EKOFLOCK Allied Colloids Ltd LAPOFLOC PAC, PAC Laporte Industries Ltd PAC Alumina Co Ltd ii. The dose used must not exceed 100 mg/1. LAPOFLOC 1000, 2000 Laporte Inorganics

I(1)I PRODUCTS BASED ON POLYQUATERNARY RESIN

For these products the following conditions apply:

i. The dose used must not exceed 10 mg/l.

BETZ POLYMERS 1190, 1290 Betz Ltd BUBOND 65, HICAT-1 Buckman Laboratories SA ÷.... Clearway Water Treatment CLEARFLOC C77C DECAPOLS C101P, C102P Fospur Ltd HATAFLOC 626 Houseman (Burnham) Ltd GOLKEM CL 118 Goldcrest Chemicals Ltd KEMAZUR 4553 Degremont Laing Ltd Allied Colloids Ltd MAGNAFLOCS LT31, LT33 Cyanamid of Great SUPERFLOCS C573, C577 Britain Ltd

ii. The dose used must not exceed 33 mg/l.
HATASPERSE 307 Houseman (Burnham) Ltd
iii. The dose used must not exceed 150 mg/l.
ULTRION 8109 Nalfloc Ltd

1(2) OTHER TREATMENT CHEMICALS

I(2)A STABILISING AGENTS AND CORROSION PREVENTATIVES

For these products the following condition applies:

The dose used must not exceed 20 mg/l.

AQUARITES TG, TG10

KORTOLAT A550P

MAGNATREAT PO3

NALCO D4512

I(2)B CHLORINATING AGENT

For this product the following condition applies;

The arrangements for dissolving the tablets and dosing the resulting solution must be such that the dose used does not exceed 0.5 mg/l chlorine.

Albright and Wilson Ltd

Fospur Ltd

Nalco Ltd

Magnachem Ltd

SANURIL 115

K and K-Greeff Ltd

# I(2)C DISINFECTANTS AND TASTE AND ODOUR CONTROL AGENTS

For these products the following condition applies:

The combined concentration of chlorine dioxide, chlorite and chlorate should not exceed 0.5 mg/l as chlorine dioxide in the water entering supply.

FOSCLORS 202P, 205P, 206P, 212P, 216P, Fospur Ltd 220P, BELLAZON

### I(2)D EVAPORATION CONTROL AGENTS

For these products the following conditions apply:

i. The daily dose rate to the reservoir must not exceed 900 ml per  $1,000 \text{ m}^2$  of surface area (3 fl ozs per 1,000 sq ft).

VAPORIN

Wilkinson and Simpson Ltd

ii. The daily dose rate to the reservoir does not exceed 30 g per  $1,000 \text{ m}^2$  of surface area (1 oz per 10,000 sq ft).

I(2)E SOLID VAPORIN

Wilkinson and Simpson Ltd

ADSORBENTS

For these products the following condition applies:

The filter bed containing the product must be adequately backwashed to remove readily leachable materials before connection to the supply.

FILTRASORES 100, 200, 300, 400

Chemviron Speciality Chemicals SA/NV

#### I(2)F CLARIFYING AGENTS

For these products the following condition applies:

The dose used must not exceed 2,000 mg/1.

CLARIFLOC Blue Circle Industries PLC CLARIFLOCS 80, 100

#### APPENDIX II

COMPLETE LIST OF PRODUCTS FOUND BY THE COMMITTEE TO BE UNOBJECTIONABLE ON HEALTH GROUNDS FOR THE DISINFESTATION, DISINFECTION AND CLEANING OF WATERWORKS APPARATUS INCLUDING DISTRIBUTION SYSTEMS

# II(1) PESTICIDES

For these products the following conditions apply:

i. The average dose used must not exceed approximately 10 ug/1 permethrin and the maximum dose used never exceed 20 ug/1 permethrin.

ii. The length of time the permethrin is dosed should be kept to a minimum and never exceed 7 days.

iii. Adequate attention is given to the protection of the interests of those water uses likely to be sensitive to the presence of permethrin eg aquaria, renal dialysis, sugar feed solutions for bees etc.

iv. The permethrin concentration must not exceed 10 mg/l in 95% of samples in any watercourse receiving flushing water either directly or via a sewage works.

PERMASECT

Mitchell Cotts and Co Ltd

Wellcome Foundation Ltd

WELLCOME PERMETHRIN IN ALCOHOL CONCENTRATE

#### II(2) DISINFECTANTS

For these products the following condition applies:

The dose used should be such that the final concentration in the water should not normally exceed 100 mg/l of free available chlorine.

ACL 56, ACL 60, ACL 90 PLUSMonsantoBRICHLOR PLUS CHLORINE GRANULESRobert RBRICHLOR CHLORINE TABLETSSons Ltd

DEARBORN 730

FI-CLORS 60S, 91, CLEARON FI-TABS R/D, S/D

FLEXITABS CHLORINE TABLETS

INSTACHLOR

Monsanto Chemicals plc

Robert R Bartlett and Sons Ltd

Grace Dearborn Ltd

Chlor Chem Ltd

Wilkinson and Simpson Ltd

# II(3) CLEANING AGENT FOR ION EXCHANGE RESIN BEDS

This product must be used in accordance with the manufacturer's instructions.

RESINTREAT

Houseman (Burnham) Ltd

# II(4) CLEANING AGENT FOR RESERVOIRS

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These products must be used in accordance with the manufacturer's instructions.

CARELA-BIO-PLUS CARELA-BIO-PLUS-FORTE Lambson Ltd

# APPENDIX III

COMPLETE LIST OF PRODUCTS FOUND BY THE COMMITTEE TO BE UNOBJECTIONABLE ON HEALTH GROUNDS FOR USE AS ADDITIVES IN SEA WATER DISTILLATION PLANTS AND REVERSE OSMOSIS PLANTS USED TO PROVIDE POTABLE WATER

Products based on polyacrylic acid, polyacrylamide, polymaleic acid and copolymers of acrylic acid, acrylamide and maleic acid and other related polymers, organophosphonates, and other organic and inorganic substances.

For these products the following conditions apply, where appropriate:

i. No batch of the product must contain more than 0.05% of free acrylamide monomer based on the active polymer content.

ii. No batch of the product must contain more than 1.25% of free acrylic acid monomer based on the active polymer content.

iii. The dose used in the feed water must not exceed the stated concentration (in brackets) of the product as supplied.

III(1) The following products are approved for sea water distillation plants:-

A-152	(25 mg/1)	Atlantic Water Technology Ltd
AC-1000	(30 mg/l)	Drexel Equipment (UK) Ltd
ACRIFLOWS	A (10 mg/1), AF1 (2 mg/1), AF7 (10 mg/1) B (30 mg/1), DSB (15 mg/1), G (30 mg/1)	Witton Chemical Co Ltd
ALBRIVAPS	A (10 mg/l), AF1 (2 mg/l), AF7 (10 mg/l), B (30 mg/l), DSB (15 mg/l), DSB1 (10 mg/l), DSB-S (37.5 mg/l), G (30 mg/l), L (20 mg/l), SD (40 mg/l), SD1 (25 mg/l)	
AQUARITE	P30 (40 mg/l)	
	A (10 mg/l), AF1 (2 mg/l), AF7 (10 mg/l), AF10 (2 mg/l), AF12 (3 mg/l), AF14 (5 mg/l), B (30 mg/l), C1 (10 mg/l), C110 (25 mg/l), D110 (100 mg/l), DSB (15 mg/l), DSB1 (10 mg/l), DSB-S (37.5 mg/l), G (30 mg/l), L (20 mg/l), P25 (50 mg/l) P40 (25 mg/l), SD (40 mg/l), SD1 (25 mg/l) P30 (40 mg/l)	Albright and Wilson Ltd
	(100 -= (1))	Drew Chemicals Ltd
	(100 mg/l), (100 mg/l)	DIEM CHEMICAIS LLO

4171 (5 mg/l), 4173 (5 mg/l) Grace Dearborn Ltd AQUAFLOCS 4174 (5 mg/1), 4270 (5 mg/1) D5401 (10 mg/1), D5402 (20 mg/1), D5403 (400 mg/l), D8010 (20 mg/l), D8060 (10 mg/l), D8061 (20 mg/l), D8062 (10 mg/l) POLYCHECKS 80 (400 mg/1), 5200 (400 mg/1) BELGARDS EV (10 mg/l), EVN (14 mg/l) Ciba Geigy Ltd EV 2000 (10 mg/l) BETZ 415 (25 mg/l), 419 (10 mg/l), Betz Ltd ANTIFOAM EVAP AF (5 mg/l). SULFITE 3 (50 mg/1). CORROGEN (20 mg/1) SULFITE FG (20 mg/1) CALNOX ML 1432 (14 mg/l) Magnachem Ltd CORREXITS 2928 (25 mg/1), 2929 (50 mg/1), Esso Chemical Ltd 2930 (100 mg/l) C-TREAT 6 (8 mg/l, 1 hour in 24 hours)Houseman (Burnham) Ltd HATAVAP (60 mg/1)VAPTREATS EC (10 mg/l), H (25 mg/l), HT (30 mg/1) CYAFS 5201 (5 mg/1), 5203 (5 mg/1), Cyanamid of Great Britain 5872 (50 mg/l) Ltd CYAMERS P35 (5 mg/1), P35-D (5 mg/1), P70 (5 mg/1), P70-D (5 mg/1), P80 (50 mg/1) DASIC H167 (25 mg/l) Dasic International Ltd DEQUESTS 2060 (6 mg/l). 2066 (14 mg/l) Monsanto Chemicals PLC EL-2438 (17.5 mg/l), EL-4010 (7 mg/l), Chemviron Speciality Chemicals SA/NV EL-4420 (15 mg/1), EL-4420L (35 mg/1), EL-4420Q (25 mg/1, EL-5000 (7 mg/1), EL-5100 (10 mg/l), EL-5240 (10 mg/l), EL-5500 (10 mg/l), EL-5600 (10 mg/l). EL-9401 (10 mg/l) EVAPORATOR TREATMENT 2343 (100 mg/l) Perolin Co Ltd  $344 \ (100 \ mg/l)$ FORMET FLOCON ANTIFOAM AF4 (1 mg/l) Pfizer Chemicals (Europe FLOCON ANTISCALANT 247 (1.25 mg/1) and Africa) GOLKEM DA3 (25 mg/1) Goldcrest Chemicals Ltd HERCOFLOCS 812 (5 mg/l), 815 (5 mg/l), Hercules Powder Co Ltd 818 (5 mg/l), 821 (5 mg/l). 839 (5 mg/1)

WTD Trattamento acque srl HTA 100 (6 mg/1).KORTOLAT A1000SW (10 mg/l)Fospur Ltd Nalfloc Ltd MAXIVAP (25 mg/1)9-324 (5 mg/l, 1 hour in NALFLOCS 24 hours), D-4247 (20 mg/1) ML 879 (10 mg/1). Baker Oil Treating Nalco Ltd NALCOS 131-S (2 mg/l). D=4222 (10 mg/l). D-4242 (50 mg/1), D-4247 (20 mg/l), 8599 (50 mg/1), 8599 NI (20 mg/1) POC HS 2020 (10 mg/l) Degussa Ltd Snamprogetti Ltd PRODECOR ST 200 (10 mg/l) QUALTREATS 501 (25 mg/l), 501A (25 mg/l) Quality Water Systems Ltd Petrolite Ltd SP-1934 (50 mg/1)TROS TH800 (50 mg/1), TH801 (100 mg/1) TR Oil Services The following products are approved for reverse osmosis plants: Drexel Equipment (UK) Ltd AC-1000 (30 mg/1)Drew Chemicals Ltd AMERET (100 mg/l), AMEROYAL (100 mg/l) AQUAFEEDS AF-100 (30 mg/1), BF Goodrich Chemical Group AF-600 (30 mg/l). AF-615 (30 mg/l). AF-625 (35 mg/1). AF-635 (35 mg/1) 415 (25 mg/l), 419 (10 mg/l) Betz Ltd BETZ 604 (10 mg/1)Cyanamid of Great Britain CYANAMER P80 (50 mg/1)Ltd D8062 Grace Dearborn Ltd (10 mg/l)80 (400 mg/l)POLYCHECK Chemviron Speciality EL-2438 (17.5 mg/1)Chemicals SA/NV FLOCON ANTISCALANT 100 (25 mg/l) Pfizer Chemicals (Europe and Africa) Atkinson Chemicals Ltd 1020 (10 mg/l)KINRO NALCOS A349 (20 mg/1). Nalco Ltd D-4247 (20 mg/l). 8599 (20 mg/l)

III(2)

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NALFLOCS	A349 (20 mg/l), D-4247 (20 mg/l)	Nalfloc Ltd

PERMATREAT 191 (10 mg/l)

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Houseman (Burnham) Ltd

#### APPENDIX IV

COMPLETE LIST OF MATERIALS FOUND BY THE COMMITTEE TO BE UNOBJECTIONABLE ON HEALTH GROUNDS WHEN USED IN CONTACT WITH WATER FOR USE IN PUBLIC WATER SUPPLY AND SWIMMING POOLS

- IV(1) MATERIALS OF CONSTRUCTION
- IV(1)A POLYETHYLENE PIPE

ALDYL BLUE POLYETHYLENE PIPE

DGDS 2424

FINATHENE 3802-BLUE

Labofina SA

Neste Chemicals UK Ltd

Du Pont (UK) Ltd

MARLEX 3802 BLUES XC501, XC502, XC601, Phillips Petroleum Chemicals XC602, XC703, XC901 MARLEX B BLACK, 5400 BLACK

RIGIDEX PC 001-55 R102, PC 002-50 R102, BP Chemicals Ltd PC 002-50 R968 BLUE

- IV(1)B ACRYLONITRILE BUTADIENE STYRENE POLYMERS DURAPIPE AES PIPE AND FITTINGS Durapipe Ltd
- IV(1)C CEMENTITIOUS AND ASSOCIATED PRODUCTS

The following product has been approved for use in contact with water of alkalinity greater than 40 mg  $CaCO_2/1$ 

POZAMENT MAINLINE

Pozament Ltd

The Committee is considering the mechanism for handling and approval of constituents of products in this category. At present it cannot formally approve any constituents in isolation from the remaining ingredients of the constructional concrete in which they are used. For the following products the Committee has concluded that there is no objection on health grounds to their use as constituents of concrete constructional materials for use in contact with potable water because if an application was received by the Committee for approval of concrete constructional materials containing these products it is likely that they would be approved provided that the other ingredients of the concrete were satisfactory.

CEM-FIL AR GLASS FIBRE	Fibreglass Ltd
CEMSAVE	Frodingham Cement Co Ltd
LYTAG	Lytag Ltd
MICROPOZ	SMP International

IV(1)D FILLED ACETAL COPOLYMER FOR DOMESTIC WATER FITTINGS

KEMATALS AUTUMN BROWN, AVOCADO IMI Opella Ltd BLUE 741, BROWN 522, GREY 622, PAMPAS GREY 9604)

IV(2) PROTECTIVE COATINGS

The following have been approved by the Committee as factory applied protective coatings:

CITALS 28.05, 28.05 WHITE Fosroc Surface Coatings NITOCOTE, NITOCOTE PL2 428, Division NITOLINE PL2

MACROPOLS M1000, M2000

Fusion Bonding Ltd

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A number of products are currently being considered by the Committee as "in situ" applied coatings.

So far the Committee has approved the solvent for use in the following solvent/bitumen "in situ" applied pipe relining formulation:

SOLVENT IN GEOPOX GAP 3

Mercol Descaling Co Ltd

Provided that the following conditions are met:

i. the consumer is not exposed to water containing taste or odour;

ii. the relining process is carried out in accordance with "Working Procedures" prepared by the Water Research Centre.

The Committee also recommends that the relining formulation satisfies the United Kingdom Water Fittings Byelaws Scheme relating to the effects on water quality for "user-applied" products.

IV(3) LUBRICANTS AND SEALING COMPOUNDS

IV(4)

AX 24 PIPE JOINTING LUBRICANT	Batoyle Ltd
PERMABOND 'A' GRADE 121	Permabond Adhesives
UKADOL 46 (mole lubricating fluid)	Calypsol UK
VINOLEOS 77/14 PIPE JOINTING LUBRICANT WT90 TAP AND VALVE LUBRICANT	Isaac Bentley and Co Ltd
GASES USED TO TRACE LEAKS IN WATER MAINS	
SULPHUR HEXAFLUORIDE	BOC Ltd

IV(5) COLOUR CODES FOR ENDS OF ASBESTOS CEMENT PIPES DYE COATING 22/74 Eternit TAC

# IV(6) CHEMICALS FOR FLOW METER CALIBRATION

# LITHIUM SALTS

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The use of lithium salts for meter calibration in water mains is acceptable provided that the maximum concentration of lithium in water supplied to consumers does not exceed 0.10 mg/l at any time (the analytical method used for lithium determination should have an accuracy better than  $\pm$  0.01 mg/l at 0.10 mg/l).

APPENDIX V

COMPLETE LIST OF PRODUCTS FOUND BY THE COMMITTEE TO BE UNOBJECTIONABLE ON HEALTH GROUNDS FOR THE TREATMENT OF WATER OF SWIMMING POOLS

- V(1) DISINFECTANTS
- V(1) A. PRODUCTS BASED ON CHLOROISOCYANURATES

For these products the following condition applies:

The concentration of cyanuric acid in the pool water must not normally exceed 200 mg/l although in exceptional circumstances it may be allowed to rise to 400 mg/l maximum.

ACL 56, ACL 60, ACL 90 PLUS MONSANTO CYANURIC ACID

BRICHLORS CHLORINE TABLETS, FLEXITABS, Robert R Bartlett and Son PLUS CHLORINE TABLETS Ltd SUPERSHOCK TABLETS BRISWIMS CONDITIONER CHLORINE STABILISER, FAST DISSOLVING CHLORINE TABLETS FLEXITABS CHLORINE TABLETS

CRYSTALENE

International Distributors Worldwide SA

Houseman (Burnham) Ltd

Monsanto Chemicals PLC

FI-CLORS 60S, 91, GRANULES, STABILISER, Chlor-Chem Ltd TABLETS MAXI, TABLETS MINI, TRI-TABS, R/D, S/D

HATACIDES CR. CS

V(1) B. OTHER PRODUCTS

For this product the following conditions apply:

i. The concentration in the pool water must average no more than 50 mg/l and never exceed 100 mg/l.

ii. Any discharge of the pool water containing the product should be made in a manner satisfactory to the appropriate water authority.

BAQUACIL SB

Imperial Chemical Industries Ltd (Organics Division)

For this product the following conditions apply:

i. The concentration of bromine in the pool water (as measured by DPD No.1) should be between 4.0 and 6.0 mg/l.

ii. The concentration of dimethylhydantoin in the pool water must not exceed 200 mg/l.

iii. There should be monitoring of an extent and quality which would reliably indicate any problems with skin irritation.

Great Lakes Chemical (Europe) Ltd

## V(2) ALGICIDES

For these products the following conditions apply:

i. The concentration in the pool water for the product as supplied must not exceed the value stated below (in brackets).

ii. If the pool water is to be discharged to a water course the maximum concentration of the active ingredient (either quaternary ammonium compounds, polyoxyethylene alkyliminio compounds, simazine or copper) must not exceed 0.05 mg/l in the watercourse at the point of discharge.

A-580	(50 mgl) .	Atlantic Water Technology Ltd
ALBRICIDE	W5 (100 mg/l)	Albright and Wilson Ltd
ALGIBAN	(12 mg/l)	Wilkinson and Simpson Ltd
ALGICIDES	5322 (10 mg/1). DS 5342 (10 mg/1)	Imperial Chemical Industries Ltd (Organics Division)
BRISWIMS	ALGICIDE LIQUID (150 mg/l) CATIONIC LIQUID (150 mg/l)	Robert R Bartlett and Sons Ltd
BRITOC	ALGICIDE (100 mg/1)	
BUSANS	77 (50 mg/l), 79 (50 mg/l). WSCP (50 mg/l), WSCP-2 (50 mg/l)	Buckman Laboratories SA
	C (10 mg/l) PQ (50 mg/l)	ABM Chemicals Ltd
HATACIDES	16 (100 mg/l), 18 (100 mg/l), 28 (50 mg/l)	Houseman (Burnham) Ltd
HOWES OLYMP	IC ALGAECIDE (15 mg/l)	Killgerm Chemicals Ltd
KINTROLS	524 (10 mg/l), 580 (50 mg/l)	Atkinson Chemicals Ltd
KLEENPOOL	ALGICIDE (100 mg/l)	Certikin Ltd
FLOCCULATIN	G AND CLARIFYING AGENTS	

FI-CLOR FLOCCULANT

V(3)

Chlor Chem Ltd

For these products the following conditions apply:

i. The concentration in the pool water for the product as supplied must not exceed the value stated below (in brackets).

ii. If the pool water is to be discharged to a watercourse the maximum concentration of the active ingredient (either quaternary ammonium compounds or polyoxyethylene alkyliminio compounds) must not exceed 0.05 mg/l in the watercourse at the point of discharge.

FI-CLOR CLEANSE (100 mg/l)

Chlor Chem Ltd

HICAT-1 (10 mg/l)

POOLCHLOR, TARNCLENE

V(4) MISCELLANEOUS PRODUCTS

Water Management Chemicals Ltd

Wilkinson and Simpson Ltd

Buckman Laboratories SA

For this product the following condition applies:

A single application must not exceed 90 gm per 100  $m^2$  of surface area (3 fl ozs per 1,000 sq ft).

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For this product the following condition applies:

The concentration of the active ingredient does not exceed 15 mg/l in the pool water.

POOL CURE

Total Water Treatment

#### APPENDIX VI

Complete list of chemicals commonly used in the treatment of water which are considered by the Committee to be unobjectionable on health grounds for the treatment of water for the purposes indicated provided that they are used in accordance with the manufacturers' instructions and at the normally accepted concentrations and points of application. The purity of these chemicals shall be such that, in the case of water for public supply, the water so treated meets the requirements of the EC Directive relating to the Quality of Water Intended for Human Consumption (80/778/EC).

# VI(1) CHEMICALS

ALUMINIUM ALUMINIUM CHLOROHYDRATE ALUMINIUM SULPHATE

AMMONIA AMMONIUM CHLORIDE AMMONIUM SULPHATE

#### BENTONITE

CALCIUM CARBONATE CALCIUM CHLORIDE CALCIUM HYDROXIDE CALCIUM HYPOCHLORITE CALCIUM OXIDE CALCIUM SULPHATE

CARBON DIOXIDE

CHLORINE CHLORINE DIOXIDE (see I(2)C)

COPPER SULPHATE

DIATOMACEOUS EARTH

FERRIC CHLORIDE FERRIC SULPHATE

FERROUS SULPHATE

HEXAFLUOROSILICIC ACID

HYDROCHLORIC ACID

#### HYDROGEN PEROXIDE

VI(2) PRODUCTS

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The following products have been approved under the requirements of Appendix VI.

# MAGNESIUM CARBONATE MAGNESIUM HYDROXIDE MAGNESIUM OXIDE

MANGANESE DIOXIDE

OZONE

PHOSPHORIC ACID

POTASSIUM CARBONATE POTASSIUM HYDROXIDE POTASSIUM PERMANGANATE

SODIUM ALUMINATE SODIUM BICARBONATE SODIUM BISULPHATE SODIUM BISULPHITE SODIUM CARBONATE SODIUM CHLORIDE SODIUM CHLORITE (see I(2)C) SODIUM FLUORIDE SODIUM HEXAMETAPHOSPHATE SODIUM HYDROXIDE SODIUM HYPOCHLORITE SODIUM METABISULPHITE SODIUM PHOSPHATES SODIUM POLYPHOSPHATES SODIUM SILICATE SODIUM SILICOFLUORIDE SODIUM SULPHATE SODIUM THIOSULPHATE

SULPHUR DIOXIDE

SULPHURIC ACID

VI(2)A FOR USE IN PUBLIC WATER SUPPLY

A-112 Atlantic Water Technology Ltd ALBRITES Disodium Phosphate (Food Grade) Albright and Wilson Ltd Trisodium Phosphate (Food Grade) Sodium Tripolyphosphate (Food Grade) AQUARITES B55, B121, B222, B333, B431, C134, C322, C423, S25, SC36, SC47, SC58, SL24 CALGON SWB Sodium Polyphosphate Glass KALIPOL 20WB Sodium Polyphosphate Solution MICROMETS STANDARD GRADE. X GRADE TETRON TG Tetrasodium Diphosphate (Food Grade) ALKATREATS 2, 20 Houseman (Burnham) Ltd HATAMET PHOSTREATS 41, 42 BERKBENT CE Steetley Minerals Ltd BOLIDEN AVR Boliden Kemi AB CHEMISOL 325 Chemicare CHLOROS Imperial Chemical Industries RAYON GRADE Caustic Soda Liquor Ltd (Mond Division) STANDARD GRADE Caustic Soda Liquor CILLIT 55 HARD Benckiser Ltd COAGULANT AIDS 25, 35 Chemviron SA ECONOFLOC High Chemicals (UK) Ltd 7 HIGHFLOC 6. 7. 11. 71, 72, 73, 75 FLOGARDS 200, 486, 558, 860, 5431, Grace Dearborn Ltd 5929 H1, H2, H3, H4, HE, C5 IMPULSANS Aquastat Ltd INDUCLOR, PITTABS, PITTCLOR PPG Industries (Europe) srl PPG CALCIUM HYPOCHLORITE, ZAPPIT KORTOLAT A500P Fospur Ltd LYCALS 93/12. 93/34. 93/711 Steetley Refractories Ltd MAGNASPHERES NALFLOC N918 POWDER Nalfloc Ltd PWT POTABLE WATER TREAT "Vecom" BV

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### QUANTOPHOS H

SP-2290

VI(2)B FOR USE IN SWIMMING POOLS

BRIDOS SP GRADE HYPOCHLORITE

ALKALI, CHLORINE NEUTRALISER,

GOLDIFLOC FINE FILTER TABLETS. HISPEC STABILISED CHLORINE

LIQUID, IRON/CALCIUM SEQUESTRANT,

CHLORINE GRANULES, WATER HARDENER

DRY ACID, GRANULAR FLOC,

PH STABILISER, SUPERSHOCK

BAQUATOP

BRISWIMS

CHLOROS

CHLORYTE

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Fernox Manufacturing Co. Ltd

Petrolite Ltd

Imperial Chemical Industries Ltd (Organics Division)

Robert R Bartlett and Sons Ltd

CHEMISOL 325

Chemicare

Imperial Chemical Industries Ltd (Mond Division)

Surex SP Products Ltd

INDUCLOR, PITTABS, PITTCLOR PPG Industries (Europe) srl PPG CALCIUM HYPOCHLORITE, ZAPPIT

LYCALS 93/12. 93/74. 93/711 MAGNASPHERES

PHOSTREAT PWT

Houseman (Burnham) Ltd

Albright and Wilson Ltd

Steetley Refractories Ltd

VI(2)C FOR USE IN SEA WATER DISTILLATION PLANTS

AQUARITES B55, B121, B222, B323, B431, S24, S25, SL24

MANUFACTURER/SUPPLIERS NAMES AND ADDRESSES ABM Chemicals Ltd Wortley Low Mills Whitehall Road Leeds LS12 4RF Albright and Wilson Ltd PO Box 80 Trinity Street Oldbury, Warley West Midlands B69 4LN Allied Colloids Ltd PO Box 38 Low Moor Bradford West Yorkshire BD12 OJZ Alumina Co Ltd Ditton Road Works Widnes Cheshire WA8 OPH Aquastat Ltd Silverdale Road Hayes Middlesex UB3 3BB Atkinson Chemicals Ltd 19 Byron Close Twyford Reading RG10 OBG Atlantic Water Technology Ltd Victoria House 28/38 Desborough Street High Wycombe Bucks HP11 2NF Baker Oil Treating Erimus House Queens Square Middlesborough Cleveland TS2 1AA Batoyle Ltd PO Box 19 Colne Vale Road Milnsbridge Huddersfield HD3 4NT Benckiser Ltd Benckiser House 1 Norfolk Road Rickmansworth Herts WD3 1JG

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Betz Ltd Nat Lane Winsford Cheshire CW7 9BS B F Goodrich Chemical Group The Lawn 100 Hampton Road Hounslow Middlesex Blue Circle Industries PLC London Road Greenhithe Kent DA9 9JQ BOC Ltd Special Gases 24 Deer Park Road London SW19 3UF Boliden Kemi AB Division Water Treatment Box 902 S-251 09 Helsingburg Sweden B P Chemicals Ltd Sully Penarth South Glamorgan CF6 2YU Buckman Laboratories SA Wondelgemkaai B-9000 Ghent Belgium Calypsol UK 78a St Marks Road Henley-on-Thames Oxfordshire RG9 1LW Certikin Ltd Star Road Partridge Green Horsham West Sussex Chemicare 6 Maplewood Court Llandaff Cardiff CF4 2NB Chemifloc Ltd Smithstown Industrial Estate Shannon County Clare Republic of Ireland

Chemische Fabrik Stockhausen Gmbh Postfach 570 4150 Krefeld 1 Germany

Chemviron Speciality Chemicals SA/NV Brusselsesteenweg 359 1900 Dverijsw Belgium

Chlor Chem Ltd Mount Pleasant House Huntingdon Road Cambridge CB3 ODA

Ciba Geigy Ltd 30 Buckingham Gate London SW1E 6LH

Clearway Water Treatment Village Farm Industrial Estate Pyle Mid Glamorgan CF33 6NV

Cornelius Chemical Co. Ltd St. James House 27-43 Eastern Road Romford Essex RM1 3NN

Crosmill Flocculants Ltd 11 Millingfield Holmes Chapel Crewe CW4 7DA

Cyanamid of Great Britain Ltd Bowling Park Drive Bradford West Yorkshire BD4 7ES

Dasic International Ltd Winchester Road Romsey Hampshire S05 8YD

Degremont Laing Ltd Aquazur House Elstree Way Boreham Wood Herts WD6 1WF

Degussa Ltd Earl Road Stanley Green Handforth Wilmslow Cheshire SK9 3RL

Marlowe House Station Road Sidcup, Kent Drexel Equipment (UK) Ltd Midmoor House Parkshot Richmond Surrey Duolite International SA 107 Rue Edith Cavell BP8-94402 Vitry-Sur-Seine France Du Pont (UK) Ltd Hilcote Plant PO Box 1 Blackwell Derbyshire DE55 5JD Durapipe Ltd Norton Canes Cannock Staffordshire WS11 3NS Esso Chemical Ltd PO Box 1 Abingdon Oxon OX13 6BB Eternit TAC Ltd Meridian House Park Road Swanley Kent BR8 8AH Fernox Manufacturing Co Ltd Britannica Works Clavering Essex CB11 4BZ Fibreglass Ltd Reinforcements Division St Helens Merseyside WA10 3TR Fospur Ltd Alfreton Industrial Estate Nottingham Road Somercoats Derby DE5 4LR Fosroc Surface Coatings Division Stafford Park Telford Salops

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Drew Chemicals Ltd

Frodingham Cement Co Ltd Brigg Road Scunthorpe South Humberside DN16 1AW Fusion Bonding Systems Ltd 29 Milton Lawns Chesham Bois Bucks HP6 6BJ Goldcrest Chemicals Ltd Croft Head Skelmanthorpe Huddersfield HD8 9EB Grace Dearborn Ltd Foundry Lane Ditton Widnes Cheshire WA8 8TZ Great Lakes Chemical (Europe) Ltd Belmont Chambers 28 Bakers Road Uxbridge Middlesex UB8 1QS Hercules Powder Co Ltd 20 Red Lion Street Holborn London WC1 High Chemicals (UK) Ltd Unit 18 Tafarnau Bach Industrial Estate Tredegar Gwent NP2 3AA Houseman (Burnham) Ltd The Priory Burnham Slough SL1 7LS IMI Opella Ltd Twyford Road Rotherwas Industrial Estate Hereford Imperial Chemical Industries Ltd Mond Division PO Box 13 The Heath, Runcorn Cheshire WA7 4QF

Imperial Chemical Industries Ltd Organics Division PO Box 42 Hexagon House Blackley Manchester M9 3DA International Distributors Worldwide SA 22 Parc du Chateau Banquet 1202 Geneva Switzerland Isaac Bentley and Co Ltd Naylor Street Liverpool L3 6DS K and K Greeff Ltd Suffolk House George Street Croydon CR8 3QL Kelco/AIL 22 Henrietta Street London WC2E 8NB Killgerm Chemicals Ltd PO Box No 2 Wakefield Road Flushdyke Ossett West Yorkshire WF5 9BW Labofina SA Siege de Feluy Zoning Industriel B-6520 Feluy Belgium Lambson Ltd Aire and Calder Works Cinder Lane Castleford West Yorks WF10 1LU Laporte Industries Ltd Laporte Inorganics Moorfield Road Widnes Cheshire WA8 OHE L S Raw Materials Ltd Rodary house Alderton Crescent London NW4 3XX Lytag Ltd Hamilton House 111 Marlowes Hemel Hempstead Hertfordshire HP1 1BB 35

Magnachem Ltd Erimus House Queens Square Middlesborough Cleveland TS2 1AA Mercol Descaling Co Ltd Carr Vale Bolsover Chesterfield Derbys Mitsubishi Corporation Bow Bells House Broad Street Cheapside London EC4M 9BQ Monsanto Chemicals plc Monsanto House Chineham Court Chineham Basingstoke Hants RG24 OUL Nalco Ltd Index House St George's Lane Ascot Berkshire SL5 7EU Nalfloc Ltd PO Box 11 Mond House Winnington Northwich Cheshire CW8 4DX National Starch and Chemical Ltd Braunston Daventrv Northants NN11 7JL Neste Chemicals UK Ltd Emerson Court Alderley Edge Wilmslow Cheshire SK9 1NK Olin (UK) Ltd Cutnall Green Droitwich Worcestershire WR9 ONS Permabond Adhesives Woodside Road Eastleigh Hants S05 4EX

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Perolin Co Ltd Brimscombe Mills Brimscombe Stroud Gloucestershire GL5 2SA Petrolite Ltd Kirkby Park Road Knowsley Industrial Park North Liverpool L33 75Y Pettibone (UK) Ltd Norton Street Manchester M10 8AD Pozament Ltd Swains Park Industrial Estate Overseal Burton-on-Trent Staffordshire BE1L 6JN Pfizer Chemicals (Europe and Africa) Sandwich Kent Phillips Petroleum Chemicals SA Steenweg op Brussel 355 B-1900 Overijse Belgium PPG Industries (Europe) sr1 Via Abruzzi 25 00187 Roma Italy Quality Water Systems Ltd Shield House Gatehouse Close Aylesbury Bucks Robert R Bartlett and Sons Ltd Millbrook Road Stover Trading Estate Yate Bristol BS17 5PB Severn Water Services John Foulkes Factory Stourport Road Kidderminster Worcs SMP International 83 Spring Bank Hull North Humberside HU3 1AR

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Snamprogetti Ltd Snamprogetti House Basing View Basingstoke Hants RG21 2YY

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SNF Floerger 41 Rue Jean-Huss 42000 Saint Etienne France

Steetley Minerals Ltd Woburn Road Woburn Sands Milton Keynes MK17 8TU

Steetley Refractories Ltd Magnesia Division PO Box 8 Hartlepool TS24 OBY

Surex SP Products Ltd Unit 10 Airport Trading Estate Biggin Hill Kent TN16 3BW

Thomas Ness Ltd Eastwood Hall Eastwood Nottingham NG16 3ER

Tilcon Water Treatment Services Grangefield Industrial Estate Richardshaw Lane Pudsey Leeds LS28 60L

Total Water Treatment Ltd Chester Road Oakmere Northwich Cheshire CW8 2HB

TR Oil Services 134-138 Borough High Street LONDON SE1 1LB

Tunnel Avebe Starches Ltd Avebe House Otterham Quay Rainham Gillingham Kent ME8 7UU

Vecom B V Postbus 27 3140 A A Maassluis Holland Water Management Chemicals Ltd Lisle Avenue Kidderminster Worcestershire DY11 7DF Watermiser Ltd Tower Works Stoneygate Road Newmilns Ayrshire KA16 9AJ Wellcome Foundation Ltd Wellcome Research Laboratories Berkhamsted Hill Berkhamsted Herts HP4 20E Wilkinson and Simpson Ltd 57 Queensway Team Valley Trading Estate Gateshead Tyne and Wear NE11 ONS Witton Chemical Co Ltd Hampstead Avenue Mildenhall Bury St Edmunds Suffolk IP28 7AS WTD Trattamento acque sr1 00158 Roma 135 V Ergisto Bezzi Italy