

SCHEDULE 1

Regulation 2(1) and (2)

PART I

PERMITTED PRESERVATIVES

Column 1 Permitted preservative specified in Schedule 2	Column 2 Serial Number	Column 3 Alternative form in which the permitted preservative may be used (to be calculated as the permitted preservative shown in column 1)	Column 4 Serial Number
Sorbic acid	E200	Sodium sorbate	E201
		Potassium sorbate	E202
		Calcium sorbate	E203
Benzoic acid	E210	Sodium benzoate	E211
		Potassium benzoate	E212
		Calcium benzoate	E213
Ethyl 4-hydroxybenzoate	E214	Ethyl 4-hydroxybenzoate, sodium salt	E215
Propyl 4-hydroxybenzoate	E216	Propyl 4-hydroxybenzoate, sodium salt	E217
Methyl 4-hydroxybenzoate	E218	Methyl 4-hydroxybenzoate, sodium salt	E219
Sulphur dioxide	E220	Sodium sulphite	E221
		Sodium hydrogen sulphite	E222
		Sodium metabisulphite	E223
		Potassium metabisulphite	E224
		Calcium sulphite	E226
		Calcium hydrogen sulphite	E227
Potassium bisulphite	E228		
Biphenyl	E230		
2-Hydroxybiphenyl	E231	Sodium biphenyl-2-yl oxide	E232

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Column 1 Permitted preservative specified in Schedule 2	Column 2 Serial Number	Column 3 Alternative form in which the permitted preservative may be used (to be calculated as the permitted preservative shown in column 1)	Column 4 Serial Number
2-(Thiazol-4-yl) benzimidazole	E233		
Hexamine	E239		
Sodium nitrite	E250	Potassium nitrite	E249
Sodium nitrate	E251	Potassium nitrate	E252
Propionic acid	E280	Sodium propionate	E281
		Calcium propionate	E282
		Potassium propionate	E283
Nisin	234		

PART II

SPECIFIC PURITY CRITERIA APPLICABLE TO PERMITTED PRESERVATIVES

In the case of—

E200	Sorbic acid
E201	Sodium sorbate
E202	Potassium sorbate
E203	Calcium sorbate
E210	Benzoic acid
E211	Sodium benzoate
E212	Potassium benzoate
E213	Calcium benzoate
E214	Ethyl 4-hydroxybenzoate
	Synonyms: Ethyl para-hydroxybenzoate
	Ethyl ester of p-hydroxybenzoic acid
	Ethyl 4-hydroxybenzoate, sodium salt
E215	Synonyms: Sodium ethyl para-hydroxybenzoate
	Sodium ethyl p-hydroxybenzoate
	Propyl 4-hydroxybenzoate
E216	Propyl 4-hydroxybenzoate

	Synonyms: Propyl para-hydroxybenzoate n-propyl p-hydroxybenzoate
E217	Propyl 4-hydroxybenzoate, sodium salt Synonyms: Sodium propyl para-hydroxybenzoate Sodium n-propyl p-hydroxybenzoate
E220	Sulphur dioxide
E221	Sodium sulphite (anhydrous or heptahydrate)
E222	Sodium hydrogen sulphite Synonyms: Acid sodium sulphite
E223	Sodium metabisulphite
E250	Sodium nitrite
E251	Sodium nitrate
E252	Potassium nitrate
E280	Propionic acid
E281	Sodium propionate
E282	Calcium propionate
the appropriate specific purity criteria contained in Directive 65/66/EEC of the Council(1).	
In the case of—	
E218	Methyl 4-hydroxybenzoate Synonyms: Methyl para-hydroxybenzoate Methyl p-hydroxybenzoate
E219	Methyl 4-hydroxybenzoate, sodium salt Synonyms: Sodium methyl para-hydroxybenzoate Sodium derivative of methyl p-hydroxybenzoate
E226	Calcium sulphite
E227	Calcium hydrogen sulphite Synonym: Calcium bisulphite
E233	2-(Thiazol-4-yl) benzimidazole Synonyms: Thiabendazole 2-(4-thiazolyl) benzimidazole (thiabendazole)

(1) O.J. No. 22, 9.2.65, p.373/65 (O.J./S.E. 1965-1966, p.25); relevant amending Directives are [67/428/EEC](#) of the Council-O.J. No. 148, 11.7.67, p.10 (O.J./S.E. 1967, p.178); [76/463/EEC](#) of the Council -O.J. No. L126, 14.5.76, p.33.

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E239	Hexamine Synonym: Hexamethylenetetramine
E249	Potassium nitrite
E283	Potassium propionate
the appropriate specific purity criteria contained in Directive 65/66/EEC of the Council(2).	
In the case of—	
E224	Potassium metabisulphite
E230	Biphenyl
E231	2-Hydroxybiphenyl Synonym: Orthophenylphenol
E232	Sodium biphenyl-2-yl oxide Synonym: Sodium orthophenylphenate
the appropriate specific purity criteria contained in Directive 65/66/EEC of the Council(3).	
In the case of—	
E228	Potassium bisulphite Synonym: Potassium acid sulphite
the appropriate specific purity criteria contained in Directive 65/66/EEC of the Council(4).	
In the case of—	
Nisin	
the criteria in the monograph for nisin contained in the Nutrition Meetings Report Series No. 45A (1969) of the United Nations' Food and Agriculture Organisation at page 53.	

PART III

GENERAL PURITY CRITERIA APPLICABLE TO PERMITTED PRESERVATIVES EXCEPT WHERE OTHERWISE PROVIDED BY SPECIFIC PURITY CRITERIA

Each preservative shall not contain—

- (a) more than 3 milligrams per kilogram of arsenic;

(2) The relevant amending Directive is [76/463/EEC](#) of the Council -O.J. No. L126, 14.5.76, p.33.

(3) The relevant amending Directive is [67/428/EEC](#) of the Council -O.J. No. 148, 11.7.67, p.10 (O.J./S.E. 1967, p.178).

(4) The relevant amending Directive is [86/604/EEC](#) of the Council -O.J. No. L352, 13.12.1986, p.45.

- (b) more than 10 milligrams per kilogram of lead;
- (c) more than 50 milligrams per kilogram of copper, or 25 milligrams per kilogram of zinc, or 50 milligrams per kilogram of any combination of copper and zinc.

SCHEDULE 2

Regulations 2(1) and 4(2)

ARTICLES OF FOOD WHICH MAY CONTAIN PERMITTED PRESERVATIVE AND THE NATURE AND PROPORTION OF PERMITTED PRESERVATIVE IN EACH CASE

<i>Column 1</i> <i>Specified food</i>	<i>Column 2</i> <i>Permitted preservative</i>	<i>Column 3</i> <i>Except where otherwise stated milligrams per kilogram not exceeding—</i>
Beer	Sulphur dioxide and either	70
	benzoic acid or	70
	methyl 4-hydroxybenzoate or	70
	ethyl 4-hydroxybenzoate or	70
	propyl 4-hydroxybenzoate	70
Beetroot, cooked and prepacked	Benzoic acid or	250
	methyl 4-hydroxybenzoate or	250
	ethyl 4-hydroxybenzoate or	250
	propyl 4-hydroxybenzoate	250
Bread	Propionic acid	As prescribed by the Bread and flour (Scotland) Regulations 1984
Cauliflower, canned	Sulphur dioxide	100
Cheese	Sorbic acid	1,000
Cheese, other than Cheddar, Cheshire, Grana-padano or Provolone type of cheeses or soft cheese	Sodium nitrate and sodium nitrite	50 of which not more than 5 may be sodium nitrite, expressed in both cases as sodium nitrite
Provolone cheese	Hexamine	25 (expressed as formaldehyde)
Chicory and coffee essence	Benzoic acid or	450
	methyl 4-hydroxybenzoate or	450
	ethyl 4-hydroxybenzoate or	450
	propyl 4-hydroxybenzoate	450
Christmas pudding	Propionic acid	1,000
Cider	Sulphur dioxide or	200

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<i>Column 1 Specified food</i>	<i>Column 2 Permitted preservative</i>	<i>Column 3 Except where otherwise stated milligrams per kilogram not exceeding—</i>
	sorbic acid	200
Coconut, desiccated	Sulphur dioxide	50
Colouring matter, except E150	Benzoic acid or	2,000
Caramel, if in the form of a solution of a permitted colouring matter	methyl 4-hydroxybenzoate or	2,000
	ethyl 4-hydroxybenzoate or	2,000
	propyl 4-hydroxybenzoate or	2,000
	sorbic acid	1,000
The permitted colouring matter, E150 Caramel	Sulphur dioxide	1,000
Crabmeat, canned	Sulphur dioxide	30
Desserts, fruit based milk and cream	Sulphur dioxide or	100
	sorbic acid	300
Dessert sauces, fruit based with a total soluble solids countent of less than 75%	Sulphur dioxide or	100
	benzoic acid or	250
	methyl 4-hydroxybenzoate or	250
	ethyl 4-hydroxybenzoate or	250
	propyl 4-hydroxybenzoate or	250
	sorbic acid	1,000
The permitted miscellaneous additive, Dimethylphylsiloxane	Sulphur dioxide or	1,000
	banzoic acid or	2,000
	methyl 4-hydroxybenzoate or	2,000
	ethyl 4-hydroxybenzoate or	2,000
	propyl 4-hydroxybenzoate or	2,000
	sorbic acid	1,000
Enzymes:	Sulphur dioxide	30,000
Papain solid	Sulphur dioxide or	5,000
Papain, aqueous solutions	sorbic acid	1,000
Aqueous solutions of enzyme preparations not	Sulphur dioxide or	500

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<i>Column 1</i> <i>Specified food</i>	<i>Column 2</i> <i>Permitted preservative</i>	<i>Column 3</i> <i>Except where otherwise stated milligrams per kilogram not exceeding—</i>
otherwise specified, including immobilised enzyme preparations in aqueous media	benzoic acid or methyl 4-hydroxybenzoate or ethyl 4-hydroxybenzoate or propyl 4-hydroxybenzoate or sorbic acid	3,000 3,000 3,000 3,000 3,000
Fat spreads consisting of an emulsion principally of water in oil with a fat content not exceeding 70%	Sorbic acid	2,000
Figs, dried	Sulphur dioxide or sorbic acid	2,000 500
Fillings and toppings for flour confectionary which consist principally of a sweetened oil and water emulsion with a minimum sugar solids content of 50%	Sorbic acid	1,000
Finings when sold by retail:		
Wine finings	Sulphur dioxide	12,500
Beer finings	Sulphur dioxide	50,000
Flavourings	Sulphur dioxide or benzoic acid or methyl 4-hydroxybenzoate or ethyl 4-hydroxybenzoate or propyl 4-hydroxybenzoate	350 800 800 800 800
Flavouring syrups	Sulphur dioxide or benzoic acid or methyl 4-hydroxybenzoate or ethyl 4-hydroxybenzoate or propyl 4-hydroxybenzoate	350 800 800 800 800
Flour confectionery	Propionic acid or sorbic acid	1,000 1,000
Foam heading, liquid	Sulphur dioxide or	5,000

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<i>Column 1 Specified food</i>	<i>Column 2 Permitted preservative</i>	<i>Column 3 Except where otherwise stated milligrams per kilogram not exceeding—</i>
	benzoic acid or	10,000
	methyl 4-hydroxybenzoate or	10,000
	ethyl 4-hydroxybenzoate or	10,000
	propyl 4-hydroxybenzoate	10,000
Freeze drinks	Sulphur dioxide or	70
	benzoic acid or	160
	methyl 4-hydroxybenzoate or	160
	ethyl 4-hydroxybenzoate or	160
	propyl 4-hydroxybenzoate or	160
	sorbic acid	300
Fruit based pie fillings	Sulphur dioxide or	350
	benzoic acid or	800
	methyl 4-hydroxybenzoate or	800
	ethyl 4-hydroxybenzoate or	800
	propyl 4-hydroxybenzoate or	800
	sorbic acid	450
Fruit, dried, other than prunes, or figs	Sulphur dioxide	2,000
Fruit, fresh:		
Bananas	2-(Thiazol-4-yl) benzimidazole	3
Citrus fruit	Biphenyl or	70
	2-hydroxybiphenyl or	12
	2-(Thiazol-4-yl) benzimidazole	10
Grapes	Sulphur dioxide	15
Fruit, fruit pulp or fruit purée (including tomatoes, tomato pulp, tomato paste and tomato purée) which, in each case, is not fresh or canned	Sulphur dioxide or	350
	benzoic acid or	800
	methyl 4-hydroxybenzoate or	800
	ethyl 4-hydroxybenzoate or	800
	propyl 4-hydroxybenzoate	800
Fruit juices:		

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Any fruit juice or concentrated fruit juice mentioned in regulation 11(2) of the Fruit Juices and fruit Nectars (Scotland) Regulations 1977	Sulphur dioxide	As prescribed by the Fruit Juices and Fruit Nectars (Scotland) Regulations 1977
Any other fruit juice or concentrated fruit juice	Sulphur dioxide or	350
	benzoic acid or	800
	methyl 4-hydroxybenzoate or	800
	ethyl 4-hydroxybenzoate or	800
	propyl 4-hydroxybenzoate	800
Fruit or plants (including flowers and seeds), crystallised, glacé drained (syruped) or candied peel or cut and drained (syruped) peel	Sulphur dioxide and either	100
	benzoic acid or	1,000
	methyl 4-hydroxybenzoate or	1,000
	ethyl 4-hydroxybenzoate or	1,000
	propyl 4-hydroxybenzoate or	1,000
	sorbic acid	1,000
Fruit pieces in stabilised syrup for use as ingredients of ice-cream or other edible ices	Sorbic acid	1,000
Fruit spread	Sulphur dioxide and	100
	sorbic acid	1,000
Garlic, powdered	Sulphur dioxide	2,000
Gelatin	Sulphur dioxide	1,000
Gelatin capsules	Sorbic acid	3,000
Ginger, dry root	Sulphur dioxide	150
Glucose drinks containing not less than 235 grammes of glucose syrup per litre of the drink	Sulphur dioxide or	350
	benzoic acid or	800
	methyl 4-hydroxybenzoate or	800
	ethyl 4-hydroxybenzoate or	800

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<i>Column 1 Specified food</i>	<i>Column 2 Permitted preservative</i>	<i>Column 3 Except where otherwise stated milligrams per kilogram not exceeding—</i>
	propyl 4-hydroxybenzoate	800
Grape juice products (unfermented, intended for sacramental use)	Sulphur dioxide and either	70
	benzoic acid or	2,000
	methyl 4-hydroxybenzoate	2,000
	ethyl 4-hydroxybenzoate or	2,000
	propyl 4-hydroxybenzoate	2,000
Grape juice, concentrated, intended for home wine making and labelled as such	Sulphur dioxide	2,000
Hamburgers or similar products	Sulphur dioxide	450
Herring, marinated		
—whose pH does not exceed 4.5	Benzoic acid or	1,000
	methyl 4-hydroxybenzoate or	1,000
	ethyl 4-hydroxybenzoate or	1,000
	propyl 4-hydroxybenzoate	1,000
—whose pH exceeds 4.5	Hexamine and either	50
	benzoic acid or	1,000
	methyl 4-hydroxybenzoate or	1,000
	ethyl 4-hydroxybenzoate or	1,000
	propyl 4-hydroxybenzoate	1,000
Hops, dried, sold by retail	Sulphur dioxide	2,000
Horseradish, fresh grated, and horseradish sauce	Sulphur dioxide or	200
	benzoic acid or	250
	methyl 4-hydroxybenzoate or	250
	ethyl 4-hydroxybenzoate or	250
	propyl 4-hydroxybenzoate	250
Jam and other products described in column 2 of Schedule 1 to the Jam and Similar Products (Scotland) Regulations 1981:		

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Reduced sugar jam, reduced sugar jelly and reduced sugar marmalade	Sulphur dioxide and benzoic acid or methyl 4-hydroxybenzoate or ethyl 4-hydroxybenzoate or propyl 4-hydroxybenzoate or sorbic acid	} As prescribed in the Jam and similar Products (Scotland) Regulations 1981
Any other product described in column 2 of Schedule 1 to the Jam and Similar Products (Scotland) Regulations 1981	Sulphur dioxide	As prescribed in the Jam and Similar Products (Scotland) Regulations 1981
Mackerel, marinated.		
—whose pH does not exceed 4.5	Benzoic acid or	1,000
	methyl 4-hydroxybenzoate or	1,000
	ethyl 4-hydroxybenzoate or	1,000
	propyl 4-hydroxybenzoate	1,000
—whose pH exceeds 4.5	Hexamine and either	50
	benzoic acid or	1,000
	methyl 4-hydroxybenzoate or	1,000
	ethyl 4-hydroxybenzoate or	1,000
	propyl 4-hydroxybenzoate	1,000
Mallow, chocolate covered	Sorbic acid	1,000 (calculated on the weight of the mallow and chocolate together)
Meat, cured (including cured meat products):		
Cured meat (including cured meat products) packed in a sterile pack, whether or not it has been removed from the pack	Sodium nitrate and sodium nitrite	} 150, of which not more than 50 may be sodium nitrite, expressed in both cases as sodium nitrite
Acidified and/or fermented cured meat products (including Salami and similar products) not packed in a sterile pack	Sodium nitrate and sodium nitrite	} 400, of which not more than 50 may be sodium nitrite, expressed in both cases as sodium nitrite
Uncooked bacon and ham: cooked bacon and ham that is not, and has not been, packed in any hermetically sealed container	Sodium nitrate and sodium nitrite	} 500, of which not more than 200 may be sodium nitrite, expressed in both cases as sodium nitrite

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<i>Column 1 Specified food</i>	<i>Column 2 Permitted preservative</i>	<i>Column 3 Except where otherwise stated milligrams per kilogram not exceeding—</i>
Any cured meat or cured meat product not specified above	Sodium nitrate and sodium nitrite	} 250, of which not more than 150 may be sodium nitrite, expressed in both cases as sodium nitrite
Mushrooms, frozen	Sulphur dioxide	50
Nut pastes, sweetened	Sorbic acid	1,000
Olives, pickled	Sulphur dioxide or benzoic acid or methyl 4-hydroxybenzoate or ethyl 4-hydroxybenzoate or propyl 4-hydroxybenzoate or sorbic acid	100 250 250 250 500
	Sulphur dioxide	100
	Sulphur dioxide	250
	Sulphur dioxide or sorbic acid	200 200
	Sulphur dioxide or benzoic acid or methyl 4-hydroxybenzoate or ethyl 4-hydroxybenzoate or propyl 4-hydroxybenzoate or sorbic acid	100 250 250 250 1,000
Peas, garden, canned, containing no added colouring matter	Sulphur dioxide	100
Pectin,m liquid	Sulphur dioxide	250
Perry	Sulphur dioxide or sorbic acid	200 200
	Sulphur dioxide or benzoic acid or methyl 4-hydroxybenzoate or ethyl 4-hydroxybenzoate or propyl 4-hydroxybenzoate or sorbic acid	100 250 250 250 1,000
Pickles, other than pickled olives	Sulphur dioxide	100
Potatoes, raw, peeled	Sulphur dioxide	50
Prawns, shrimps and scampi, other than prawns and shrimps in brine	Sulphur dioxide	200 in the edible part
Prawns and shrimps in brine	Sulphur dioxide and either sorbic acid or benzoic acid and either	200 in the edible part 2,000
	ethyl 4-hydroxybenzoate or propyl 4-hydroxybenzoate or methyl 4-hydroxybenzoate	300 300 300

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Preparations of saccharin, sodium saccharin or calcium sccharin and water only	Benzoic acid and either	750
	methyl 4-hydroxybenzoate or	250
	ethyl 4-hydroxybenzoate or	250
	propyl 4-hydroxybenxoate	250
Prunes	Sulphur dioxide or	2,000
	sorbic acid	1,000
Salad cream (including mayonnaise) and salad dressing	Sulphur dioxide or	100
	benzoic acid or	250
	methyl 4-hydroxybenzoate or	250
	ethyl 4-hydroxybenzoate or	250
	propyl 4-hydroxybenzoate or	250
	sorbic acid	1,000
Sambal oelek	Benzoic acid and	850
	sorbic acid	1,000
Sauces, other than horseradish sauce	Sulphur dioxide or	100
	benzoic acid or	250
	methyl 4-hydroxybenzoate or	250
	ethyl 4-hydroxybenzoate or	250
	propyl 4-hydroxybenzoate or	250
	sorbic acid	1,000
Sausages or sausage meat	Sulphur dioxide	450
Snack meals, concentrated with a moisture content of not less than 15% and not more than 60%	Sorbic acid and	1,500
	methyl 4-hydroxybenzoate	175
Soft drinks for consumption after dilution not otherwise specified in this Schedule	Sulphur dioxide or	350
	benzoic acid or	800
	methyl 4-hydroxybenzoate or	800

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<i>Column 1 Specified food</i>	<i>Column 2 Permitted preservative</i>	<i>Column 3 Except where otherwise stated milligrams per kilogram not exceeding—</i>
	ethyl 4-hydroxybenzoate or	800
	propyl 4-hydroxybenzoate or	800
	sorbic acid	1,500
Soft drinks for consumption without dilution not otherwise specified in this Schedule	Sulphur dioxide or	70
	benzoic acid or	160
	methyl 4-hydroxybenzoate or	160
	ethyl 4-hydroxybenzoate or	160
	propyl 4-hydroxybenzoate or	160
	sorbic acid	300
Soup concentrates with a moisture content of not less than 25% and not more than 60%	Sorbic acid and	1,500
	methyl 4-hydroxybenzoate	175
Starches, including modified starches	Sulphur dioxide	100
Sugars:		
Specified sugar products	Sulphur dioxide	As prescribed by the Specified Sugar Products (Scotland) Regulations 1976
Hydrollysed starches (other than specified sugar products)	Sulphur dioxide	400
Other sugars except lactose	Sulphur dioxide	70
Tea extract, liquid	Benzoic acid or	450
	Methyl 4-hydroxybenzoate or	450
	ethyl 4-hydroxybenzoate or	450
	propyl 4-hydroxybenzoate	450
Vegetables, dehydrated:		
Brussels sprouts	Sulphur dioxide	2,500
Cabbage	Sulphur dioxide	2,500
Potato	Sulphur dioxide	550
Others	Sulphur dioxide	2,000
Vinegar:		

<i>Column 1 Specified food</i>	<i>Column 2 Permitted preservative</i>	<i>Column 3 Except where otherwise stated milligrams per kilogram not exceeding—</i>
Cider or wine vinegar	Sulphur dioxide	200
Other	Sulphur dioxide	70
Wine (including alcoholic cordials) other than Community controlled wine	Sulphur dioxide and sorbic acid	450 milligrams per litre 200 milligrams per litre
Yoghurt, fruit	Sulphur dioxide or benzoic acid or methyl 4-hydroxybenzoate or ethyl 4-hydroxybenzoate or propyl 4-hydroxybenzoate or sorbic acid	60 120 120 120 120 300

SCHEDULE 3

Regulations 4(4) and 6(2)

LABELLING OF PERMITTED PRESERVATIVES

1.—(1) Each container to which regulation 6(2) applies shall bear a label on which is printed a true statement—

- (a) in respect of each permitted preservative present, of the serial number, if any, as specified in relation thereto in column 2 or 4 of Part I of Schedule 1, and of the common or usual name or an appropriate designation of that permitted preservative;
- (b) where any other substance or substances is or are present, of the common or usual name or an appropriate designation of each such substance; and
- (c) where two or more of the substances referred to in paragraphs 1(1)(a) and (b) of this Schedule are present, of the proportion of each such substance present, save that the label shall only have printed on it a statement of the proportion of any substance present, other than a permitted preservative, if any regulations, other than these Regulations or any amendment to these Regulations, made under the Act contain a requirement to that effect.

(2) The said statement shall be headed or preceded by the words “for foodstuffs (restricted use)”.

2. Any statement required by the preceding paragraph—

- (a) shall be clear and legible;
- (b) shall be in a conspicuous position on the label which shall be marked on, or securely attached to, the container in such a manner that it will be readily discernible and easily read by an intending purchaser under normal conditions of purchase;
- (c) shall not be in any way hidden or obscured or reduced in conspicuousness by any other matter, whether pictorial or not, appearing on the label.

3. The figures and the letters in any statement to which the preceding paragraph applies—

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- (a) shall be in characters of uniform colour and size (being not less than 1.5 millimetres in height for a label on a container of which the greatest dimension does not exceed 12 centimetres, and not less than 3 millimetres in height for a label on a container of which the greatest dimension exceeds 12 centimetres), but so that the initial letter of any word may be taller than any other letter in the word;
 - (b) shall appear on a contrasting ground, so however that where there is no ground other than such as is provided by a transparent container and the contents of that container are visible behind the letters, those contents shall be taken to be the ground for the purposes of this paragraph;
 - (c) shall be within a surrounding line and no other written or pictorial matter shall appear within that line.
- 4.—(1) There shall be printed on each document to which regulation 4(4) refers a true statement—
- (a) of the common or usual name or an appropriate designation of the food to which the document relates;
 - (b) in respect of each permitted preservative present in the food to which the document relates, of the serial number, if any, as specified in relation thereto in column 2 or 4 of Part I of Schedule 1, and of the common or usual name or an appropriate designation of that permitted preservative; and
 - (c) of the proportion of each permitted preservative present in the food to which the document relates.
- (2) The said statement shall include the words “Not for retail sale”.
5. Any statement required by the preceding paragraph shall be clear and legible and the figures and the letters in any such statement—
- (a) shall be in characters of uniform colour and size and not less than 3 millimetres in height, but so that the initial letter of any word may be taller than any other letter in the word;
 - (b) shall appear on a contrasting ground;
 - (c) shall be within a surrounding line and no other written or pictorial matter shall appear within that line.
6. For the purposes of this Schedule—
- (a) the height of any lower case letter shall be taken to be the x-height thereof, disregarding any ascender or descender thereof;
 - (b) any requirement that figures or letters shall be of uniform height, colour or size shall be construed as being subject to the saving that any inconsiderable variation in height, colour or size, as the case may be, may be disregarded.

SCHEDULE 4

Regulation 8(1)

SAMPLING OF CITRUS FRUIT TREATED WITH BIPHENYL, 2-HYDROXYBIPHENYL OR SODIUM BIPHENYL-2-YL OXIDE

PART I

Procuring of sample

1. A sample shall be procured using scientific methods which ensure that the sample is representative of the lot to which it relates.

2. A sample shall satisfy at least the following requirements—

(a) in the case of goods packaged in crates, boxes or similar containers—

Number of containers in the lot	Up to 1,000	Above 1,000
Minimum number of containers to be sampled	3	4
Mass, in kg., of fruit to be treated as sample per container	2	2

(b) in the case of goods in bulk—

Number of containers in the lot	Up to 1,000	Above 1,000
Mass of bath in kh	500	500
Mass, in kg, to be treated as sample	6	8

3. In this Part of this Schedule, the expression “lot” means a part of a consignment, which part has throughout the same characteristics such as variety of fruit, degree of ripeness and type of packaging.

PART II

Packaging and delivery of sample

1. Each part of the sample shall be placed in an air-tight container which shall be sealed.

2. Each part of the sample to be submitted for analysis shall be delivered so packaged as quickly as possible to the test laboratory.

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SCHEDULE 5

Regulation 8(2)

ANALYSIS OF CITRUS FRUIT TREATED WITH BIPHENYL, 2-HYDROXYBIPHENYL OR SODIUM BIPHENYL-2-YL OXIDE

PART I

Qualitative analysis for residues of biphenyl, 2-hydroxybiphenyl and sodium biphenyl-2-yl oxide in citrus fruit

Purpose and scope

1. The method described below enables the presence of residues of biphenyl, 2-hydroxybiphenyl (orthophenylphenol) or sodium biphenyl-2-yl oxide (sodium orthophenylphenate) in the peel of citrus fruit to be detected. The sensitivity limit of this method, in absolute terms, is approximately 5 µg for biphenyl and 1 µg for 2-hydroxybiphenyl or sodium biphenyl-2-yl oxide, which is the equivalent of 5 mg of biphenyl and 1 mg of 2-hydroxybiphenyl respectively in the peel of 1 kg of citrus fruit.

Principle

2. An extract is prepared from the peel using dichloromethane in an acid medium. The extract is concentrated and separated by thin layer chromatography using silica gel. The presence of biphenyl, 2-hydroxybiphenyl or sodium biphenyl-2-yl oxide is shown by fluorescence and colour tests.

Reagents

3. The following reagents shall be used—
- cyclohexane (analytical reagent grade);
 - dichloromethane (analytical reagent grade);
 - hydrochloric acid 25 per centum (weight/volume);
 - silica gel GF 254 (Merck or equivalent);
 - 0.5 per centum (weight/volume) solution of 2, 4, 7-trinitrofluorenone (TNF) (Fluka, BDH or equivalent) in acetone;
 - 0.1 per centum (weight/volume) solution of 2, 6-dibromo-p-benzoquinone-chlorimine in ethanol (stable for up to one week if kept in the refrigerator);
 - concentrated solution of ammonia, specific gravity: 0.9;
 - standard 1 per centum (weight/volume) solution of pure biphenyl in cyclohexane;
 - standard 1 per centum (weight/volume) solution of pure 2-hydroxybiphenyl in cyclohexane.

Apparatus

4. The following apparatus shall be used—
- a mixer;
 - a 250 ml flask with ground glass joint and with a reflux condenser;
 - a reduced pressure evaporator;
 - micropipettes;

- (e) a thin layer chromatographic apparatus with plates measuring 20x20 cm;
- (f) an ultra-violet lamp (254 nm), the intensity of which should be such that a spot of 5 mg of biphenyl is visible;
- (g) equipment for pulverising reagents;
- (h) an oven.

Method of analysis

5. The analysis shall be carried out as follows—

- (a) Preparation and extraction: All the fruit in the sample for analysis is cut in half. Half of each piece of fruit is kept for quantitative determination of the residue of any biphenyl or 2-hydroxybiphenyl present. Pieces of peel are taken from the other halves to give a sample of about 80 g. These pieces are chopped, crushed in the mixer and placed in the 250 ml flask; to this is added 1 ml of 25 per centum hydrochloric acid and 100 ml dichloromethane. The mixture is heated under reflux for 10 minutes. After cooling and rinsing of the condenser with about 5 ml of dichloromethane, the mixture is filtered through a fluted filter. The solution is transferred to the evaporator and some anti-bumping granules are added. The solution is concentrated at reduced pressure at a temperature of 60C to a final volume of about 10 ml. If a rotary evaporator is used, the flask should be kept in a fixed position to avoid loss of biphenyl through the formation of a film of the product on the upper wall of the flask.
- (b) Chromatography: 30 g of silica gel and 60 ml of water are placed in a mixer and mixed for one minute. The mixture is then spread on to 5 chromatographic plates to form a layer approximately 0.25 mm thick. The plates covered with this layer are subjected to a stream of hot air for 15 minutes and then placed in an oven where they are kept for 30 minutes at a temperature of 110C.

After cooling, the surface layer of each plate is divided into lanes, 2 cm wide, by parallel lines penetrating the silica gel down to the surface of the glass plate. 50 µl of the extract to be analysed are applied to each lane as a narrow band of contiguous spots approximately 1.5 cm from the lower edge of the plate. At least one lane is kept for the controls consisting of a spot of 1 µl (that is, 10 µg) of the standard solutions of biphenyl and 2-hydroxybiphenyl, one standard per lane. The chromatographic plates are developed in a mixture of cyclohexane and dichloromethane (25:95) in tanks previously lined with filter paper.

- (c) Detection and identification: The presence of biphenyl and 2-hydroxybiphenyl is shown by the appearance of spots in ultra-violet light (254 nm). The sodium biphenyl-2-yl oxide will have been converted to 2-hydroxybiphenyl during the extraction in an acid medium, and its presence cannot therefore be distinguished from that of 2-hydroxybiphenyl. The products are identified in the following manner—
 - (i) biphenyl gives a yellow spot in daylight when sprayed with the TNF solution;
 - (ii) 2-hydroxybiphenyl gives a blue spot when sprayed with the solution of 2,6-dibromo-p-benzoquinonechlorimine, followed by rapid passage through a stream of hot air and exposure to an ammonia-saturated atmosphere.

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PART II

Quantitative analysis of the residues of biphenyl in citrus fruit

Purpose and scope

1. The method described below gives a quantitative analysis of the residues of biphenyl in whole citrus fruit. The accuracy of the method is ± 10 per centum for a biphenyl content greater than 10 mg per kg of fruit.

Principle

2. After distillation in an acid medium and extraction by cyclohexane, the extract is subject to thin layer chromatography on silica gel. The chromatogram is developed and the biphenyl is eluted and determined spectrophotometrically at 248 nm.

Reagents

3. The following reagents shall be used—
- concentrated sulphuric acid solution;
 - silicone-based anti-foaming emulsion;
 - cyclohexane (analytical reagent grade);
 - hexane (analytical reagent grade);
 - ethanol (analytical reagent grade);
 - anhydrous sodium sulphate;
 - silica gel GF 254 (Merck or equivalent);
 - standard 1 per centum (weight/volume) solution of pure biphenyl in cyclohexane: dilute with cyclohexane to obtain the following three solutions—
 - 0.6 $\mu\text{g}/\mu\text{l}$;
 - 1 $\mu\text{g}/\mu\text{l}$;
 - 1.4 $\mu\text{g}/\mu\text{l}$.

Apparatus

4. The following apparatus shall be used—
- a 1 litre mixer;
 - a 2 litre distillation flask with a modified Clevenger-type separator as shown in the diagram in Schedule 6 and a cooled reflux condenser;
 - a 10 ml graduated flask;
 - 50 μl micropipettes;
 - a thin layer chromatographic apparatus with 20x20 cm plates;
 - an oven;
 - a centrifuge with 15 ml conical tubes;
 - an ultra-violet spectrophotometer.

Method of analysis

5. The analysis shall be carried out as follows—

- (a) Preparation and extraction: All the fruit in the sample for analysis is cut in half. Half of each piece of fruit is kept for qualitative analysis for residues of biphenyl, 2-hydroxybiphenyl or sodium biphenyl-2-yl oxide. The other halves are put all together and shredded in a mill or crushed until a homogeneous mixture is obtained. From this at least two sub-samples of 200 g are taken for analysis in the following manner. Each sub-sample is placed in a mixer with 100 ml of water and mixed at slow speed for several seconds. Water is added until the volume of the mixture reaches 3/4 of the capacity of the mixer, and the mixture is then mixed for 5 minutes at full speed. The resulting puree is transferred to the 2 litre distillation flask. The mixer is rinsed with water and the rinsings added to the contents of the flask. (The total quantity of water to be used in mixing and rinsing is 1 litre.) To the mixture are added 2 ml sulphuric acid, 1 ml anti-foaming emulsion and several anti-bumping granules. The separator and reflux condenser are fitted on to the flask. Distilled water is poured into the separator until the water level is well past the lower arm of the lateral return tube, followed by 7 ml cyclohexane. Distillation is carried out for about 2 hours. The lower aqueous layer in the separator is discarded and the upper layer is collected in the 10 ml graduated flask. The separator is rinsed with about 1.5 ml of cyclohexane and the rinsings added to the contents of the flask, which are then brought up to volume with cyclohexane. Finally a little anhydrous sodium sulphate is added and the mixture is shaken.
- (b) Chromatography: 30 g of silica gel and 60 ml of water are placed in a mixer and mixed for one minute. The mixture is then spread on to 5 chromatographic plates to form a layer approximately 0.25 mm thick. The plates covered with this layer are subjected to a stream of hot air for 15 minutes and then placed in an oven where they are kept for 30 minutes at a temperature of 110C. After cooling, the surface layer of each plate is divided into 4 lanes, 4.5 cm wide, by parallel lines penetrating the silica gel down to the surface of the glass plate. 50 µl of the extract to be analysed are applied to one lane of each plate as a narrow band of contiguous spots approximately 1.5 cm from the lower edge of the plate. 50 µl of the standard solutions (i), (ii) and (iii), corresponding respectively to 30, 50 and 70 µg levels of biphenyl are applied in the same way to the three remaining lanes, one solution to each lane.

If a large number of samples are being analysed at one time, standard solutions need not be applied to every plate. Reference may be made to a standard curve provided that this curve has been prepared from the average values obtained from 5 different plates to which the same standard solutions have been applied.

- (c) Development of chromatograms and elution: The chromatograms are developed with hexane to a height of 17 cm in tanks previously lined with filter paper. The plates are air dried. By illuminating the plates with ultra-violet light (254 nm), the areas of silica gel containing biphenyl are located and marked off in rectangles of equal area.

The entire layer of silica gel within the areas thus marked off is immediately scraped from the plate with a spatula. The biphenyl is extracted by mixing the silica gel with 10 ml of ethanol and shaking several times over a period of 10 minutes. The mixture is transferred to the centrifuge tubes and centrifuged for 5 minutes at 2,500 revolutions per minute.

A control sample of silica gel is taken by the same method using an area of the same size. If a series of analyses are made, this control area is taken from an unused lane of a plate and below the solvent front; if a single analysis is made the control sample is taken from an area below one of the positions at which the standard biphenyl is located.

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- (d) Spectrophotometric determination: The supernatant liquid is decanted into the spectrophotometer cells and the absorption determined at 248 nm against a control extract from a chromatographic area free from biphenyl.

Calculation of results

6. A standard curve is drawn, plotting the biphenyl values of 30, 50 and 70 µg against the corresponding absorptions, as determined on the spectrophotometer. This gives a straight line which passes through the origin. This graph allows the biphenyl content of the samples to be read directly in mg per kg from the absorption value of their extracts.

PART III

Quantitative analysis of the residues of 2-hydroxybiphenyl and sodium biphenyl-2-yl oxide in citrus fruit

Purpose and scope

1. The method described below enables a quantitative analysis of the residues of 2-hydroxybiphenyl and sodium biphenyl-2-yl oxide in whole citrus fruit to be made. The method gives results which for a 2-hydroxybiphenyl or sodium biphenyl-2-yl oxide content of the order of 12 mg per kg are low by an average value of between 10 per centum and 20 per centum.

Principle

2. After distillation in an acid medium and extraction by di-isopentyl ether, the extract is purified and treated with a solution of 4-aminophenazone. A red colour develops, the intensity of which is measured spectrophotometrically at 510 nm.

Reagents

3. The following reagents shall be used—
- 70 per centum (weight/weight) orthophosphoric acid;
 - silicone-based anti-foaming emulsion;
 - di-isopentyl ether (analytical reagent grade);
 - purified cyclohexane: shake 3 times with a 4 per cent (weight/volume) solution of sodium hydroxide, wash 3 times with distilled water;
 - 4 per centum (weight/volume) sodium hydroxide solution;
 - buffer solution at pH 10.4: into a 2 litre graduated flask put 6.64 g of boric acid, 8.00 g of potassium chloride and 93.1 ml of N sodium hydroxide solution; mix and bring up to calibration mark with distilled water;
 - reagent I: dissolve 1.0 g of 4-aminophenazone (4-amino-2, 3-dimethyl-1-phenyl-5-pyrazolone; 4-aminoantipyrin) in 100 ml of distilled water;
 - reagent II: dissolve 2.0 g of potassium ferricyanide in 100 ml of distilled water. Reagents I and II must be kept in brown glass flasks and are only stable for approximately 14 days;
 - silica gel;
 - standard solution: dissolve 10 mg of pure 2-hydroxybiphenyl in 1 ml of 0.1 N NaOH; dilute to 100 ml with a 0.2 M sodium borate solution (1 ml = 100 µg 2-hydroxybiphenyl). For the standard curve, dilute 1 ml to 10 ml with the buffer solution.

Apparatus

4. The following apparatus shall be used—
- (a) a shredding or crushing mill;
 - (b) a mixer;
 - (c) a 1 litre distillation flask with a modified Clevenger-type separator as shown in the diagram in Schedule 6 and a reflux condenser;
 - (d) an electrically controlled heating mantle;
 - (e) a 200 ml separating funnel;
 - (f) graduated cylinders of 25 and 100 ml;
 - (g) graduated flasks of 25 and 100 ml;
 - (h) 1 to 10 ml pipettes;
 - (j) 0.5 ml graduated pipettes;
 - (k) a spectrophotometer with 4 or 5 cm cells.

Method of Analysis

5. All the fruit in the sample for analysis is cut in half. Half of each piece of fruit is kept for qualitative analysis for residues of biphenyl, 2-hydroxybiphenyl or sodium biphenyl-2-yl oxide. The other halves are put all together and shredded in a mill or crushed until a homogeneous mixture is obtained. From this at least two sub-samples of 250 g are taken for analysis in the following manner.

Each sub-sample is placed in a mixer with 500 ml of water and mixed until a very fine homogeneous mixture is obtained in which the oily cells are no longer perceptible. A sample of 150 to 300 g of the puree is taken, depending on the presumed 2-hydroxybiphenyl content and placed in the 1 litre distillation flask with a quantity of water sufficient to dilute the mixture to 500 g in the flask. After the addition of 10 ml of 70 per centum orthophosphoric acid, several anti-bumping granules and 0.5 ml of anti-foaming emulsion, the separator and the reflux condenser are fitted on to the flask. 10 ml of di-isopentyl ether are placed in the separator and the flask is heated gently in the electrically controlled heating mantle until the mixture boils. Emulsion formation is minimised if the mixture is boiled gently for the first 10 to 20 minutes. The rate of heating is then gradually increased until the mixture boils steadily and one drop of water reaches the trapping solvent every 3 to 5 seconds. After distilling for 6 hours, the contents of the separator are poured into the 200 ml separating funnel, and the separator and the condenser are rinsed with 60 ml of cyclohexane and then with 60 ml of water. The rinsings are added to the contents of the separating funnel. The mixture is shaken vigorously and when the phases have separated the aqueous phase is discarded.

To extract the 2-hydroxybiphenyl, the organic phase is shaken vigorously 5 times, each time for 3 minutes, with 10 ml of 4 per centum sodium hydroxide. The alkaline solutions are combined, adjusted to pH 9-10 with orthophosphoric acid in the presence of phenolphthalein paper, and diluted to 100 ml with distilled water. A pinch of silica gel is added in order to clarify the solution which will have a slightly cloudy appearance. The solution is then shaken and filtered through a dry, fine-grain filter. Since colouring is developed with the maximum of accuracy and precision using quantities of 2-hydroxybiphenyl of between 10 and 70 ug an aliquot sample of between 0.5 and 10 ml of solution is taken with a pipette, taking into account the quantities of 2-hydroxybiphenyl which might be expected to be found. The sample is placed in a 25 ml graduated flask; to this are added 0.5 ml of reagent I, 10 ml of the buffer solution and then 0.5 ml of reagent II. The mixture is made up to the calibration mark with the buffer solution and shaken vigorously.

After 5 minutes the absorption of the red colouring at 510 nm. is measured spectrophotometrically against a control containing no extract. The colour does not lose intensity within 30 minutes.

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Evaluation is made by reference to a standard curve drawn from determinations using the standard 2-hydroxybiphenyl solution under the same conditions.

Observations

6. For each analysis it is recommended that the spectrophotometric determination be made with two different volumes of the neutralised alkaline extract.

Untreated citrus fruit gives by this method a “blank” reading of up to 0.5 mg per kg for oranges and 0.8 mg per kg for lemons.

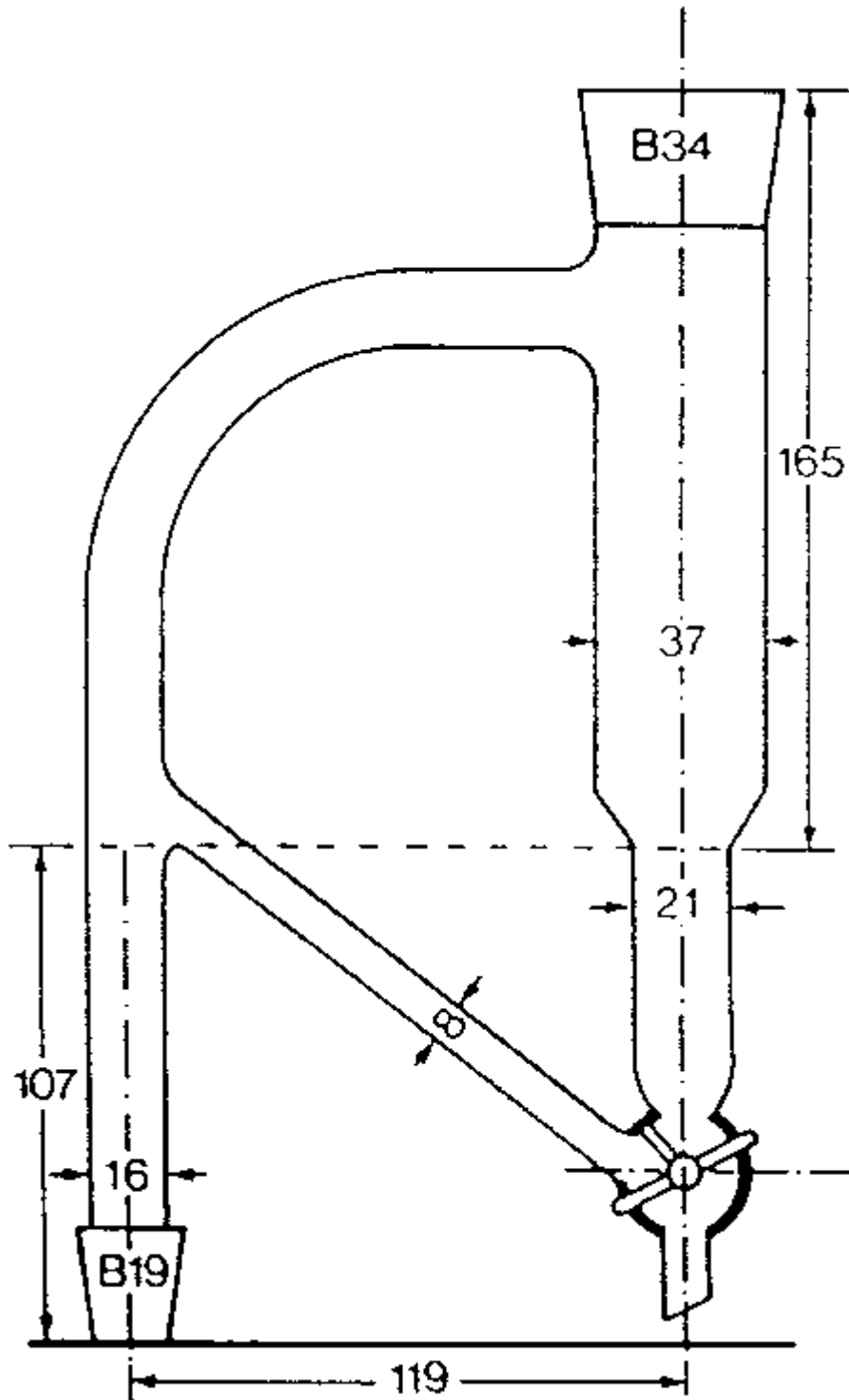
SCHEDULE 6

Regulation 8(3)

DIAGRAM OF A MODIFIED CLEVINGER-TYPE SEPARATOR

Note: The dimensions in this diagram are given in millimetres.

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SCHEDULE 7

Regulation 13

Regulations revoked	References	Extent of revocation
The Preservatives in Food (Scotland) Regulations 1979	S.I. 1979/1073	All the Regulations
The Preservatives in Food (Scotland) Amendment Regulations 1980	S.I. 1980/1232	All the Regulations
The Jam and Similar Products (Scotland) Regulations 1981	S.I. 1981/1320	Regulation 20 and Schedule 5
The Preservatives in Food (Scotland) Amendment Regulations 1982	S.I. 1982/516	All the Regulations
The Fruit Juices and Fruit Nectars (Scotland) Amendment Regulations 1982	S.I. 1982/1619	Regulation 9
The Food and Drugs (Scotland) Act 1956 (Transfer of Enforcement Functions) Regulations 1983	S.I. 1983/270	The reference in Schedule 2 to the Preservatives in Food (Scotland) Regulation 1989
The Sweeteners in Food (Scotland) Regulations 1983	S.I. 1983/1497	Schedule 2, paragraph 5
The Bread and Flour (Scotland) Regulations 1984	S.I. 1984/1518	Schedule 6, paragraph 4
The Food (Revisiion of Penalties and Mode of Trial) (Scotland) Regulation 1985	S.I. 1985/1068	The reference in Schedules 1 and 2 to the Preservatives in Food (Scotland) Regulations 1979