

Appendix B

Chemical and Product Class Information for the Substances Tested in the HET-CAM Test Method

B1	Table of Chemical and Product Class Information.....	B-3
B2	Table of Formulation Components in Gettings et al. (1991).....	B-19
B3	Table of Formulation Components in Gettings et al. (1994).....	B-25
B4	Table of Formulation Components in Gettings et al. (1996).....	B-35

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Appendix B1

Table of Chemical and Product Class Information

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Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
Acetic acid	64-19-7	-	Carboxylic acid	-
Acetoacetic acid glycolester	5459-04-1	-	Acetate	-
Acetone	67-64-1	-	Ketone	Solvent; Antiseptic; Chemical intermediate; Raw material
Acetonitrile	75-05-8	-	Nitrile	-
7-Acetoxyheptanal	-	-	-	-
n-Acetyl-Methionine	1115-47-5	N-acetyl-DL- methionine	Amino acid	-
Acetylsalicylic acid	50-78-2	-	Carboxylic acid	Analgesic
Acrylamide	79-06-1	-	Amide, Hydrocarbon	Laboratory reagent
Allyl alcohol	107-18-6	-	Alcohol	-
Aluminium hydroxide	21645-51-2	-	Alkali	-
Ambuphylline	5634-34-4	-	Heterocyclic	-
4-Amino-azobenzene-4- sulfonic acid	-	-	Acid	-
4-Amino-5-methoxy-2- methylbenzenesulfonic acid	6471-78-9	4-Amino-5- methoxy-o- toluenesulfonic acid	Hydrocarbon, Sulfur containing	-
Ammonium nitrate	6484-52-2	-	Inorganic	Fertilizer; Chemical intermediate; Industrial explosive
Ammonium persulfate	7727-54-0	-	Inorganic	-
Aniline	62-53-3	-	Amine	-
p-Anisidine	104-94-9	-	Amine	-
Anisole	100-66-3	Anisole D	Ether; Phenol	-
9,10-Anthracenedione	84-65-1	-	Quinone	-
Arcopal	-	-	-	-
Ascorbic acid	50-81-7	-	Acid	Metabolite
Aspartic acid	56-84-8	-	Amino acid	Neurotransmitter

Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
L-Aspartic acid	70-47-3	-	Acid	Organic intermediate; Ingredient of Aspartame; Fungicides; Germicides
Azelaic acid	123-99-9	-	Carboxylic acid	-
B 25	-	-	-	-
Behydima	-	-	-	-
Benzalkonium chloride	8001-54-5	-	Surfactant, Cationic	Bactericide; Fungicide; Cationic surface active agent; Preservative
Benzoic acid	65-85-0	-	Carboxylic acid	Preservative
Benzoyl-L-tartaric acid	2743-38-6	-	Acid	-
Bis-(3-triethoxisilylpropyl)-tetrasulfide	-	-	-	-
n-Butanal	123-72-8	-	Aldehyde	-
Butanol	71-36-3	-	Alcohol	-
n-Butanol	71-36-3	-	Alcohol	-
Butyl acetate	123-86-4	-	Acetate	Solvent; Synthetic flavor ingredient
Butyl carbamate	592-35-8	-	Carboxylic acid	
gamma-Butyrolactone	96-48-0	-	Lactone	Synthetic intermediate; Solvent
Caffeine sodium benzoate	8000-95-1	-	Heterocyclic	-
Caffeine sodium salicylate	8002-85-5	-	Heterocyclic	-
Camphen	79-92-5	Camphene	Hydrocarbon	-
Captan 90 concentrate	133-06-2	Captan	Sulfur containing; Heterocyclic	Pesticide
Carbon black	1333-86-4	-	Inorganic	-
4-Carboxybenzaldehyde	619-66-9	-	Aldehyde	-
Cerium-2-ethylhexanoate	24593-34-8	Cerium ethyl hexonate	Carboxylic acid	-
Cetylpyridinium bromide	140-72-7	-	Surfactant, Cationic	Germicide; Laboratory reagent

Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
Cetyltrimethylammonium bromide	57-09-0	-	Amine; surfactant, Anionic	-
Chlorhexidine	55-56-1	-	Amidine	Disinfectant; Mouthwash; Anti-infective agent
Chlorhexidine gluconate Solution (20% Solution)	18472-51-0	-	Gluconate	-
Chlorhexidine hydrochloride	3697-42-5	-	Hydrocarbon	Disinfectant; Mouthwash; Anti-infective agent
1-Chloroctane-8-ol	-	-	Alcohol	-
4-Chloro-methanilic acid	98-36-2	-	Hydrocarbon, Sulfur containing	-
4-Chloro-4-Nitrodiphenylether	1836-74-4	-	Ether	-
Cupric sulfate	7758-98-7	-	Inorganic	-
Cyclohexanol	108-93-0	-	Alcohol	Solvent; Chemical intermediate
3-Cyclohexene-1-methanol	1679-51-2	-	Alcohol	-
DC 8	-	-	-	-
Di(2-ethylhexyl) sodium sulfosuccinate	577-11-7	-	Ester; Surfactant, Anionic	-
Dibenzyl phosphate	1623-08-1	-	Organophosphate	-
1,4-Dibutoxy-benzene	104-36-9	-	Hydrocarbon	-
2,6-Dichlorobenzoyl chloride	4659-45-4	-	Acyl halide	-
Diepoxid 126	2386-87-0	Epoxy cyclohexane carboxylate	Ester; Epoxide	-
Diethylhexyl phthalate	117-81-7	-	Carboxylic acid	-
3-5-Dihydroxy-acetophenone	35086-59-0	-	Ketone	-
Diisopropanolamine	110-97-4	-	Alcohol; Amine	-
N,N-Dimethylacetamide	127-19-5	-	Amide	-
2,2-Dimethylbutanoic acid	595-37-9	-	Acid	Pharmaceutical metabolite
2,5-Dimethylhexanediol	110-03-2	-	Diol	-

Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
2,5-Dimethylhexanediol	110-03-2	-	Diol	-
3,6-Dimethyloctanol	-	-	Alcohol	-
4,4-Dimethyl-3-oxo-pentanenitrile	59997-51-2	-	Nitrile	-
1-(2,6-dimethylphenoxy)-2-propanone	53012-41-2	-	Ketone	-
m-Dinitrobenzene	99-65-0	-	Cyclocarbon	-
Diphocars	-	-		-
1,2-Dodecanediol	1119-87-5	-	Alcohol	-
Domiphen bromide	538-71-6	-	Amine; Surfactant, Cationic	-
DTPA Pentasodium salt	140-01-2	Pentasodium pentetate	Amine; Carboxylic acid	-
E4	-	-	-	-
Ede 140	-	-	-	-
EDTA	60-00-4	-	Amine; Carboxylic acid	Pharmaceutical intermediate, Food additive
EDTA-4-Na salt	13235-36-4	-	Amine; Carboxylic acid	-
1,2-Epoxycyclooctane	286-62-4	-	Hydrocarbon	-
1,2-Epoxycyclopentane	285-67-6	-	Hydrocarbon	-
1,2-Epoxydodecane	2855-19-8	-	Hydrocarbon	-
Ethanol	64-17-5	-	Alcohol	Solvent; Beverages; Antifreeze agent
Ethiosan	-	-	-	-
Ethyl acetate	141-78-6	-	Carboxylic acid	Solvent; Synthetic flavoring
Ethylacrolein	922-63-4	-	Aldehyde	-
Ethyl butanal	97-96-1	-	Aldehyde	-
2-Ethyl-1-hexanol	104-76-7	-	Alcohol	Solvent; Plasticizer
Ethyl-2-methylacetooacetate	609-14-3	-	Acetate	-
Ethyl trimethyl acetate	3938-95-2	-	Acetate	Solvent
Fomesafen	72128-02-0	-	Amide	Pesticide
Gadopentetic acid dimeglumine salt	86050-77-3	Gadolinium complex N-methyl glucamine salt	Amine; Carboxylic acid	-

Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
Genagen	68139-91-3	-	-	-
Genomoll	115-96-8	Chlorophosphate ethanol	Organophosphate	-
C12/C14-Glucoside	-	-	-	-
Glutamic acid	56-86-0	-	Amino acid	Neurotransmitter
L-Glutamic acid hydrochloride	138-15-8	-	Amino acid	Neurotransmitter
Glycediol	-	-	Alcohol	-
Glycerin	56-81-5	-	Alcohol	-
Glycerol	56-81-5	-	Alcohol	Solvent; Plasticizer; Lubricant; Emollient; Drug vehicle
Glycolic acid	79-14-1	-	Carboxylic acid	-
Granufom	30525-89-4	Para-formaldehyde	Aldehyde	-
Hexachlorocyclopentadiene	77-47-4	-	Hydrocarbon	-
Hexahydrofarnesyl- acetone	502-69-2	-	Hydrocarbon	-
Hexamethylenetetramine	100-97-0	-	Amine	Antibacterial agent
2,5-Hexandion	110-13-4	-	Ketone	-
n-Hexane	110-54-3	-	Hydrocarbon	-
1,2,6-Hexanetriol	106-69-4	-	Alcohol	-
n-Hexanol	111-27-3	-	Alcohol	Solvent; Chemical intermediate; Synthetic flavor ingredient
Hnol	-	-	-	-
Hoe MBF	-	-	-	-
Hoe T 3761	-	-	-	-
Hydo 98	-	-	-	-
Hydroalcoholic Formulation 1-5% Alcohol Containing Formulation (PROD-00187)	-	-	Formulation	Fragrances
Hydroalcoholic Formulation 2-10% Alcohol Containing Formulation (PROD-00183)	-	-	Formulation	Cosmetics

Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
Hydroalcoholic Formulation 3-15% Alcohol Containing Formulation (PROD-00186)	-	-	Formulation	Cosmetics
Hydroalcoholic Formulation 4-20% Alcohol Containing Formulation (PROD-00185)	-	-	Formulation	Cosmetics
Hydroalcoholic Formulation 5-33% Alcohol Containing Formulation (PROD-00184)	-	-	Formulation	Lotions
Hydroalcoholic Formulation 6-40% Alcohol Containing Formulation (PROD-00189)	-	-	Formulation	Cosmetics
Hydroalcoholic Formulation 7-55% Alcohol Containing Formulation (PROD-00188)	-	-	Formulation	Sunscreens
Hydroalcoholic Formulation 8-65% Alcohol Containing Formulation (PROD-00180)	-	-	Formulation	Cosmetics
Hydroalcoholic Formulation 9-83% Alcohol Containing Formulation (PROD-00181)	-	-	Formulation	Fragrances
Hydroalcoholic Formulation 10-90% Alcohol Containing Formulation (PROD- 00182)	-	-	Formulation	Cosmetics
2-Hydroxyethyliminodi- sodiumacetate	135-37-5	-	Carboxylic acid	-
2-Hydroxyisobutyric acid	594-61-6	-	Carboxylic acid; Fatty acid	-
2-Hydroxyisobutyric acid ethylester	80-55-7	-	Ester	-
Hypo 20	-	-	-	-
Hypo 36	-	-	-	-

Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
Hypo 45	-	-	-	-
Hypo 54	-	-	-	-
Hyton	-	-	-	-
Imidazole	288-32-4	-	Heterocyclic	Laboratory reagent
Iminodiacetic acid	142-73-4	Acetocacetic acid isopropyl ester	Carboxylic acid; Imine	-
Isobornyl acetate	125-12-2		Hydrocarbon	-
Isobutanal	78-84-2	Isobutyraldehyde	Aldehyde	-
Isobutanol	78-83-1	-	Alcohol	Solvent; Chemical intermediate; Flavor ingredient
Isodecylglucoside	-	-	-	-
Isononylaldehyde	35127-50-5	Isononanal	Aldehyde	-
Isopropanol	67-63-0	-	Alcohol	Solvent; Aerosol formulations (ingredient)
Isopropyl acetoacetate	542-08-5	-	Carboxylic acid	-
Isotridecanal	61497-46-9	-	-	-
Kerobit TP	-	-	-	-
alpha-Ketoglutaric acid	328-50-7	-	Carboxylic acid	-
Kuppler 43	-	-		-
Lactic acid	50-21-5	-	Carboxylic acid	-
alpha-Lactid	4511-42-6	Dimethyl dioxane dione	Heterocyclic	-
Lial-111-Glucoside	-	-	-	-
L-Lysine Monohydrate	39665-12-8	-	Amino acid	-
Maneb	12427-38-2	-	Carboxylic acid; Organometallic compound	Pesticide
Mecre	-	-	-	-
3-Mercapto-1,2,4-triazole	3179-31-5	-	Heterocyclic, Sulfur containing	-
m-Methoxybenzaldehyde	591-31-1	-	Aldehyde	-
Methyl acetate	79-20-9	-	Carboxylic acid	Solvent; Chemical intermediate; Synthetic flavor ingredient

Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
Methyl acetate	79-20-9	-	Carboxylic acid	-
Methyl cyanoacetate	105-34-0	-	Acetate	-
Methylcyclopentane	96-37-7	-	Hydrocarbon	-
Methyl ethyl ketone	78-93-3	-	Ketone	-
Methyl isobutyl ketone	108-10-1	-	Ketone	-
5-Methyl-1,3,4-thiadiazol-2-amine	108-33-8	-	Amine	-
Methylpentynol	77-75-8	-	Alcohol	-
N-(2-methylphenyl)-Imidodi-carbonimidic diamide	93-69-6	o-Tolyl biguanidine	Amide	-
Methylphosphonic acid bis (oxianylmethyl) ester	77275-34-9	-	Ester	-
2-Methyl-1-propanol	78-83-1	Isobutyl alcohol	Alcohol	-
Methyltetraglycol	9004-74-4	-	Alcohol	-
Methyltriglycol	112-35-6	-	Alcohol	-
Monoethanolamine	141-43-5	-	Alcohol; Amine	Surfactant, Laboratory reagent
1-Naphthalene acetic acid	86-87-3	-	Carboxylic acid	Pesticide
1-Naphthalene acetic acid, Na salt	61-31-4	-	Carboxylic acid	Pesticide
Napt	-	-	-	-
Nicotinamide	98-92-0	-	Amide	-
Nitroaniline	88-74-4	-	Amine	-
Nitrobenzene	98-95-3	-	Hydrocarbon	-
p-Nitrobenzoic acid	62-23-7	-	Carboxylic acid	-
Nitro-bis-octylamide	-	-	-	-
Nitropropane	108-03-2	-	Hydrocarbon	-
n-Octanol	111-87-5	-	Alcohol	-
Oil/Water Emulsion-HZA	-	-	Formulation	Conditioners, Hair
Oil/Water Emulsion-HZC	-	-	Formulation	Emollients
Oil/Water Emulsion-HZE	-	-	Formulation	Lotions
Oil/Water Emulsion-HZF	-	-	Formulation	Sunscreens
Oil/Water Emulsion-HZH	-	-	Formulation	Cosmetics
Oil/Water Emulsion-HZI	-	-	Formulation	Conditioners, Hair

Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
Oil/Water Emulsion-HZJ	-	-	Formulation	Cream
Oil/Water Emulsion-HZL	-	-	Formulation	Cosmetics
Oil/Water Emulsion-HZM	-	-	Formulation	Cosmetics
Oil/Water Emulsion-HZN	-	-	Formulation	Lotions
Oil/Water Emulsion-HZO	-	-	Formulation	Cosmetics
Oil/Water Emulsion-HZR	-	-	Formulation	Cleaners
Oil/Water Emulsion-HZS	-	-	Formulation	Cosmetics
Oil/Water Emulsion-HZT	-	-	Formulation	Cosmetics
Oil/Water Emulsion-HZU	-	-	Formulation	Sunscreens
Oil/Water Emulsion-HZV	-	-	Formulation	Cosmetics
Oil/Water Emulsion-HZW	-	-	Formulation	Roll-on Antiperspirant
Oil/Water Emulsion-HZY	-	-	Formulation	Shampoos, Hair
Olak	-	-	-	-
Ölesulf	-	-	-	-
Oxoöl 9N	-	-	-	-
P 32	-	-	-	-
Parafluoraniline	371-40-4	-	Aromatic	-
Phenol	108-95-2	-	Alcohol	Antiseptic, Disinfectant
o-Phenylenediamine	95-54-5	-	Amine	-
(-)Phenylephrine	59-42-7	-	Alcohol; Amine	-
(+)Phenylephrine	614-03-9	-	Alcohol; Amine	-
Phenylephrine hydrochloride	61-76-7	-	Alcohol; Amine	-
Phenylthiourea	103-85-5	-	Sulfur containing; Urea	-
Phosphonat A	-	-	-	-
Phthalic anhydride	85-44-9	-	Carboxylic acid	-
Piperazine	18833-13-1	Acetyl piperazinate	Heterocyclic	-
PO 2	-	-	-	-
Polyethylene glycol 400	25322-68-3	-	Surfactant, nonionic	Polymer

Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
Polyethylene glycol butyl ether	9004-77-7	-	Alcohol	-
Polyethylene glycol dimethyl ether	24991-55-7	Dimethoxy polyethylene glycol	Ether	-
Polyethylene glycol	25322-68-3	-	Alcohol	-
Polyhexamethylene guanidine	-	-	-	Biocide
Polysolvan	7397-62-8	Butyl hydroxy acetate	Alcohol	-
Potassium cyanate	590-28-3	-	Inorganic	-
Potassium hexacyanoferrate II	14459-95-1	-	Inorganic	-
Potassium hexacyanoferrate III	13756-66-2	-	Inorganic	-
Potassium laurate	10124-65-9	-	Carboxylic acid; Surfactant, Cationic	-
Potato starch	56780-58-6	-	Hydrocarbon	-
Promethazine HCl	58-33-3	Phenergan, Promethergan	Sulfur containing; Heterocyclic	Pharmaceutical agent (antihistamine)
2-Propanol	67-63-0	-	Alcohol	Solvent, Disinfectant
Propylene glycol	57-55-6	-	Alcohol	
2-Pseudojonon	-	-	-	-
Pyridine	110-86-1	-	Heterocyclic	-
Quinacrine	69-05-6	Mepacrine	Heterocyclic; Hydrocarbon	Pharmaceutical agent (antiprotozoal)
Remolgan	-	-	-	-
beta-Resorcylic acid	89-86-1	-	Carboxylic acid	
Rigly	-	-	-	-
RK Blau	-	-	-	-
Rubinrot Y	-	-	-	-
Sacyclo	-	-	-	-
Salicylic acid	69-72-7	-	Carboxylic acid	
Sept	-	-	-	-
Silan 103	1067-25-0	Trimethoxypropyl silane	Hydrocarbon; Ether	-

Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
Silan 108	3069-40-7	Trimethoxyoctyl silane	Hydrocarbon; Ether	-
Silan 165	29055-11-6	Bis(3-trimethoxysilylpropyl)sulfide	Hydrocarbon; Ether; Sulfur containing	-
Silan 167	41453-78-5	3,3,14,14-Tetramethoxy-2,15-dioxa-7,8,9,10-tetrathia-3,14-disilahexadecane	-	-
Silan 253	18784-74-2	-	-	-
Silver nitrate	7761-88-8	-	Inorganic	-
Sodium bisulfite	7631-90-5	-	Inorganic	-
Sodium sulfite	7757-83-7	-	Inorganic	-
Sodium chloride	7647-14-5	-	Inorganic	-
Sodium cyanate	917-61-3	-	Cyanate	-
Sodium disilicate	13870-28-5	Silane 69	Inorganic	-
Sodium hydrogen sulfate	7681-38-1	Sodium bisulfate	Inorganic	-
Sodium hydroxide	1310-73-2	-	Alkali	-
Sodium lauryl ether sulfate	3088-31-1	Diethylene glycol monolauryl ether sodium sulfate	-	-
Sodium lauryl sulfate	151-21-3	-	Surfactant, Anionic	Detergent
Sodium monochloroacetate	3926-62-3	Sodium chloroacetate	Carboxylic acid	-
Sodium oxalate	62-76-0	-	Inorganic	-
Sodium perborate	10486-00-7	-	Inorganic	-
Sodium pyrosulfite	7681-57-4	Sodium metabisulfite	Inorganic	-
Stearyltrimethylammonium chloride	15461-40-2	-	Surfactant, Cationic	-
Styrene	100-42-5	-	Hydrocarbon	-
4-((2-sulfatoethyl)sulfonyl)-aniline	2494-89-5	2-Sulfanyl ethanol hydrogen sulfate	Amide	-

Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
Surfactant Based Formulation 1-HZA	-	-	Formulation	Shampoos, Hair
Surfactant Based Formulation 2-HZB	-	-	Formulation	Soaps and Surfactants
Surfactant Based Formulation 3-HZC	-	-	Formulation	Shampoos, Hair
Surfactant Based Formulation 4-HZD	-	-	Formulation	Shampoos, Hair
Surfactant Based Formulation 5-HZE	-	-	Formulation	Soaps and Surfactants
Surfactant Based Formulation 6-HZF	-	-	Formulation	Shampoos, Hair
Surfactant Based Formulation 7-HZG	-	-	Formulation	Shampoos, Hair
Surfactant Based Formulation 8-HZH	-	-	Formulation	Cosmetics
Surfactant Based Formulation 9-HZI	-	-	Formulation	Soaps and Surfactants
Surfactant Based Formulation 10-HZJ	-	-	Formulation	Shampoos, Hair
Surfactant Based Formulation 11-HZK	-	-	Formulation	Soaps and Surfactants
Surfactant Based Formulation 12-HZL	-	-	Formulation	Soaps and Surfactants
Surfactant Based Formulation 13-HZM	-	-	Formulation	Shampoos, Hair
Surfactant Based Formulation 14-HZN	-	-	Formulation	Shampoos, Hair
Surfactant Based Formulation 15-HZP	-	-	Formulation	Shampoos, Hair
Surfactant Based Formulation 16-HZQ	-	-	Formulation	Soaps and Surfactants
Surfactant Based Formulation 17-HZR	-	-	Formulation	Soaps and Surfactants
Surfactant Based Formulation 18-HZS	-	-	Formulation	Soaps and Surfactants

Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
Surfactant Based Formulation 19-HZT	-	-	Formulation	Soaps and Surfactants
Surfactant Based Formulation 20-HZU	-	-	Formulation	Soaps and Surfactants
Surfactant Based Formulation 21-HZV	-	-	Formulation	Shampoos, Hair
Surfactant Based Formulation 22-HZW	-	-	Formulation	Soaps and Surfactants
Surfactant Based Formulation 23-HZX	-	-	Formulation	Shampoos, Hair
Surfactant Based Formulation 24-HZY	-	-	Formulation	Shampoos, Hair
Surfactant Based Formulation 25-HZZ	-	-	Formulation	Soaps and Surfactants
TA 01946 Alkylsilan	-	-	-	-
Tetraaminopyrimidine sulfate	5392-28-9	-	Heterocyclic	-
Tetrachloroethylene	127-18-4	-	Hydrocarbon	-
1,6,7,12-Tetrachloro-3,4,9,10-tetracarbonic acid anhydride	-	-	-	-
Tetrahydrofurfuryl alcohol	97-99-4	-	Alcohol	-
Theobromine	83-67-0	-	Heterocyclic	-
Theophylline sodium	3485-82-3	-	Heterocyclic	-
Theophylline sodium acetate	8002-89-9	-	Carboxylic acid	-
Thiourea	62-56-6	-	Sulfur containing	-
Tin-II-chloride	7772-99-8	-	Inorganic	-
Tocla	-	-	-	-
Toluene	108-88-3	-	Aromatic	-
Tributylamine	102-82-9	-	Amine	-
Trichloroacetic acid	76-03-9	-	Acid	-
Trichloroethane	71-55-6	-	Hydrocarbon	-
Triethanolamine	102-71-6	-	Alcohol; Amine	-
Triisooctylamine	25549-16-0	-	Amine	-
2,2,3-Trimethyl-3-Cyclopentene-1-acetaldehyde	4501-58-0	-	Aldehyde	-

Substances Used In HET-CAM Accuracy Analysis (Chemical and Product Classes)

Substance	CASRN	Synonyms	Chemical Class	Product Class
Trioxane	110-88-3	-	Heterocyclic	-
Triton X-100	9002-93-1	-	Surfactant, Nonionic	Detergent
Tween 20	9005-64-5	-	Surfactant, Nonionic	Detergent
Wessalith Slurry	-	-	-	-
Xanthinol nicotinate	437-74-1	-	Heterocyclic	-

Abbreviation: CASRN = Chemical Abstract Service Registry Number, EDTA = ethylenediaminetetraacetic acid.

Appendix B2

Table of Formulation Components in Gettings et al. (1991)

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Components of Formulations in Gettings et al. (1991)

Formulation	Formulation Components	% (w/w)
5% Alcohol-Cologne	PPG-5 Ceteth-20 SD Alcohol 40 Methylchloroisthiazolinone/ Methylisothiazolinone Fragrance Water	6.00 5.00 0.03 1.00 87.97
10% Alcohol-Mouthwash	Sorbitol Cinnamon Oil Peppermint Oil Citric Acid FD&C Red No. 2 Polysorbate 60 SD Alcohol 40 Water	20.000 0.050 0.100 0.100 0.001 0.300 10.000 69.349
15% Alcohol-Freshener	SD Alcohol 40 Glycerin Allantoin Sodium Lactate Lactic Acid Imidizolidinyl Urea FD&C Color(s) Fragrance Water	15.0 2.0 0.2 0.2 0.2 0.1 <0.01 <0.01 Q.S.
20% Alcohol-Aftershave	SD Alcohol Methylparaben FD&C Blue No. 1* Water	21.10 0.20 0.10 78.60
	*(0.1% w/w solution)	
33% Alcohol-Perfumed Skin Lotion	Water SD Alcohol 40 Isopropyl Palmitate Cetyl Alcohol PEG-40 Sterate Steareth-2 Fragrance Oleth-10	56.67 33.00 5.00 1.50 1.25 0.75 0.50 0.50

Components of Formulations in Gettings et al. (1991)

Formulation	Formulation Components	% (w/w)
	Triethanolamine Carbomer Disodium EDTA Benzophernone-4	0.38 0.30 0.10 0.05
40% Alcohol-Deodorant	Water SD Alcohol 40 Benzethonium chloride Urea Aluminum Chloride	56.5 40.0 0.5 2.0 1.0
55% Alcohol-Sunblock	SD Alcohol 40 Water Methyl Gluceth-20 Glycerin Ethyl Dihydroxypropyl PABA Hydroxypropylcellulose	55.00 20.75 10.00 10.00 3.00 1.25
65% Alcohol-Hair Styling Lotion	SD Alcohol 40 PVP/VA Copolymer* Dimethicone Copolyol Fragrance Water	60.0 10.0 0.2 0.1 29.8
	*PVP/VA Copolymer is 50% alcohol; (i.e., contributes 5% alcohol to total)	
83% Alcohol-Cologne	SD Alcohol 40 Fragrance Fragrance Water Benzophenone-2 BHA FD&C Blue No. 1* D&C Orange No. 4*	82.35 4.625 5.375 7.5 0.1 0.05 0.01 Q.S. 0.01 Q.S.
	* (0.1% w/w solution) * (2.0% w/w solution)	

Components of Formulations in Gettings et al. (1991)

Formulation	Formulation Components	% (w/w)
90% Alcohol-Pump Hair Spray	SD Alcohol 40	90.43
	Ethyl ester PVM/MA Copolymer	9.00
	Aminomethyl Propanol	0.45
	Fragrance	0.10
	Dimethicone Copolyol	0.02

Abbreviations: BHA = Butylated hydroxyanisole; D&C = Drug and Cosmetic; EDTA = ethylenediaminetetraacetic acid; FD&C = Food, Drug, and Cosmetic; PABA = *p*-Aminobenzoic acid; PEG = Polyethylene glycol; PPG = Polypropylene glycol; SD = Specially denatured.

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Appendix B3

Table of Formulation Components in Gettings et al. (1994)

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Components of Formulations in Gettings et al. (1994)

Formulation	Formulation Components	% (w/w)
HZA-Hair Masque	Deionized water Emulsifying wax Glyceryl stearate Stearalkonium chloride Dye: Green Base HJI-01-180C Protein CPI Cocamidopropyl betaine Hydrochloric acid (10 w/w) Peach pit meal (30/100) Lanogel 21 Glydant Methylparaben Extrapone #3 Extrapone #5 Extrapone Alpine Herbs Special	80.163 6.000 5.000 2.350 2.187 2.000 0.500 0.400 0.300 0.250 0.150 0.150 0.100 0.100 0.100
HZC-Emollient Cream	Emulsifying wax NP PPG-2 myristyl ether propionate Oleth-10 Mineral Oil Squalane Beeswax Dimethicone Glycerin Imidazolidinyl urea Methylparaben Sodium borate Water	5.00 2.50 1.00 0.50 3.00 1.00 1.00 5.00 0.50 0.30 0.10 80.10

Components of Formulations in Gettings et al. (1994)

Formulation	Formulation Components	% (w/w)
HZE-Hand and Body Lotion	Deionized water Glycerin, USP Mineral oil, 70 SUS Stearic acid Glycol stearate Triethanolamine 85-89% Acetulan Glyceryl monostearate C Cetyl alcohol Silicone oil 200 cSt ¹ Veegum Methylparaben, USP Propylene glycol, USP Propylparaben, USP Carbopol 934 Disodium sequestrene	84.10 5.00 3.00 2.50 1.50 1.00 0.70 0.30 0.20 0.20 0.15 0.15 0.10 0.05 0.05
HZF-Sunscreen SPF 15	Octyl methoxycinnamate Coconut oil Dimethicone Caprylic-capric triglyceride Squalane Tocopherol Stearic acid Glyceryl stearate Shea butter Butylparaben Propylparaben Octyl salicylate Benzphenone-3 Propylene glycol Deionized water Methylparaben Triethanolamine (99%) Trisodium EDTA Allantoin Imidazolidinyl urea Ethylparaben	7.50 0.50 0.10 0.50 0.50 0.10 2.50 3.0 0.25 0.10 0.15 0.50 6.00 6.00 60.96 0.30 1.33 0.10 0.10 0.30 0.10

Components of Formulations in Gettings et al. (1994)

Formulation	Formulation Components	% (w/w)
	Carbomer 934 (2% Aq) Polyacrylamide Fragrance	9.00 0.01 0.10
HZH-Cuticle Remover Cream	Carbopol 940 Dewaxed lanolin Multi sterol base PDE (20M) sorbitan monolaurate Glycerin Potassium hydroxide 85% Deionized water	1.0 1.0 1.0 2.0 10.0 1.4 83.6
HZI-Hair Conditioner	Water Stearamidopropyl cetearyl dimonium tosylate (and) propylene glycol Cetearyl alcohol/ceteareth-20 Methyl gluceth-20 PPG-10 lanolin ether C12-15 alcohols benzoate Cetyl alcohol Myristyl lactate Hydrolyzed animal protein Polyquaternium-10 Citric acid DL-Panthenol Methylparaben Quanternium-15	79.6 3.5 3.5 3.0 3.0 1.5 1.5 1.0 1.0 0.75 0.7 0.5 0.25 0.2
HZJ-Foot Care Cream	Deionized water Veegum Triethanolamine 99% Pumice #1 Methylparaben Stearic acid Paraffin wax Dimethyl polysiloxane Glyceryl monostearate Cetyl alcohol POE (40M) stearate	70.5 2.0 1.25 1.0 0.30 4.0 15.0 1.0 2.0 1.0 1.0

Components of Formulations in Gettings et al. (1994)

Formulation	Formulation Components	% (w/w)
	POB (2M) stearyl alcohol Germall	0.75 0.2
HZL-Hydrophilic Ointment (5% SLS)	Methyl paraben Propyl paraben Sodium lauryl sulfate Propylene glycol Stearyl alcohol White petrolatum Purified water	0.025 0.015 5.0 12.0 25.0 25.0 33.0
HZM-Hydrophilic Ointment (10% SLS)	Methyl paraben Propyl paraben Sodium lauryl sulfate Propylene glycol Stearyl alcohol White petrolatum Purified water	0.025 0.015 10.0 12.0 25.0 25.0 28.0
HZN-Moisturizing Cream	Water Cetearyl alcohol Octyldodecanol PEG-7 glyceryl cocoate Sodium lauryl sulfate Quaternium-15 Methylparaben	84.1 6.0 4.0 3.5 2.0 0.2 0.2
HZO-Cleansing Cream (1)	Deionized water Mineral oil Glycerine Octyl palmitate Cetearyl alcohol PEG stearate Stareth-2 Carbopol Preservatives Triethanolamine Botanical extract	70-75 15-20 1-5 1-5 1-5 1-5 1-5 <1 <1 <1 <1

Components of Formulations in Gettings et al. (1994)

Formulation	Formulation Components	% (w/w)
HZR-Hand Cleanser	Deionized water Mineral spirits Tall oil fatty acid Nonoxynol-6 Nonoxynol-9 Carbomer-940 Sodium hydroxide Lanolin Methylparaben Propylparaben	50-95 24-40 <4 <4 <4 <1 <1 <0.5 <0.5 <0.5
HZS-Cleansing Cream	Water Paraffin Ceresin Stearic acid Triethanolamine Methyl, ethyl, and propyl parabens Imidazolidinyl urea Propylene glycol	52 20 8.0 9.0 5.5 0.4 0.3 3.0
HZT-Benzoyl Peroxide Cream (2.5%)	Deionized water Benzoyl peroxide (70%) Laureth-4 Carbomer 940 Butylene glycol Triethanolamine (99%) Trisodium EDTA Methylparaben	86.60 3.60 5.00 1.00 3.00 0.50 0.10 0.20
HZU-Sunscreen Lotion	Propylene glycol Lanolin Perfecta Methyl paraben Triethanolamine (99%) Hystrene 5016 Water Sequestrene Na ₂ Propyl paraben Homosalate	5.0 5.0 2.5 0.1 1.0 4.0 74.3 0.05 0.05 8.0

Components of Formulations in Gettings et al. (1994)

Formulation	Formulation Components	% (w/w)
HZV-Hand and Nail Lotion	Deionized water 2% Carbopol 934 Hexyl laurate Stearic acid Sorbitol Cetyl alcohol Mineral oil 70 SUS Silicone 200/50 cSt ¹ TEA 85-89% Cyclomethicone & dimethicone copolyol PEG-100 stearate Glycol stearate Glyceryl stearate Glydant Veegum, regular Methylparaben Propylparaben 0.5% Yellow #10 0.5% Red #4 Disodium EDTA	76.95 9.0 2.50 2.00 1.50 1.50 1.50 1.00 0.95 0.75 0.50 0.50 0.40 0.25 0.20 0.15 0.10 0.10 0.05
HZW-Roll-on Antiperspirant	Water Aluminum zirconium tetrachlorohydrex GLY Magnesium aluminum silicate Modified starch Glycine Laureth-4 Laureth-23 Isopropyl myristate Cetyl alcohol Glyceryl stearate Methylparaben Propylparaben Trisodium HEDTA Triclosan	50-75 20-35 1-5 <4 <4 <4 <4 <4 <4 <4 <1 <1 <1 <1 <0.5

Components of Formulations in Gettings et al. (1994)

Formulation	Formulation Components	% (w/w)
HZY-Cleansing Cream (II)	Deionized water	84.5
	Carbomer 934	0.3
	Propylene glycol	5.0
	Methylparaben	0.3
	Sodium lauryl sulfate*	1.0
	Sodium hydroxide	0.2
	Stearic acid	2.0
	Glyceryl stearate	2.0
	Mineral oil	3.0
	Isopropyl palmitate	1.5
	Propylparaben	0.2
	Methylchloroisothiazolinone (and) methylisothiazolinone	0.1
	* Anhydrous base	

Abbreviations: cSt = Centistrokes; PEG = Polyethylene glycol; POB = polyoxybenzylene; POE = Polyoxyethylene; PPG = Polypropylene glycol; SUS = Saybolt Universal Seconds; TEA = Triethanolamine; USP = U.S. Pharmacopoeia; w/w = weight to weight ratio.

¹In Gettings et al. (1994), Cts is noted. However, it is proposed that the correct abbreviation is cSt.

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Appendix B4

Table of Formulation Components in Gettings et al. (1996)

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Formulation	Formulation Components	% (w/w)
HZA-Shampoo No. 7	Water Sodium lauryl sulfate (30%) Disodium laureth sulfocuccinate (40%) Lauramide DEA Butylene glucol Methyl and propylparabens Carageenan Methyl and methylchloroisothiazolinone	53.86 25.00 15.00 0.50 5.00 0.25 0.35 0.04
HZB-Liquid Soap No. 1	Water and volatiles Ammonium lauryl sulfate Sodium laureth sulfate Lauramide DEA Glycerine Isostearamidopropyl morpholine lactate Disodium ricinoleamido MEA-sulfosuccinate DMDM hydantoin Citric acid Triclosan Tetrasodium EDTA FD&C Yellow No. 5 FD&C Red No. 4	65-85 1-10 1-10 1-10 1-10 0.1-1.0 0.1-1.0 0.1-1.0 0.1-1.0 <0.1 <0.1 <0.1
HZC-Shampoo No. 1	Water Laurylamidopropyl betaine (30%) Cetrimonium chloride PEG-3 cocamide Citric acid Sodium chloride Ditallowdimonium chloride (73%) Lauryl alcohol Methyl and chloroisothiazolinone (1.5%)	14.037 60.000 16.000 4.500 3.500 1.000 0.700 0.250 0.033

Formulation	Formulation Components	% (w/w)
HZD-Shampoo No. 5	Water Sodium laureth sulfate (26%) Cocamide DEA Cocamide propyl betaine (37%) Disodium EDTA Methylparaben Propylparaben Citric acid FD&C Yellow No. 5 (1%) D&C Red No. 33 (0.5%) DMDM hydantoin (54%) BHT Sodium glutamate Sodium chloride	54.120 38.00 3.000 1.750 0.050 0.150 0.100 0.250 0.050 0.015 0.300 0.050 2.000 0.170
HZE-Gel Cleanser	Water Acylglutamate CT-12 (30%) Cocoamphodiacetate (50%) Sodium nonoxynol-6 phosphate (88.5%) Quaternium-26 (58%) PEG-120-methyl glucose dioleate Citric acid Sodium citrate Disodium EDTA Methylparaben DMDM hydantoin (55%) FD&C Yellow No. 10 (1%) D&C Blue No. 1 (0.746%)	59.974 15.000 15.000 6.000 1.500 1.500 0.100 0.500 0.050 0.150 0.200 0.001 0.025
HZF-Baby Shampoo No. 2	Water Sodium laureth (2EO) sulfate (28%) Disodium laureth-3-sulfosuccinate (40%) Cocamidopropyl betaine (30%) Lauramide DEA Kathon CG (1.5%) Tetrasodium EDTA (30%)	57.653 21.430 9.090 10.000 1.500 0.067 0.260

Formulation	Formulation Components	% (w/w)
HZG-Shampoo No. 8	Water Sodium laureth sulfate (28%) Sodium lauryl sulfate (30%) Lauramide-DEA Hydroxyethyl tallow glycinate Citric acid PEG-45M Methyl and propylparabens Methyl and chloromethyl-isothiazolinone	48.43 20.00 25.00 5.00 1.00 0.20 0.20 0.13 0.04
HZH-Eye Make-Up Remover	Water Sodium laureth sulfate (21%) Cocoamphocarboxyglycinate (40%) Hexylene glycol Dipotassium phosphate Potassium phosphate Allantoin Methyl paraben EDTA Rose water Thimerosal	96.242 0.900 1.100 1.000 0.394 0.102 0.050 0.150 0.150 0.008 0.003
HZI-Skin Cleanser	Water Sodium laureth sulfate (30%) Cocamide MEA Sodium chloride Disodium EDTA Imidizolidinyl urea Methylparaben Benzoic acid	44.0 50.0 5.0 0.4 0.2 0.2 0.2 0.1

Formulation	Formulation Components	% (w/w)
HZJ-Mild Shampoo	Water Tween 20 Cocoamphodiacetate (24%) PEG 6000 Cedepal TD403 (75%) Hydrochloric acid (15%) Arlacel 20 Benzyl alcohol Dowicil 200 D&C Yellow No. 10 (0.2%) D&C Orange No. 4 (0.2%)	52.09 12.63 21.25 2.60 6.53 1.68 0.92 0.10 0.10 1.70 0.20
HZK-Bubble Bath	Water Sodium laureth sulfate (60%) Lauramide DEA SD Alcohol 3-A Sodium chloride Triethanolamine Phosphoric acid (86.5%) Sorbic acid	68.75 25.00 4.50 3.75 0.80 0.40 0.35 0.20
HZL-Foam Bath	Water Sodium laureth sulfate (26%) Cocamido propyl betaine (30%) Sodium chloride Glycol monostearate Color solution DMDM hydantoin (54%) Methylparaben Propylparaben BHT Aloe vera gel Citric acid Tetrasodium EDTA	47.760 46.000 2.500 2.400 0.400 0.300 0.250 0.200 0.100 0.050 0.015 0.016 0.010

Formulation	Formulation Components	% (w/w)
HZM-Shampoo No. 3	Water Ammonium lauryl sulfate Lauramide DEA Cocamidopropyl sultaine Citric acid Ammonium chloride DMDM Hydantoin Tetrasodium EDTA Methylparaben FD&C Yellow No. 5 D&C Yellow No. 10 FD&C Red No. 4 PPG-9	80-90 5-10 1-5 1-5 <1.0 <1.0 <1.0 <1.0 <1.0 <0.1 <0.1 <0.1 q.s.
HZN-Shampoo No. 6	Water Sodium laureth (2EO) sulfate (28%) cocamidopropyl betaine (30%) Tetrasodium EDTA Formalin	44.381 43.634 11.760 0.125 0.100
HZP-Baby Shampoo No. 1	Water PEG-80 sorbitan laurate (50%) Sodium trideceth sulfate (50%) Lauroamphocarboxyglycinate (50%) PEG-150 distearate (50%) Cocamidoroyl hydroxysultane (50%) Sodium laureth-13 carboxylate (50%) Quaternium 15 Benzyl alcohol FD&C Yellow No. 5 (1.0%) FD&C Yellow No. 6 (1.0%) Citric acid	49.54 23.60 17.40 5.40 5.00 4.00 1.00 0.03 0.05 0.25 0.05 0.08

Formulation	Formulation Components	% (w/w)
HZQ-Cleansing Gel	Water Lauramphocarboxyglycinate (25%) Sodium trideceth sulfate (16%) TEA-lauryl sulfate (40%) Lauramide DEA PEG-150 distearate Propylene glycol Hexylene glycol Citric acid Diazolidinyl urea Methylparaben Sodium citrate	68.93 10.40 10.60 3.50 0.50 2.80 1.40 1.05 0.28 0.20 0.20 0.14
HZR-Facial Cleansing Foam	Water Sodium cocoyl isethionate Sodium lauroyl sarcosinate (30%) PPG-5-ceteth-10 phosphate Linoleamide DEA Sorbitol (70%) Glycol stearate Glycerin Diglycerol Cetearyl alcohol Mineral oil Methylparaben Propylparaben Trisodium EDTA Beeswax Ceresin Sodium borate	32.97 20.00 25.00 4.00 2.00 2.75 5.50 2.00 2.00 2.75 0.50 0.15 0.10 0.10 0.10 0.06 0.02

Formulation	Formulation Components	% (w/w)
HZS-Shower Gel	Water Sodium lauroyl sarcosinate (30%) Laurimidopropyl betaine (30%) Cocamidopropyl hydroxysultaine (50%) Linoleamide DEA Glycol stearate Polyquaternium-2 Phosphoric acid (86.5%) Tetrasodium EDTA BHT PPG-12-buteth-16 Methyl and chlorosothiazolinone (1.5%)	27.567 25.000 25.000 15.000 4.500 1.000 1.000 0.600 0.200 0.050 0.050 0.033
HZT-Polishing Scrub	Water Mineral oil Lauroamphocarboxyglycinate (25%) Sodium trideceth sulfate (16%) Petrolatum Isopropyl palmitate Propylene glycol Cetyl palmitate Glyceryl stearate and PEG-100 stearate Aluminum silicate Cetyl alcohol Polypropylene Magnesium aluminum silicate Titanium dioxide Hexylene glycol Imidazolidinyl urea Methylparaben Lactic acid Propylparaben	33.85 10.00 8.80 9.40 6.60 6.60 5.00 4.40 4.40 3.00 2.50 2.50 1.00 0.50 0.40 0.30 0.30 0.25 0.20

Formulation	Formulation Components	% (w/w)
HZU-Hand Soap	Water Sodium C14-16 olefin sulfonate (36%) Sodium lauroyl sarcosinate Cocamidopropyl hydroxysultaine Propylene glycol Glycerol stearate PPG-12-PEG-50 lanolin Polyquaternium-7 Citric acid Hydrolysed animal protein Polyquaternium-10 Quaternium-15 Aloe vera gel	37.95 20.25 20.00 8.00 3.00 3.00 3.00 2.00 1.00 1.00 0.50 0.20 0.10
HZV-Shampoo No. 4	Water Ammonium lauryl sulfate Lauramide DEA Cocamidopropyl sultaine Ammonium chloride USP Citric acid DMDM hydantoin Tetrasodium EDTA Methylparaben FD&C Yellow No. 5 D&C Yellow No. 10 FD&C Red No. 4 PPG-9	80-90 5-10 1-5 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 q.s.
HZW-Liquid Soap No. 2	Water and volatiles TEA-lauryl sulfate Sodium laureth sulfate Sodium lauroyl sarcosinate Lauramide DEA Glycol distearate Isostearamideopropyl morpholine lactate Disodium ricinoleamido MEA-sulfosuccinate DMDM hydantoin Citric acid Tetrasodium EDTA	60-80 1-10 1-10 1-10 1-10 1-10 0.1-1.0 0.1-1.0 0.1-1.0 0.1-1.0 <0.1

Formulation	Formulation Components	% (w/w)
HZX-Shampoo No. 2	Water Ammonium lauryl sulfate (25%) Cocamide DEA Hydroxypropyl methylcellulose EDTA Formaldehyde Benzyl alcohol Benzophenone-4 sodium hydroxide Citric acid Ammonium chloride FD&C Blue No. 1	69.1895 25.0000 3.0000 1.4500 0.6000 0.2000 0.2000 0.0400 0.0100 0.0100 0.0005
HZY-Anti-Dandruff Shampoo	Water Sodium lauroyl sarcosinate (30%) Lauramide DEA TEA-lauryl sulfate (40%) Glycol distearate Zinc pyrithione Sodium chloride Citric acid Imidazolidinyl urea Methylparaben Propylparaben Xanthan gum	27.13 15.00 4.50 45.00 3.00 2.10 1.20 0.90 0.50 0.30 0.10 0.27

Formulation	Formulation Components	% (w/w)
HZZ-Facial Cleanser	Water	32.55
	Mineral oil	40.00
	Beeswax	2.30
	PEG-16 soya sterol	5.00
	PEG-8 dilaurate	2.00
	Cetearyl alcohol (70%)	0.80
	Ceteareth 20 (30%)	0.80
	Beheme acid	0.80
	Sodium borate	0.75
	Ceresin	0.50
	Carbopol dispersion (25%)	15.00
	Methylparaben	0.15
	Propylparaben	0.10
	Disodium EDTA	0.05

Abbreviations: 2EO = diethoxylated; BHT = Butylated hydroxytoluene; D&C = Drug and Cosmetic; DEA = Diethanolamide; EDTA = ethylenediaminetetraacetic acid; FD&C = Food, Drug, and Cosmetic; MEA = Monoethanolamide; PEG = Polyethylene glycol; PPG = Polypropylene glycol; TEA = Triethanolamine; USP = U.S. Pharmacopoeia; w/w = weight to weight ratio.