

Supplementary data

Yeast estrogen screen (YES) results

The individual EEq values, cytotoxicity data and list of ingredients (as listed on the label) are given in Table S1.

Table S1: EEq values, cytotoxicity data and list of ingredients for hand sanitiser samples

Sample	EEq (µg/L)	Cytotoxicity	Ingredients as listed on label
Sample 1	<loq	nd	Alcohol
Sample 2	<loq	nd	Alcohol Aqua Glycerin Carbomer <i>Aloe barbadensis</i> leaf extract Propylene glycol Parfum
Sample 3	<dl	nd	Denatured alcohol Aqua Propylene glycol Glycerin Polysorbate 20 Tea-tree Parfum
Sample 4	1.7 ± 0.4	40x dilution and higher concentrations	Ethanol Triclosan
Sample 5	<dl	nd	Isopropanol Water
Sample 6	5.0 ± 1.1	nd	Denatured alcohol Aqua Acritamer TEOA Glycerin Methylchloroisothiazolinone Methylisithiazolanine Pinus Sylvestris oil Polysorbate 20 Propanol glycol Parfum
Sample 7	<loq	nd	Denatured alcohol Aqua Glycerin Propylene glycol Parfum Sorbitan Stearate Synthetic wax Polysorbate 60 CI77891 (titanium dioxide) Tocopheryl acetate (Vit E) TEOA Citronellol Coumarin Geraniol

Sample	EEq ($\mu\text{g/L}$)	Cytotoxicity	Ingredients as listed on label
			Butylphenyl methylpropanol CI 17200 (dye -red) CI 62045 (dye-sky blue) Polysorbate 20 Linalool
Sample 8	<loq	nd	Ethanol Aqua Glycerin Carbomer Parfum TEOA Tocopheryl acetate (Vit E)
Sample 9	0.4 ± 0.1	nd	Isopropanol Methanol Aqua Methyl salicylate
Sample 10	1.3 ± 0.3	nd	Denatured alcohol
Sample 11	2.1 ± 0.2	nd	Denatured alcohol Aqua Carbomer TEOA Ethylhexylglycerin
Sample 12	0.86 ± 0.20	40x dilution and higher concentrations	Denatured alcohol Aqua Isopropyl Myristate PEG-40 Hydrogenated Castor oil Propylene glycol Glycerin Parfum Chlorhexidine digluconate Benzophenone-4 Limonene Citronellol Butylphenyl methylpropanol Alpha-isomethyl ionone Citral (3,7-dimethyl-2,6-octadienal) Hydroxycitronellal
Sample 13	1.6 ± 0.1	nd	Denatured alcohol Aqua Glycerin PEG-14 Dimethicone Acrylates/C10-30 alkyl acrylate crosspolymer Tetrahydroxypropyl ethylenediamine Carbomer TEOA
Sample 14	1.7 ± 0.3	nd	Denatured alcohol Aqua Carbomer Glycerin Fragrance TEOA Alpha-isomethyl ionone Citronellol Coumarin Limonene Linalool
Sample 15	<dl	nd	Glutaral PK

Sample	EEq ($\mu\text{g/L}$)	Cytotoxicity	Ingredients as listed on label
			Aqua Carbopol Alcohol (96% ethanol blend) Glycerin Leaf extract of <i>Aloe vera barbadensis</i> Food grade dye Fragrance Sodium hydroxide
Sample 16	1.8 ± 0.2	nd	Aqua Isopropanol Propylene glycol Glycerin Tocopheryl acetate (Vit E) Acrylates/C10-30 alkyl acrylate crosspolymer Aminomethyl propanol Fragrance
Sample 17	<loq	nd	Ethanol Aqua Propylene glycol Acrylates/C10-30 alkyl acrylate crosspolymer Sodium hydroxide
Sample 18	<dl	nd	Isopropanol Aqua Glycerine Hydrogenated Castor Oil Propylene glycol Carbomer Parfum TEOA
Sample 19	<dl	nd	Denatured alcohol Aqua Parfum Acrylates/C10-30 alkyl acrylate crosspolymer TEOA Sorbitan Stearate Synthetic wax Propylene glycol Alpha-isomethyl ionone Lilial Citral Limonene Linalool CI 42090 (Brilliant blue)
Sample 20	<dl	nd	1-Propanol Chlorhexidine gluconate Propyl alcohol
Sample 21	<dl	nd	Denatured alcohol Aqua Propylene glycol Glycerin polysorbate 20 Parfum Tetrasodium EDTA
Sample 22	1.7 ± 0.4	nd	Ethanol
Sample 23	<dl	nd	Denatured alcohol Glycerine Polymer Aqua

Sample	EEq ($\mu\text{g/L}$)	Cytotoxicity	Ingredients as listed on label
Sample 24	<dl	nd	Alcohol Aqua Carbomer TEOA BAC 50 (Benzalkonium chloride)
Sample 25	<dl	nd	Alcohol Aqua Carbomer Glycerine TEOA <i>Butyrospermum parkii</i> (Shea butter)
Sample 26	<dl	nd	Denatured alcohol Aqua Propylene glycol Tocopheryl acetate (Vit E) Polysorbate 20 Acrylates/C10-30 alkyl acrylate crosspolymer TEOA Sorbitan Stearate Synthetic wax Parfum Alpha-isomethyl ionone Lilial
Sample 27	0.3 ± 0.1	nd	Aqua Ethanol Propylene glycol Isopropyl myristate Parfum
Sample 28	<loq	nd	Alcohol Acrylic polymer Glycerin TEOA Aqua
Sample 29	2.3 ± 1.0	nd	Denatured alcohol Aqua PEG-40 Hydrogenated Castor oil Glycerine Propylene glycol Carbomer TEOA
Sample 30	<dl	nd	SD alcohol 408 Aqua Glycerin Propylene glycol Acrylates/C10-30 alkyl acrylate crosspolymer Fragrance TEOA Panthenol (Vit B5) <i>Aloe barbadensis</i> leaf Juice Allantoin Tocopheryl Acetate (Vit E) Moris Sal (Dead sea salt)
Sample 31	<dl	nd	Denatured alcohol Aqua Glycerin Acrylates/C10-30 alkyl acrylate crosspolymer Aminomethyl propanol PEG-40 hydrogenated castor oil

Sample	EEq (µg/L)	Cytotoxicity	Ingredients as listed on label
			Castor seed oil Alpha-isomethyl ionone Benzyl salicylate Limonene Linalool CI 19140 (Tartrazine) CI 42090 (Brilliant blue)
Sample 32	<dl	nd	Ethanol Aqua Glycerine <i>Aloe yohjyu mastu ekisu</i> Tocopheryl acetate (Vit E) Acrylates/C10-30 alkyl acrylate crosspolymer Aminomethyl propanol Fragrance
Sample 33	<dl	nd	Ethanol Aqua Glycerin Carbomer TEOA
Sample 34	<dl	nd	Isopropyl alcohol Natural oils Viscosity enhancers
Sample 35	2.1 ± 1.0	nd	Ethanol Aqua Aloe juice Polysorbate 20 Acrylates/C10-30 alkyl acrylate crosspolymer TEOA Parfum Phenoxyethanol ethylhexylglycerin
Sample 36	<dl	nd	Denatured alcohol Aqua TEOA Parfum Carbomer Amyl cinnamal Geraniol Limonene Linalool
Sample 37	<dl	nd	Isopropanol Aqua Hydrogenated castor oil Propylene glycol Carbomer Parfum TEOA
Sample 38	<dl	nd	Denatured alcohol Aqua Propylene glycol Carbomer Glycerin Aloe leaf extract Chamomile flower extract <i>Harpagophytum procumbens</i> root extract Red tea leaf extract Green tea leaf extract 2-amino-2-methyl-1-propanol

Sample	EEq ($\mu\text{g/L}$)	Cytotoxicity	Ingredients as listed on label
Sample 39	7.7 ± 0.8	nd	Denatured alcohol Aqua Glycerin Acrylate crosspolymer TEOA Oleth-10 Parfum Tocopheryl acetate (Vit E) Benzalkonium Chloride Tetrasodium EDTA
Sample 40	3.3 ± 0.5	nd	Ethanol Propylene glycol Fragrance
Sample 41	19.2 ± 3.5	100x dilution and higher concentrations	Denatured alcohol Aqua Acrylates Glycerin Sodium EDTA
Sample 42	<dl	nd	Alcohol Aqua Glycerin Carbomer Propylene glycol
Sample 43	<dl	nd	Denatured alcohol Aqua Glycerin Polysorbate 20 Parfum Linalool
Sample 44	<dl	1000x dilution and higher concentrations	Glycerin Tea Alkyl acrylate cross polymer Triclosan Parfum FD & C Colour
Sample 45	2.4 ± 0.7	nd	Ethanol Aqua Glycerin Tea tree oil Lavender oil
Sample 46	<dl	nd	Denatured alcohol Aqua TEOA Parfum Carbomer Amyl cinnamal Geraniol Limonene Linalool
Sample 47	1.6 ± 0.3	nd	Alcohol
Sample 48	<dl	nd	Aqua Ethanol 70% C148/S
Sample 49	<dl	nd	Isopropanol
Sample 50	<dl	20x dilution and higher concentrations	Ethanol Syperonic NP9 Glycerine

Sample	EEq (µg/L)	Cytotoxicity	Ingredients as listed on label
			Blue dye
Sample 51	<dl	nd	Ethanol Aqua Carbomer Glycerin Tea
Sample 52	<dl	20x dilution and higher concentrations	Denatured alcohol Aqua Glycerin Parfum
Sample 53	<loq	nd	Denatured alcohol Aqua Glycerin Carbomer TEOA Alpha-isomethyl ionone Tetrasodium EDTA Amyl cinnamal Benzyl alcohol Benzyl benzoate Citral Citronellol Coumarin Eugenol Geraniol Hexyl cinnamal Limonene Linalool
Sample 54	2.7 ± 0.8	nd	Denatured alcohol Aqua Glycerin Ammonium polyacryloyldimethyl taurate
Sample 55	<dl	nd	Isopropanol Parfum Modifiers Aqua Lemon & Lime oil
Sample 56	<dl	20x dilution and higher concentrations	Ethanol Aqua Glycerine Isopropanol Hydrogen peroxide <i>Eucalyptus</i> oil Tea tree lead oil Fragrance Colour Blue
Sample 57	2.3 ± 0.4	nd	Denatured alcohol Aqua TEOA Parfum Carbomer Limonene Linalool
Sample 58	1.7 ± 0.4	nd	None declared
Sample 59	<dl	nd	Isopropanol Xantham gum Glycerol

Sample	EEq ($\mu\text{g/L}$)	Cytotoxicity	Ingredients as listed on label
Sample 60	1.6 ± 0.4	nd	Aqua Denatured alcohol Aqua Acritamer TEOA Glycerin Methylchloroisothiazolinone Methylisithiazolanine <i>Pinus sylvestris</i> oil Polysorbate 20 Propylene glycol Parfum

<dl Below the detection limit of the assay

<loq Above the detection limit of the assay, but below the limit of quantification

nd Not detected

CI Colour index

EDTA Ethylene diamine tetraacetic acid

PEG Polyethylene glycol

TEOA Triethanolamine