Additional information to: Biosurfactant-containing products from an environmental perspective - Life Cycle Assessment of a liquid laundry detergent and a personal care product

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Table A: Liquid detergent formulation with conventional surfactants or biosurfactant and assumptions for modelling.

Component	Mass percentage [%]	Note on assumptions in modelling
Citric acid	2.280	
Phosphonates	0.410	
Enzymes	0.580	Approximation via glucose
Alkyl ether sulfates	4.620*	C12-14 alcohol ether sulfates (oleo-based)
Linear alkylbenzene sulfonates	6.830*	Soap agent (sodium alkylbenzenesulfonate)
Soap C >12-22	2.410*	Estimation via stoichiometry: reaction between stearic acid and sodium hydroxide
Alcohol ethoxylates C8-18, 0-22 EO	5.910*	Mix of 5 ethoxylate data sets (3 oleo and 2 petro) in equal parts
Biosurfactant MEL (mannosylerythritol lipids)	19.770**	1:1 replacement of conventional surfactants*
Sodium hydroxide	2.310	Sodium hydroxide 100%
Triethanolamine	2.310	
Glycerin	2.850	Glycerin (refined), by-product rapeseed methyl ester (RME)
Propylene glycol	2.850	
1,2-Benzisothiazol-3-one	0.072	
Sodium chloride	1.850	
Water (demineralized)	64.718	Water (desalinated, deionized)
Total	= 100	Either use of conventional surfactants (19.77%) or biosurfactant MEL (19.77%)
		Energy consumption per production of 100 kg of liquid detergent: 16 kWh electricity

* Conventional surfactant
** Biosurfactant MEL

Table B: Cosmetic cream formulation with conventional surfactants or biosurfactant and assumptions for modelling.

Component	Mass percentage [%]	Note on assumptions in modelling
Glycerin monostearate	2.0*	Estimation based on stoichiometry: reaction between stearic acid and glycerin
Cetyl alcohol	3.0*	C16-18 fatty alcohol (from palm oil)
Octyldodecanol	2.0*	1-Dodecanol
Cetyl phosphate	0.4*	Estimation based on stoichiometry: reaction between C16-18 fatty alcohol and phosphoric acid
Biotensid MEL (mannosylerythritol lipids)	7.4**	1:1 replacement of conventional surfactants
Paraffin oil, subliquidum	15.0	White mineral oil
Vaseline	3.0	Wax/paraffins
Caprylic/capric acid triglyceride	4.0	Octanoic acid
Hydrogenated coconut oil	2.0	Crude coconut oil
Glycerin	3.0	Glycerol (refined), by-product Rapeseed methyl ester (RME)
Benzoic acid (preservative)	0.6	Benzoic acid (from toluene)
Sodium hydroxide	q.s.	As much as necessary (abbreviated “q.s.”) for pH=6.5; assumption: 0
Water (demineralized)	65.0	Water (desalinated, deionized)
Total	= 100	Either use of conventional surfactants (7.4%) or biosurfactant MEL (7.4%)
		Energy requirement per production of 100 kg of cosmetic cream: 0.6 kWh electricity and 8.5 kg steam

* Conventional surfactant
** Biosurfactant MEL