

Re-Review Summary of PEG Stearates as Used in Cosmetics

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Abstract

The Expert Panel for Cosmetic Ingredient Safety (Panel) considered whether the safety of PEG Stearate ingredients as used in cosmetics should be reassessed. These ingredients are reported to function primarily as surfactants and emollients. The Panel reviewed newly available animal and human data related to these ingredients. The Panel concluded that the PEG Stearates are safe as cosmetic ingredients in the practices of use and concentrations described in the safety assessment.

Keywords

Safety, Cosmetics, Cosmetic Ingredient Review, Expert Panel for Cosmetic Ingredient Safety, PEG-2, -3, -4, -5, -6, -7, -8, -9, -10, -12, -14, -15, -18, -20, -23, -25, -30, -32, -35, -36, -40, -45, -50, -75, -90, -100, -120, and -150 Stearates

Introduction

The Expert Panel for Cosmetic Ingredient Safety (Panel) first published the Final Report on the Safety Assessment of PEG-2, -6, -8, -12, -20, -32, -40, -50, -100, and -150 Stearates in 1983.¹ The Panel concluded, on the basis of the available information presented in the report, that these 10 PEG Stearates are safe as cosmetic ingredients in the present practices of concentration and use. Upon re-review in November 2002, the Panel reaffirmed the original conclusion and included 20 additional PEG Stearates in this group, as published in 2005.² The complete group of 30 ingredients included PEG-2, -3, -4, -5, -6, -7, -8, -9, -10, -12, -14, -15, -18, -20, -23, -25, -30, -32, -35, -36, -40, -45, -50, -75, -90, -100, -120, and -150 Stearates.

Because it has been at least 15 years since the prior review was published, in accordance with Cosmetic Ingredient Review (CIR) Procedures, the Panel again determined whether the safety assessment should be reopened. At the September 2024 meeting, the Panel considered updated (2023) information regarding product types and ingredient use frequencies as reported in the US Food and Drug Administration (FDA) Voluntary Cosmetic Registration Program (VCRP) database³ and maximum use concentrations provided in response to the survey conducted by the Personal Care Products Council.⁴ Reported frequency and concentrations of use mostly decreased or remained constant for these ingredients, with a few exceptions. Frequency of use increased notably for PEG-75 (97 uses reported in 2023 compared to 6

uses in 2002) and PEG-100 Stearate (1844 uses reported in 2023 compared to 424 uses in 2002). The maximum reported concentration of use increased for PEG-20 Stearate, from 4% (in body and hand and in moisturizing products) in 2002 to 10.1% (in tonics, dressings, and other hair grooming aids) in 2023. New uses were reported in baby products for some ingredients. The cumulative frequency and concentration of use data are presented in Table 1.

In August 2024, an extensive search of the world's literature was performed for studies dated 2000 forward, and new data were found.^{5,6} These data included non-cosmetic uses for multiple PEG Stearates, an in vitro study evaluating the effect of PEG-8, -12, and -40 Stearate on penetration enhancement, and an in vitro ocular irritation study on PEG-2 Stearate.

In summary, the Panel reviewed 2023 frequency and concentration of use data and new, available, relevant safety data. Considering this information, as well as the information provided in the original safety assessment and the

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Table 1. Frequency (2023/2002) and Concentration (2023/2002) of Use of PEG Stearates According to Likely Duration and Exposure and by Product Category.

	# of Uses		Max Conc of Use (%)		# of Uses		Max Conc of Use (%)		# of Uses		Max Conc of Use (%)		# of Uses		Max Conc of Use (%)	
	2023 ³		2002 ²		2023 ³		2002 ²		2023 ³		2002 ²		2023 ³		2002 ²	
	PEG-2 Stearate		PEG-5 Stearate		PEG-6 Stearate		PEG 6-32 Stearate									
Totals*	23	64	0.11–1.5	0.2–2	NR	8	NR	NR	NR	10	22	NR	2–6	NR	34	NR
Summarized by likely duration and exposure**																
Duration of use																
Leave-on	23	52	1.5	0.2–2	NR	7	NR	NR	NR	9	18	NR	3–6	NR	32	NR
Rinse-off	NR	12	0.11	2	NR	1	NR	NR	NR	1	4	NR	2–3	NR	2	NR
Diluted for (bath) use	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Exposure type																
Eye area	NR	NR	NR	2	NR	NR	NR	NR	NR	NR	1	NR	NR	NR	NR	NR
Incidental ingestion	5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Incidental inhalation—spray	10 ^a , 8 ^b	27 ^a , 8 ^b	NR	1–2 ^a	NR	5 ^b	NR	NR	NR	2a; 5b	6a; 2b	NR	6a; 3b	NR	24a; 2b	NR
Incidental inhalation—powder	8 ^b	8 ^b	1.5 ^c	NR	NR	5 ^b	NR	NR	NR	5b	2b	NR	3b	NR	2b	NR
Dermal contact	18	61	0.11–1.5	0.2–2	NR	8	NR	NR	NR	10	19	NR	2–6	NR	34	NR
Deodorant (underarm)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Hair—non-coloring	NR	3	NR	NR	NR	NR	NR	NR	NR	NR	1	NR	NR	NR	NR	NR
Hair—coloring	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	1	NR	NR	NR	NR	NR
Nail	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Mucous membrane	5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Baby products	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
As reported by product category																
Baby products																
Baby shampoos																
Baby lotions/oils/powders/creams																
Other baby products																
Bath preparations (diluted for use)																
Bubble baths																
Other bath preparations																
Eye makeup preparations																
Eyebrow pencil																
Eyeliner																
Eye shadow																
Eye lotion																
Eye makeup remover																

(continued)

Table 1. (continued)

	# of Uses		Max Conc of Use (%)		# of Uses		Max Conc of Use (%)		# of Uses		Max Conc of Use (%)		# of Uses		Max Conc of Use (%)	
	2023 ³	2002 ²	2023 ⁴	2002 ²	2023 ³	2002 ²	2023 ⁴	2002 ²	2023 ³	2002 ²	2023 ⁴	2002 ²	2023 ³	2002 ²	2023 ⁴	2002 ²
	PEG-2 Stearate				PEG-5 Stearate				PEG-6 Stearate				PEG 6-32 Stearate			
Mascara																
Other eye makeup preparations									NR	I	NR	NR				
Fragrance preparations																
Cologne and toilet water				2												
Perfumes																
Sachets																
Other fragrance preparation																
Hair preparations (non-coloring)																
Hair conditioner																
Hair straighteners																
Rinses (non-coloring)																
Shampoos (non-coloring)																
Tonics, dressings, and other hair grooming aids																
Other hair preparations																
Hair coloring preparations																
Hair dyes and colors (all types requiring caution statements and patch tests)																
Hair tints																
Hair color sprays (aerosol)																
Hair lighteners with color																
Hair bleaches																
Other hair coloring preparation																
Makeup preparations																
Blushers (all types)																
Face powders																
Foundations																
Lipstick																
Makeup bases																
Rouges																
Makeup fixatives																
Other makeup preparations																
Manicuring preparations (nail)																
Cuticle softeners																
Nail creams and lotions																
Other manicuring preparations																

(continued)

Table 1. (continued)

	PEG-2 Stearate			PEG-5 Stearate			PEG-6 Stearate			PEG 6-32 Stearate		
	# of Uses	Max Conc of Use (%)		# of Uses	Max Conc of Use (%)		# of Uses	Max Conc of Use (%)		# of Uses	Max Conc of Use (%)	
	2023 ³	2002 ²	2023 ⁴	2023 ³	2002 ²	2023 ⁴	2023 ³	2002 ²	2023 ⁴	2023 ³	2002 ²	2023 ⁴
Personal cleanliness products												
Bath soaps and detergents												
Deodorants (underarm)												
Other personal cleanliness products												
Shaving preparations												
Aftershave lotion	NR	3	NR	0.4								
Beard softeners												
Shaving cream												
Other shaving preparations	NR	NR	0.11	NR								
Skin care preparations												
Cleansing	NR	6	NR	2								
Depilatories												
Face and neck (exc shave)	NR	1	Not spray: 1.5	NR			3	NR	NR	3	NR	NR
Body and hand (exc shave)	8	7	NR	NR	5	NR	2	NR	NR	2	NR	NR
Foot powders and sprays												
Moisturizing	10	13	NR	NR			1	3	NR	6	NR	NR
Night	NR	9	NR	NR			1	3	NR	NR	2	NR
Paste masks (mud packs)	NR	4	NR	NR			NR	1	NR	NR	2-3	
Skin fresheners												
Other skin care preparations	NR	8	NR	NR	2	NR	2	NR	NR	8	NR	NR
Suntan preparations												
Suntan gels, creams, and liquids	NR	2	NR	2								
Indoor tanning preparations	NR	1	NR	1								
Other suntan preparations	NR	1	NR	NR								

(continued)

Table 1. (continued)

	PEG-8 Stearate			PEG-10 Stearate			PEG-12 Stearate			PEG-20 Stearate		
	# of Uses		Max Conc of Use (%)	# of Uses		Max Conc of Use (%)	# of Uses		Max Conc of Use (%)	# of Uses		Max Conc of Use (%)
	2023 ³	2002 ²	2023 ⁴	2023 ³	2002 ²	2023 ⁴	2023 ³	2002 ²	2023 ⁴	2023 ³	2002 ²	2023 ⁴
Totals*	17	18	0.49–4	0.5–3	NR	NR	3	NR	NR	NR	40	42
Summarized by likely duration and exposure**												
Duration of use												
Leave-on	16	12	0.49–4	0.5–3	NR	NR	NR	NR	NR	6	33	25
Rinse-off	1	6	2	2	NR	NR	3	NR	NR	13	6	16
Diluted for (bath) use	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	1
Exposure type												
Eye area	NR	1	NR	NR	NR	NR	NR	NR	NR	NR	NR	1
Incidental ingestion	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Incidental inhalation—spray	7 ^a , 7 ^b	6 ^a , 2 ^b	0.5 ^a	3 ^a , 0.5 ^b	NR	NR	NR	NR	NR	1 ^a , 5 ^b	16 ^a , 9 ^b	2; 13 ^a , 8 ^b
Incidental inhalation—powder	7 ^b	2 ^b	1.1–3 ^c	0.5 ^b	NR	NR	NR	NR	NR	5 ^b	9 ^b	8 ^b
Dermal contact	16	14	0.49–4	0.5–3	NR	NR	1	NR	NR	19	35	40
Deodorant (underarm)	NR	NR	0.49	NR	NR	NR	NR	NR	NR	NR	NR	NR
Hair—non-coloring	1	3	0.5–2	NR	NR	NR	2	NR	NR	NR	NR	2
Hair—coloring	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nail	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Mucous membrane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Baby products	NR	NR	3	NR	NR	NR	NR	NR	NR	NR	NR	NR
As reported by product category												
Baby products												
Baby shampoos	NR	NR	3	NR								
Baby lotions/oils/powders/creams	NR	NR	NR	NR								
Other baby products												
Bath preparations (diluted for use)												
Bubble baths												
Other bath preparations												
Eye makeup preparations												
Eyebrow pencil												
Eyeliner												
Eye shadow												
Eye lotion												
Eye makeup remover												
Mascara	NR	1	NR	NR								
Other eye makeup preparations												

(continued)

Table 1. (continued)

	PEG-8 Stearate			PEG-10 Stearate			PEG-12 Stearate			PEG-20 Stearate		
	# of Uses	Max Conc of Use (%)	2023 ³	2002 ²	2023 ³	2002 ²	2023 ³	2002 ²	2023 ³	2002 ²	2023 ³	2002 ²
Fragrance preparations												
Cologne and toilet water												
Perfumes												
Sachets												
Other fragrance preparations												
Hair preparations (non-coloring)												
Hair conditioner	NR	3	2	NR								
Hair straighteners												
Rinses (non-coloring)												
Shampoos (non-coloring)												
Tonics, dressings, and other hair grooming aids	NR	NR	0.5	NR	NR	2	NR	NR	NR	NR	NR	NR
Other hair preparations	1	NR	NR	NR								
Hair coloring preparations												
Hair dyes and colors (all types requiring caution statements and patch tests)												
Hair tints												
Hair color sprays (aerosol)												
Hair lighteners with color												
Hair bleaches												
Other hair coloring preparations												
Makeup preparations												
Blushers (all types)												
Face powders												
Foundations	NR	1	NR	NR								
Lipstick												
Makeup bases												
Rouges												
Makeup fixatives												
Other makeup preparations	NR	1	NR	NR								
Manicuring preparations (nail)												
Cuticle softeners												

(continued)

Table 1. (continued)

	PEG-8 Stearate			PEG-10 Stearate			PEG-12 Stearate			PEG-20 Stearate		
	# of Uses	2002 ²	2002 ⁴	2002 ²	2002 ³	2002 ²	2002 ³	2002 ²	2002 ³	2002 ²	2002 ³	2002 ²
			Max Conc of Use (%)									Max Conc of Use (%)
Nail creams and lotions												
Other manicuring preparations												
Personal cleanliness products												
Bath soaps and detergents												
Deodorants (underarm)	NR	NR	Not spray: 0.49	NR								
Other personal cleanliness products												
Shaving preparations												
Aftershave lotion												
Beard softeners												
Shaving cream	1	1	NR	NR			NR	12	NR		NR	NR
Other shaving preparations												
Skin care preparations												
Cleansing	NR	1	NR	2	NR	1	NR	1	NR	2	6	NR
Depilatories	NR	1	NR	NR						1	NR	NR
Face and neck (exc shave)	1	NR	NR	0.5			NR	2	NR	5	2	NR
Body and hand (exc shave)	6	2	Not spray: 1.1	NR			NR	3	NR	4	6	Not spray: 0.2–4
Foot powders and sprays												
Moisturizing	7	5	Not spray: 1.4–4	3			13			NR	8	4
Night												
Paste masks (mud packs)												
Skin fresheners												
Other skin care preparations	1	1	NR	NR			NR	NR	1.2	NR	1	NR
Suntan preparations												
Suntan gels, creams, and liquids	NR	1	NR	NR			NR	1	Not spray: 1.8	NR	4	NR
Indoor tanning preparations												
Other suntan preparations												

(continued)

Table 1. (continued)

	# of Uses		Max Conc of Use (%)		# of Uses		Max Conc of Use (%)		# of Uses		Max Conc of Use (%)					
	2023 ³		2022 ²		2023 ³		2022 ²		2023 ³		2022 ²					
	PEG-25 Stearate		PEG-30 Stearate		PEG-32 Stearate		PEG-40 Stearate									
Totals*	2	NR	NR	NR	9	2	0.2	NR	4	11	NR	1–6	142	170	0.0001–4	0.01–7
Summarized by likely duration and exposure**																
Duration of use																
Leave-on	2	NR	NR	NR	9	2	0.2	NR	3	7	NR	2–6	136	138	0.0001–3	0.5–5
Rinse-off	NR	NR	NR	NR	NR	NR	0.2	NR	1	4	NR	1–3	6	32	0.6–4	0.01–7
Diluted for (bath) use	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	4
Exposure type																
Eye area	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	24	6	0.0001 – 2.5	0.8 – 5
Incidental ingestion	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	6	NR	2	2
Incidental inhalation—spray	2 ^a	NR	NR	NR	4 ^a	2 ^a	NR	NR	1 ^a , 2 ^b	5 ^a , 1 ^b	NR	6 ^a , 2–3 ^b	4 ^a , 36 ^a , 59 ^b	12 ^a , 46 ^a , 36 ^b	2.5; 0.1–2.4 ^a	2; 0.5–3 ^a , 0.8–5 ^b
Incidental inhalation—powder	NR	NR	NR	NR	NR	NR	NR	NR	2 ^b	1 ^b	NR	2–3 ^b	59 ^b ; 3 ^c	36 ^b	0.079–3 ^c	0.8–5 ^b
Dermal contact	2	NR	NR	NR	9	2	0.2	NR	4	11	NR	1–6	132	157	0.0001 – 4	0.01 – 7
Deodorant (underarm)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	3 ^a
Hair—non-coloring	NR	NR	NR	NR	NR	NR	0.2	NR	NR	NR	NR	NR	2	7	0.1	0.5–2
Hair—coloring	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	2	0.6–0.9	0.07
Nail	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	1	NR	3
Mucous membrane	NR	NR	NR	NR	NR	NR	NR	NR	NR	1	NR	NR	6	4	2–4	0.01–4
Baby products	NR	NR	NR	NR	NR	NR	0.2	NR	NR	NR	NR	NR	3	NR	0.6	NR
As reported by product category																
Baby products																
Baby shampoos					NR	NR	0.2	NR					3	NR	0.6	NR
Baby lotions/oils/powders/creams																
Other baby products					NR	NR	0.2	NR								
Bath preparations (diluted for use)																
Bubble baths													NR	NR	NR	4
Other bath preparations																
Eye makeup preparations													1	NR	NR	5
Eyebrow pencil													2	NR	0.0001–2	NR
Eyeliner													1	NR	0.002	2
Eye shadow													6	NR	1–2.5	1–2
Eye lotion													NR	1	NR	0.8–2
Eye makeup remover													2	3	0.22–1	1
Mascara													12	2	0.98–1.8	3–4
Other eye makeup preparations																

(continued)

Table 1. (continued)

	PEG-25 Stearate				PEG-30 Stearate				PEG-32 Stearate				PEG-40 Stearate			
	# of Uses		Max Conc of Use (%)		# of Uses		Max Conc of Use (%)		# of Uses		Max Conc of Use (%)		# of Uses		Max Conc of Use (%)	
	2002 ²	2003 ³	2002 ²	2003 ³	2002 ²	2003 ³	2002 ²	2003 ³	2002 ²	2003 ³	2002 ²	2003 ³	2002 ²	2003 ³	2002 ²	2003 ³
Fragrance preparations																
Cologne and toilet water																
Perfumes																
Sachets																
Other fragrance preparation																
Hair preparations (non-coloring)																
Hair conditioner																
Hair spray (aerosol fixatives)																
Hair straighteners																
Shampoos (non-coloring)																
Tonics, dressings, and other hair grooming aids																
Other hair preparations																
Hair coloring preparations																
Hair dyes and colors (all types requiring caution statements and patch tests)																
Hair tints																
Hair color sprays (aerosol)																
Hair lighteners with color																
Hair bleaches																
Other hair coloring preparation																
Makeup preparations																
Blushers (all types)																
Face powders																
Foundations																
Lipstick																
Makeup bases																
Rouges																
Makeup fixatives																
Other makeup preparations																
Manicuring preparations (nail)																
Cuticle softeners																
Nail creams and lotions																
Other manicuring preparations																
Personal cleanliness products																

(continued)

Table 1. (continued)

	PEG-25 Stearate			PEG-30 Stearate			PEG-32 Stearate			PEG-40 Stearate		
	# of Uses		Max Conc of Use (%)	# of Uses		Max Conc of Use (%)	# of Uses		Max Conc of Use (%)	# of Uses		Max Conc of Use (%)
	2023 ³	2002 ²	2023 ⁴	2002 ²	2023 ³	2002 ²	2023 ³	2002 ²	2023 ⁴	2002 ²	2023 ³	2002 ²
Bath soaps and detergents												
Deodorants (underarm)												
Other personal cleanliness products												
Shaving preparations												
Aftershave lotion												
Beard softeners												
Shaving cream												
Other shaving preparations												
Skin care preparations												
Cleansing												
Depilatories												
Face and neck (exc shave)												
Body and hand (exc shave)												
Foot powders and sprays												
Moisturizing	2	NR	NR	NR	3	1	NR	NR	NR	NR	NR	NR
Night												
Paste masks (mud packs)												
Skin fresheners												
Other skin care preparations												
Suntan preparations												
Suntan gels, creams, and liquids												
Indoor tanning preparations												
Other suntan preparations												

(continued)

Table 1. (continued)

	Max Conc of Use (%)				Max Conc of Use (%)				Max Conc of Use (%)							
	# of Uses		# of Uses		# of Uses		# of Uses		# of Uses		# of Uses					
	2023 ³	2002 ²	2023 ⁴	2002 ²	2023 ³	2002 ²	2023 ⁴	2002 ²	2023 ³	2002 ²	2023 ⁴	2002 ²				
	PEG-45 Stearate				PEG-50 Stearate				PEG-55 Stearate				PEG-75 Stearate			
Totals*	3	NR	3.2	NR	NR	11	8.5	9	4	1	2.3	NR	97	6	0.15–1.2	NR
Summarized by likely duration and exposure**																
Duration of use																
Leave-on	3	NR	3.2	NR	NR	11	8.5	9	2	1	2.3	NR	92	6	0.15–1.2	NR
Rinse-off	NR	NR	NR	NR	NR	NR	NR	NR	2	NR	NR	NR	5	NR	0.3–0.68	NR
Diluted for (bath) use	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Exposure type																
Eye area	3	NR	3.2	NR	NR	NR	NR	NR	NR	1	NR	NR	3	NR	0.6–1	NR
Incidental ingestion	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Incidental inhalation—spray	NR	NR	NR	NR	NR	9 ^a , 1 ^b	NR	NR	2b	NR	NR	NR	NR	58a; 21b	3a; 3 ^b	NR
Incidental inhalation—powder	NR	NR	NR	NR	NR	1 ^b	NR	NR	2b	NR	NR	NR	NR	21 ^b	3 ^b	0.15–1.2c
Dermal contact	3	NR	NR	NR	NR	11	NR	NR	2	1	2.3	NR	95	NR	0.15–1.2	NR
Deodorant (underarm)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	6	1.2	NR
Hair—non-coloring	NR	NR	NR	NR	NR	NR	NR	NR	2	NR	NR	NR	2	NR	0.15	NR
Hair—coloring	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nail	NR	NR	NR	NR	NR	NR	NR	8.5	9	NR	NR	NR	NR	NR	NR	NR
Mucous membrane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Baby products	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.5–0.75	NR
As reported by product category																
Baby products																
Baby shampoos																
Baby lotions/oils/powders/creams																
Other baby products																
Bath preparations (diluted for use)																
Bubble baths																
Other bath preparations																
Eye makeup preparations																
Eyebrow pencil	3	NR	NR	NR					NR	1	NR	NR				
Eyeliner																
Eye shadow																
Eye lotion																
Eye makeup remover																
Mascara	NR	NR	3.2	NR									3	NR	0.6–1	NR
Other eye makeup preparations																

(continued)

Table 1. (continued)

	Max Conc of Use (%)			# of Uses			Max Conc of Use (%)			# of Uses			Max Conc of Use (%)		
	2023 ³	2002 ²	2023 ⁴	2023 ³	2002 ²	2023 ⁴	2023 ³	2002 ²	2023 ⁴	2023 ³	2002 ²	2023 ⁴	2023 ³	2002 ²	2023 ⁴
	PEG-45 Stearate			PEG-50 Stearate			PEG-55 Stearate			PEG-75 Stearate					
Fragrance preparations															
Cologne and toilet water															
Perfumes															
Sachets															
Other fragrance preparation															
Hair preparations (non-coloring)															
Hair conditioner															
Hair straighteners															
Rinses (non-coloring)															
Shampoos (non-coloring)							2	NR	NR	NR					
Tonics, dressings, and other hair grooming aids															
Other hair preparations															
Hair coloring preparations															
Hair dyes and colors (all types requiring caution statements and patch tests)										2	NR	0.15			NR
Hair tints															
Hair color sprays (aerosol)															
Hair lighteners with color															
Hair bleaches															
Other hair coloring preparation															
Makeup preparations															
Blushers (all types)										2	NR	NR			NR
Face powders															
Foundations															
Lipstick															
Makeup bases															
Rouges															
Makeup fixatives															
Other makeup preparations															
Manicuring preparations (nail)															
Cuticle softeners															
Nail creams and lotions															
Other manicuring preparations															
Personal cleanliness products															
				NR	NR	8.5	9								

(continued)

Table 1. (continued)

	PEG-45 Stearate			PEG-50 Stearate			PEG-55 Stearate			PEG-75 Stearate		
	# of Uses		Max Conc of Use (%)	# of Uses		Max Conc of Use (%)	# of Uses		Max Conc of Use (%)	# of Uses		Max Conc of Use (%)
	2002 ²	2003 ³		2002 ²	2003 ³		2002 ²	2003 ³		2002 ²	2003 ³	
Bath soaps and detergents												
Deodorants (underarm)												
Other personal cleanliness products												
Shaving preparations												
Aftershave lotion												
Beard softeners												
Shaving cream												
Other shaving preparations												
Skin care preparations												
Cleansing												
Depilatories												
Face and neck (exc shave)												
Body and hand (exc shave)												
Foot powders and sprays												
Moisturizing												
Night												
Paste masks (mud packs)												
Skin fresheners												
Other skin care preparations												
Suntan preparations												
Suntan gels, creams, and liquids												
Indoor tanning preparations												
Other suntan preparations												

(continued)

Table 1. (continued)

	PEG-90 Stearate				PEG-100 Stearate				PEG-150 Stearate			
	2023 ³	2002 ²	2023 ⁴	2002 ²	2023 ³	2002 ²	2023 ⁴	2002 ²	2023 ³	2002 ²	2023 ⁴	2002 ²
	NR	1	NR	NR	1844	424	0.00033–6	0.01–25	NR	23	0.088–6	0.2–6
Totals*												
Summarized by likely duration and exposure**												
Duration of use												
Leave-on	NR	NR	NR	NR	1675	299	0.0075–6	0.01–25	NR	14	0.1–0.95	0.4–6
Rinse-off	NR	1	NR	NR	168	125	0.00033–2.5	0.2–6	NR	9	0.088–6	0.2–3
Diluted for (bath) use	NR	NR	NR	NR	1	NR	1	3	NR	NR	0.15–0.75	NR
Exposure type												
Eye area	NR	NR	NR	NR	84	19	0.5–2.5	0.5–4	NR	1	NR	2–3
Incidental ingestion	NR	NR	NR	NR	7	NR	NR	0.3–5	NR	NR	NR	NR
Incidental inhalation—spray	NR	NR	NR	NR	20; 1110 ^a ; 347 ^b	16; 141 ^a ; 60 ^b	0.25–1.8; 0.25– 4.5 ^a	3; 0.01–4 ^a ; 0.3–5 ^b	NR	1; 7a; 4 ^b	NR	0.5–1a; 0.8–2 ^b
Incidental inhalation—powder	NR	NR	NR	NR	1; 347 ^b ; 7 ^c	60 ^b ; 5 ^c	1.5; 0.25–3.3 ^c	0.3–5 ^b ; 1 ^c	NR	4b	0.15–0.95 ^c	0.8–2b
Dermal contact	NR	1	NR	NR	1737	365	0.0003–3.8	0.01–25	NR	14	0.15–6	0.5–6
Deodorant (underarm)	NR	NR	NR	NR	NR	3 ^a	2.5–3.8	0.5–25 ^a	NR	NR	NR	NR
Hair—non-coloring	NR	NR	NR	NR	56	39	0.0065–4.5	0.2–4	NR	8	0.088–0.75	0.2–0.4
Hair—coloring	NR	NR	NR	NR	23	9	0.98	NR	NR	NR	0.18	NR
Nail	NR	NR	NR	NR	6	3	2.5–6	3	NR	1	NR	NR
Mucous membrane	NR	NR	NR	NR	20	24	0.00033–2	0.3–5	NR	NR	0.15–2.3	0.5
Baby products	NR	NR	NR	NR	8	5	1–1.4	1	NR	NR	0.7	NR
As reported by product category												
Baby products									NR	NR	0.7	NR
Baby shampoos					7	5	1–1.4	1				
Baby lotions/oils/powders/creams					1	NR	NR	NR				
Other baby products												
Bath preparations (diluted for use)												
Bubble baths					1	NR	1	3	NR	NR	0.75	NR
Other bath preparations									NR	NR	0.15	NR
Eye makeup preparations												
Eyebrow pencil					1	1	0.5	NR				
Eyeliner					NR	2	NR	1	NR	NR	NR	3
Eye shadow					2	NR	NR	NR				
Eye lotion					50	3	0.57–2.5	0.5–4	NR	1	NR	NR
Eye makeup remover									NR	NR	NR	2
Mascara					15	8	0.5–2.5	2–3				
Other eye makeup preparations					16	5	NR	1–3				
Fragrance preparations												
Cologne and toilet water					NR	NR	0.25	NR				

(continued)

Table 1. (continued)

	PEG-90 Stearate				PEG-100 Stearate				PEG-150 Stearate			
	2023 ³	2002 ²	2023 ⁴	2002 ²	2023 ³	2002 ²	2023 ⁴	2002 ²	2023 ³	2002 ²	2023 ⁴	2002 ²
	NR	1	NR	NR	1844	424	0.00033–6	0.01–25	NR	23	0.088–6	0.2–6
Totals*												
Perfumes					10	1	NR	3				
Sachets												
Other fragrance preparation					10	14	1.2–1.8	NR	NR	1	NR	NR
Hair preparations (non-coloring)												
Hair conditioner					15	30	0.023–2.5	0.2–4	NR	3	NR	NR
Hair straighteners					2	NR	NR	NR	NR	2	NR	NR
Rinses (non-coloring)					1	2	NR	0.6				
Shampoos (non-coloring)					6	NR	0.0065–2.1	NR	NR	3	0.088–0.75	0.2
Tonics, dressings, and other hair grooming aids					29	2	0.25–4.5	NR			0.1	
Other hair preparations					3	5	NR	3	NR	NR	NR	0.4
Hair coloring preparations												
Hair dyes and colors (all types requiring caution statements and patch tests)					21	2	0.98	NR	NR	NR	0.18	NR
Hair tints					NR	1	NR	NR				
Hair color sprays (aerosol)					NR	1	NR	NR				
Hair lighteners with color					NR	1	NR	NR				
Hair bleaches					NR	2	NR	NR				
Other hair coloring preparation					2	2	NR	NR				
Makeup preparations												
Blushers (all types)					NR	NR	1	NR	NR	NR	NR	1
Face powders					1	NR	1.5	NR				
Foundations					NR	6	NR	0.5–2				
Lipstick					7	NR	NR	0.3–5				
Makeup bases					4	1	NR	NR				
Rouges									NR	NR	NR	0.6
Makeup fixatives					1	1	NR	NR				
Other makeup preparations					3	NR	NR	4	NR	NR	NR	3
Manicuring preparations (nail)												
Cuticle softeners					NR	2	2.5	3				
Nail creams and lotions					4	1	6	NR				
Other manicuring preparations					2	NR	NR	NR	NR	1	NR	NR
Personal cleanliness products												
Bath soaps and detergents					7	NR	0.00033–2	0.8	NR	NR	0.7	0.5
Deodorants (underarm)					NR	3	Not spray: 2.5–3.8	0.5–25				
Other personal cleanliness products					5	24	NR	2	NR	NR	2.3	NR

(continued)

Table 1. (continued)

	PEG-90 Stearate					PEG-100 Stearate				PEG-150 Stearate			
	2023 ³	2002 ²	2023 ⁴	2002 ²	2023 ³	2023 ⁴	2002 ²	2023 ³	2023 ⁴	2023 ³	2002 ²	2023 ⁴	2002 ²
	NR	1	NR	NR	1844	424	0.0033–6	0.01–25	NR	23	0.088–6	0.2–6	
Totals*													
Shaving preparations													
Aftershave lotion					5	1	1.2	0.8–2					
Beard softeners					1	NR	NR	NR					
Shaving cream					3	NR	2.1	NR					
Other shaving preparations					1	1	NR	0.8					
Skin care preparations													
Cleansing					80	38	1–2	1–5	NR	NR	0.5–6	2–3	
Depilatories					2	NR	NR	NR					
Face and neck (exc shave)					207	25	Not spray: 0.5–2.5	0.3–5	NR	NR	Not spray: 0.4	2	
Body and hand (exc shave)					140	34	Not spray: 0.25–3.3	3	NR	3	Not spray: 0.15–0.95	0.8	
Foot powders and sprays					NR	1	NR	NR	NR	1	NR	NR	
Moisturizing					1010	85	Not spray: 1–3	1–3	NR	4	NR	0.8–1	
Night					56	20	Not spray: 0.0075–3.2	0.01–3	NR	2	Not spray: 0.3	0.5–1	
Paste masks (mud packs)	NR	1	NR	NR	23	22	0.0075–1.5	2–6	NR	1	NR	NR	
Skin fresheners					5	2	NR	NR	NR	1	NR	NR	
Other skin care preparations					75	38	2.5	0.9–3	NR	NR	NR	6	
Suntan preparations													
Suntan gels, creams, and liquids					5	14	Not spray: 1.5	3					
Indoor tanning preparations					3	18	1.3	2–4					
Other suntan preparations					2	NR	NR	NR					

prior re-review document, the Panel reaffirmed the 1983 conclusion. The Panel discussed the possibility for these ingredients to be used in cosmetic products which may be incidentally inhaled. A detailed discussion and summary of the Panel's approach to evaluating incidental inhalation exposures to ingredients in cosmetic products is available at <https://www.cir-safety.org/cir-findings>.

Author's Note

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