

Appendix B7

Fragrance Ingredients Tested in the LLNA - Comparative Data (Sorted Alphabetically)

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Fragrance Ingredients Tested in the LLNA - Comparative Data (Sorted Alphabetically)

Substance Name	Formulation Type	LLNA Conc. tested (%)	LLNA Sis	LLNA EC ₃ (%)	LLNA Vehicle	LLNA Mouse strain	LLNA Result ¹	Overall LLNA Result ¹	LLNA Reference	Test conc. (%)	% sens. incidence	Result ¹	Overall Human Result ¹	Human Reference
Basil oil	fragrance ingredient	2.5, 5, 10, 25, 50	3.0, 3.0, 8.0, 17.6, 25.2	6.2	1:3 EtOH/DEP	CBA/Ca	+	+	Lalko & Api (2006). submitted by RIFM	4	0	-	-	Opdyke 1973a
Citronella oil	fragrance ingredient	2.5, 5, 10, 25, 50	1.4, 0.9, 1.2, 1.2, 2.7	NC	1:3 EtOH/DEP	CBA/Ca	-	-	Lalko & Api (2006). submitted by RIFM	8	0	-	-	Opdyke 1973b
										8	0	-		
										8	0	-		
Clove Oil	fragrance ingredient	1.0, 2.5, 5, 10, 25	1.1, 1.8, 2.5, 3.7, 5.9	7.1	1:3 EtOH/DEP	CBA/Ca	+	+	Lalko & Api (2006). submitted by RIFM	5	0	-	-	Opdyke 1975a
		2.5, 5, 10, 25, 50	1.6, 1.5, 4.0, 9.5, 11.4	7.1	1:3 EtOH/DEP	CBA/Ca	+		Lalko & Api (2006). submitted by RIFM	5	0	-		Opdyke 1978a
		1.0, 2.5, 5, 10, 25	1.6, 1.7, 2.2, 4.2, 8.9	7.0	1:3 EtOH/DEP	CBA/Ca	+		Lalko & Api (2006). submitted by RIFM	10	0	-		Opdyke 1975b
Geranium oil	fragrance ingredient	2.5, 5, 10, 25, 50	1.2, 0.7, 1.7, 1.8, 2.8	NC	1:3 EtOH/DEP	CBA/Ca	-	-	Lalko & Api (2006). submitted by RIFM	10	0	-	-	Opdyke 1975c
Jasmine absolute	fragrance ingredient	1.0, 2.5, 5, 10, 25	1.2, 1.8, 2.0, 7.4, 11.8	5.9	1:3 EtOH/DEP	CBA/Ca	+	+	Lalko & Api (2006). submitted by RIFM	3	8	+ ²	+	Opdyke 1976c
		10, 25, 50, 75, 100	1.7, 2.5, 3.6, 1.8, 16.2	36.4	1:3 EtOH/DEP	CBA/Ca	+		Lalko & Api (2006). submitted by RIFM	3	0	-		
Lemongrass oil	fragrance ingredient	2.5, 5, 10, 25, 50	0.9, 2.1, 5.1, 10.3, 13.1	6.5	1:3 EtOH/DEP	CBA/Ca	+	+	Lalko & Api (2006). submitted by RIFM	4	0	-	-	Opdyke 1976e
										4	0	-		Opdyke 1976d
Litsea cubeb oil	fragrance ingredient	2.5, 5, 10, 25, 50	2.0, 2.3, 3.3, 7.9, 16.0	8.4	1:3 EtOH/DEP	CBA/Ca	+	+	Lalko & Api (2006). submitted by RIFM	8	0	-	-	Opdyke 1982
Oakmoss	fragrance ingredient	NA	NA	3.9	1:3 EtOH/DEP	CBA/Ca	+	+	Lalko & Api (2006). submitted by RIFM	10	0	-	+	Opdyke 1976a
Palmarosa oil	fragrance ingredient	2.5, 5, 10, 25, 50	1.1, 2.1, 3.1, 3.6, 5.0	9.6	1:3 EtOH/DEP	CBA/Ca	+	+	Lalko & Api (2006). submitted by RIFM	NA	NA	NA	-	Lalko & Api (2006). submitted by RIFM
Spearmint oil	fragrance ingredient	0.5, 1.0, 2.5, 5, 10	1.2, 1.1, 1.2, 1.9, 3.6	8.2	1:3 EtOH/DEP	CBA/Ca	+	+	Lalko & Api (2006). submitted by RIFM	4	0	-	-	Opdyke 1978b
Treemoss	fragrance ingredient	NA	NA	NC	1:3 EtOH/DEP	CBA/Ca	-	-	Lalko & Api (2006). submitted by RIFM	NA	NA	NA	+	RIFM, submitted by AM Api
Ylang Ylang Oil	fragrance ingredient	0.5, 1.0, 2.5, 5, 10	1.5, 1.7, 2.1, 2.6, 2.6	NC	1:3 EtOH/DEP	CBA/Ca	-	+	Lalko & Api (2006). submitted by RIFM	10	0	-	+	Opdyke 1974
										10	0	-		
										10	5	+		
										10	0	-		
										10	0	-		

Abbreviations: Conc. = Concentration; DEP = Diethyl phthalate; EtOH = Ethanol; HMT = Human Maximization Test; HRIPT = Human Repeat Insult Patch Test; LLNA = Local Lymph Node Assay; NA = Not Available; NC = Not Calculated since SI < 3; RIFM = Research Institute for Fragrance Materials; sens. = sensitization; SI = Stimulation Index
¹ "+" = Sensitizer; "-" = Non-sensitizer

²Positive result possibly due to "Spillover effect." In maximization testing, four unrelated materials are tested on each of 25 human subjects. In the event that one of the four test materials turns out to be a potent sensitizer (in this case it was Costus oil, which sensitized 25/25 subjects), false weak positive results may occur with the other three materials. When these three materials are subsequently retested out of the context of the serious allergen, and in the same or different groups of subjects, they prove to be negative. We refer to this as the "spillover effect" (Opdyke 1976c).

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