Linalyl acetate

Botanical Source

Synonyms LINALOOL ACETATE;
DIMETHYL-OCTA-2,6-DIENYL ACETATE(3,7-)

IUPAC Name

CAS Reference 115-95-7

E Number

Food Legislation

Council of Europe (CoE)	
Number	Comment
203	Listed by the Council of Europe as acceptable for use in food.

US Food and Drug Administration	
Number	Comment
182.60	Approved by the US FDA. FDA 21 CFR 182.60

Joint FAO/WHO Expert Committee on Food Additives (JECFA)		
Number	ADI	Comment
359	2100	Group ADI 0-0.5 mg/kg bw (1979)
		Comments: No safety concern at current levels of intake when used as a flavouring agent. The 1979 group ADI of 0-0.5 mg/kg bw for citral, geranyl acetate, citronellol, linalool, and linalyl acetate, expressed as citral, was maintained at the fifty-first (TRS 891/90, 1998) and sixty-first (TRS for JECFA 61 in press) meetings.

FEMA	
FEMA No.	Comment
2636	-

Natural Occurrence and Use in Food
Found in bergamot, clary sage, lemon oil, pepper, tomato, lavender; used in baked goods, dairy products, candy.

Estimated Intake from Food and Drink	
Daily Intake mg/kg/day	FEMA Possible Average Daily Intake mg
0.003008	3.318

Linalyl acetate

Tobacco Product Related Chemical and Biological Studies for Ingredients Added in a Mixture

Smoke Chemistry		
Published Source	Level Tested %	Comment
BAT	0.00120	At maximum application level this ingredient is not associated with significant increases in levels of Hoffmann analytes in smoke.
Philip Morris	0.00010	An overall assessment of the data suggests that this ingredient did not add to the toxicity of smoke.

Ames Activity		
Published Source	Level Tested %	Comment
BAT	0.00120	Within the sensitivity and specificity of the system the Ames activity of the cigarette smoke condensate was not increased by the addition of the ingredient.
Philip Morris	0.00010	Within the sensitivity and specificity of the system the Ames activity of the cigarette smoke was not increased by the addition of the ingredient.

Micronucleus		
Published Source	Level Tested %	Comment
BAT	0.00120	Within the sensitivity of the in vitro micronucleus assay the activity of the cigarette smoke condensate was not increased by the addition of the ingredient.

Neutral Red		
Published Source	Level Tested %	Comment
BAT	0.00120	Within the sensitivity of the test system the in vitro cytotoxicity of the cigarette smoke condensate was not increased by the addition of the ingredient.
Philip Morris	0.00010	Within the sensitivity of the test system the in vitro cytotoxicity of the cigarette smoke was not

		increased by the addition of the ingredient.

.

Inhalation		
Published Source	Level Tested %	Comment
BAT	0.00120	The results indicate that the addition of the ingredient had no discernible effect on the inhalation toxicity of mainstream smoke.
Philip Morris	0.00010	The data indicate that the addition of the ingredient, when added with one of three groups, did not increase the inhalation toxicity of the smoke.

References

Baker RR, Pereira da Silva JR, Smith G. The effect of tobacco ingredients on smoke chemistry. Part I: Flavourings and additives. Food Chem Toxicol. 2004; 42 Suppl:S3-37.

Baker RR, Pereira da Silva JR, Smith G. The effect of tobacco ingredients on smoke chemistry. Part II: casing ingredients. Food Chem Toxicol. 2004; 42 Suppl:S39-52.

Baker RR, Massey ED, Smith G. An overview of the effects of tobacco ingredients on smoke chemistry and toxicity. Food Chem Toxicol. 2004; 42 Suppl:S53-83.

Carmines EL. Evaluation of the potential effects of ingredients added to cigarettes. Part 1: cigarette design, testing approach, and review of results. Food Chem Toxicol. 2002; 40(1): 77-91.

Rustemeier K, Stabbert R, Haussmann HJ, Roemer E, Carmines EL. Evaluation of the potential effects of ingredients added to cigarettes. Part 2: chemical composition of mainstream smoke. Food Chem Toxicol. 2002; 40(1): 93-104.

Roemer E, Tewes FJ, Meisgen TJ, Veltel DJ, Carmines EL. Evaluation of the potential effects of ingredients added to cigarettes. Part 3: in vitro genotoxicity and cytotoxicity. Food Chem Toxicol. 2002; 40(1): 105-111.

Vanscheeuwijck PM, Teredesai A, Terpstra PM, Verbeeck J, Kuhl P, Gerstenberg B, Gebel S, Carmines EL. Evaluation of the potential effects of ingredients added to cigarettes. Part 4: subchronic inhalation toxicity. Food Chem Toxicol. 2002; 40(1): 113-131.

Linalyl acetate

Tobacco Product Related Chemical and Biological Studies for Ingredients Tested Singly

References
Baker RR, Bishop LJ. The pyrolysis of tobacco ingredients. J. Anal. Appl. Pyrolysis 2004, 71, 223-311.

Linalyl acetate

Toxicological Data on the Unburnt Ingredient

GENOTOXICITY
[+ve, positive; -ve, negative; ?, equivocal; with, with metabolic activation; without, without metabolic activation]

In vitro

Test system	**Test conditions**	**Endpoint**	**Activation**	**Result**	**References**
Human lymphocytes	Cells treated with linalyl acetate in the absence of S9 (for 3 hr with fixation at 24 hr, or 24- and 48-hr continuous), with up to 130 µg/ml and in the presence of S9 (for 3 hr with fixation at 24- or 48-hr), with up to 180 µg/ml. Metaphase cells (100) examined for chromosomal aberrations.	Chromosome damage	With and without S9	-ve	Letizia *et al.* 2003.
Rat liver cells	Linalyl acetate tested at up to 300 µg/ml. Cells examined for unscheduled DNA synthesis (an indirect measure of DNA damage).	DNA damage	Not applicable	-ve	Letizia *et al.* 2003.
Salmonella typhimurium, TA98, TA100, TA1535, TA1537, TA1538	Linalyl acetate tested at up to 25 mg/plate.	Mutation	With and without S9	-ve	Letizia *et al.* 2003.

References

Letizia C S *et al* (2003a). Fragrance material review on linalool. Food and Chemical Toxicology, 41, 943-964.