Octanoic acid

Botanical Source

Synonyms CARRYLIC ACID
OCTOIC ACID (N-)
OCTYLIC ACID (N-)
C8 ACID

IUPAC Name

CAS Reference 124-07-2

E Number

Food Legislation

Council of Europe (CoE)	
Number	Comment
10	Listed by the Council of Europe as acceptable for use in food at up to 50 ppm.

US Food and Drug Administration	
Number	Comment
184.1025	Approved by the US FDA. FDA 21 CFR 184.1025

Joint FAO/WHO Expert Committee on Food Additives (JECFA)		
Number	ADI	Comment
99	-	No safety concern at current levels of intake when used as a flavouring agent.

FEMA	
FEMA No.	Comment
2799	-

Natural Occurrence and Use in Food
Found in apple, banana, beef, blackberry, plum brandy, wheat butter, beer, blue cheese; used in snack foods, baked goods, candy.

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

Smoke Chemistry		
Published Source	Level Tested %	Comment
Philip Morris	0.00010	An overall assessment of the data suggests that this ingredient did not add to the toxicity of smoke.
BAT	0.00180	At maximum application level this ingredient is not associated with significant increases in levels of Hoffmann analytes in smoke.

Ames Activity		
Published Source	Level Tested %	Comment
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.
BAT	0.00180	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.

Micronucleus		
Published Source	Level Tested %	Comment
BAT	0.00180	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	0.00180	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	0.00180	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.
Lorillard	0.00020	The results indicate that the addition of the ingredient had no discernible effect on the inhalation toxicity of mainstream smoke.

Mouse Skin Painting		
Published Source	Level Tested %	Comment
Lorillard	0.00020	None of the changes appeared to be substantial enough to conclude that the tumour promotion capacity of the condensate was discernibly different between condensate produced from cigarettes with the ingredient in comparison with condensate from cigarettes without the ingredient.

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.
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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.

Gaworski CL, Dozier MM, Heck JD, Gerhart JM, Rajendran N, David RM. Brennecke LH, Morrissey R. Toxicologic evaluation of flavor ingredients added to cigarette tobacco: 13 week inhalation exposures in rats. Inhal. Toxicol. 1998; 10:357-381

Gaworski CL, Heck JD, Bennett MB, Wenk ML. Toxicologic evaluation of flavor ingredients added to cigarette tobacco: skin painting bioassay of cigarette smoke condensate in SENCAR mice. Toxicology. 1999; 139(1-2):1-17.

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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.

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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**
Salmonella typhimurium TA 98, TA 100, TA 1535, TA 1537 and TA1538	Up to 50 mg/plate was tested in the Ames test.	Mutation	with and without activation fraction	-ve	Heck *et al*. 1989.
Salmonella typhimurium TA 97, TA 98, TA 100, TA 1535, and TA 1537	Up to 3333 µg octanoic acid/plate were tested in the Ames test.	Mutation	with and without S9	-ve	Zeiger *et al*. 1988.
Salmonella typhimurium TA 1535, TA 1537 and TA15 38	Up to 0.00025% caprylic acid was tested in the Ames test.	Mutation	with and without activation fractions prepared from mouse, rat and monkey	-ve	Litton Bionetics, 1976.

Saccaromyces cerevisae D61.M	Octanoic acid was tested in an assay for mitotic aneuploidy in yeast. [No further details.]	Chromosome damage	without	+ve (5 ppm was the most effeciv e concentration)	Zimmermann, 1983.
Saccaromyces cerevisae D4	Up to 0.0013% caprylic acid was tested in yeast.	Mutation	without	-ve	Litton Bionetics, 1976.

References

Heck J.D. *et al*. (1989). Toxicologist, 9, 257.

Litton Bionetics (1976). Mutagenic evaluation of compound FDA 75-38. 000124-07-2, caprylic acid, 98%. Litton Bionetics Inc. Food and Drug Administration Report FDA/BF-76/114.

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