Ethyl vanillin

Botanical Source

Synonyms ETHOXY-4-HYDROXYBENZALDEHYDE(3-)

IUPAC Name 3-ETHOXY-4-HYDROXYBENZALDEHYDE

CAS Reference 121-32-4

E Number

Food Legislation

Council of Europe (CoE)	
Number	Comment
108	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
893	3	No safety concern at current levels of intake when used as a flavouring agent.

FEMA	
FEMA No.	Comment
2464	Generally recognised as safe as a flavour ingredient:GRAS List Number 3

Natural Occurrence and Use in Food
Found in vanilla beans; used in alcoholic beverages, imitation vanilla extract, breakfast cereals.

Estimated Intake from Food and Drink	
Daily Intake mg/kg/day	FEMA Possible Average Daily Intake mg
2.2175	70.542

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

Smoke Chemistry		
Published Source	Level Tested %	Comment
BAT	0.25000	At maximum application level this ingredient is not associated with significant increases in levels of Hoffmann analytes in smoke.
Philip Morris	0.01660	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	0.25000	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	0.01660	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	0.25000	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	0.25000	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	0.01660	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	0.25000	The results indicate that the addition of the ingredient had no discernible effect on the inhalation toxicity of mainstream smoke.
Lorillard	0.08480	The results indicate that the addition of the ingredient had no discernible effect on the inhalation toxicity of mainstream smoke.
Philip Morris	0.01660	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.

Mouse Skin Painting		
Published Source	Level Tested %	Comment
Lorillard	0.08480	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

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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

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Tobacco Product Related Chemical and Biological Studies for Ingredients Tested Singly

References
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Toxicological Data on the Unburnt Ingredient

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

In vivo

Species	Test conditions	Endpoint	Results	Reference
Mice (numbers not specified in brief report)	Not specified in brief report	Chromosome damage	-ve	NTP, 1996
Groups of 5 mice	Intraperitoneal injection (no further details given in brief report)	Chromosome damage	-ve	Ohuchida *et al*. 1989
Groups of 4 mice	Two intraperitoneal injections of 0.33, 0.67 or 1 g/kg bw, 24 hr apart	Chromosome damage	-ve	Wild *et al.* 1983

In vitro

Species	Test conditions	Endpoint	Activation	Results	Reference
Human white blood cells	Concentrations up to 2.0 mM	Chromosome effects	without	+ve	Jansson *et al.* 1988
Mouse lymphoma cells	Mouse lymphoma L5178Y TK+/- assay (no further details given in abstract)	Mutation	with and without	+ve with activation	Heck *et al*. 1989
Chinese hamster lung cells	Concentrations up to 0.25 mg/ml	Chromosome damage and effects	without	-ve chromosome aberrations, but increased incidence of cells having more than one full set of chromosomes (polyploidy)	Ishidate *et al*. 1984
Chinese hamster ovary cells	Concentrations up to 100 µM	Chromosome effects	without	-ve	Sasaki *et al*. 1987
Chinese hamster ovary cells	Cells pretreated with mitomycin C exposed to	Chromosome effects	without	enhanced ability of mitomycin C to induce SCE	Sasaki *et al*. 1987

	concentrations up to 100 µM				
Salmonella typhimurium	TA1535, TA100, WP2*uvr*A TA1537, TA98 with concentrations up to 5 mg/plate	Mutation	with and without	-ve	JETOC, 1997
Salmonella typhimurium	TA1535, TA100, TA1537, TA1538, TA98 concentrations unspecified in abstract	Mutation	with and without	-ve	Heck *et al*. 1989
Salmonella typhimurium	TA92, TA1535, TA100, TA1537, TA94, TA98 with concentrations up to 10 mg/plate	Mutation	with and without	-ve	Ishidate *et al*. 1984
Salmonella typhimurium	TA1535, TA100, TA1537, TA98 with concentrations up to 8 mg/plate	Mutation	with and without	-ve	Mortelmans *et al*. 1986
Salmonella typhimurium	TA1535, TA100, TA1537, TA1538, TA98 with concentrations up to 3.6 mg/plate	Mutation	with and without	-ve	Wild *et al.* 1983
Bacillus subtilis	DNA repair (rec) assay using H17 and M45 with concentration of 21 µg/disk.	DNA damage	Not clear from Japanese paper	-ve	Oda *et al*. 1978
Drosophila melanogaster	Basc test in which material was fed to flies	Heritable mutation	not applicable	-ve	Wild *et al.* 1983

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Mortelmans K. *et al*. (1986). Envir. Mutagen. 8. Suppl. 7, 1.

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