Irone (alpha-)

Botanical Source

Synonyms METHYL-alpha-IONONE(6-);
METHYL IONONE (6-);
TETRA METHYL CYCLOHEX-2-ENYL) BUT-3-EN-2-ONE (4-(2;
IRALIA;
IRONE (cis-2,6-cis-2,1,2,2-alpha-);
TETRA METHYL-2-CYCLOHEXEN-1-YL-3-BUTEN-2-ONE (4-(2

IUPAC Name

CAS Reference 79-69-6

E Number

Food Legislation

Council of Europe (CoE)	
Number	Comment
145	Listed by the Council of Europe as acceptable for use in food at up to 5 ppm.

US Food and Drug Administration	
Number	Comment
172.515	Approved by the US FDA. FDA 21 CFR 172.515

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

FEMA	
FEMA No.	Comment
2597	Generally recognised as safe as a flavour ingredient:GRAS List Number 4

Natural Occurrence and Use in Food
Found in raspberry; used in baked goods, frozen dairy, soft candy, gelatin and puddings, alcoholic beverages.

Estimated Intake from Food and Drink	
Daily Intake mg/kg/day	FEMA Possible Average Daily Intake mg
0.00004661	0.478

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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	0.00120	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
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.

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.

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.

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.

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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

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

In vitro

Test system	Test conditions	Endpoint	Activation status	Results	Reference
Salmonella typhimurium strains TA98, TA100, TA102, TA1535 and TA1537	Comparative mutagenic potency test (Ames) on a smoke condensate from cigarettes containing 0.65 ppm alpha irone and on untreated (control) cigarettes.	Mutation	With and without S9	Condensates showed similar mutagenic potency	Renne *et al*. 2006

References

Renne R.A. *et al*. (2006). Effects of flavoring and casing ingredients on the toxicity of mainstream cigarette smoke in rats. Inhalation Toxicology **18**, 685-706.