VANILLIN

MODULE 1

SUBSTANCE INFORMATION SHEET

Vanillin

CAS number	121-33-5
Natural Origin	The major source is an extract made from the fermented, unripe fruit of the *Vanilla ssp.* Occurs widely in nature in trace quantities in many essential oils, extracts and liquors, including anise oil, beer, benzoin, brandy, citronella Java, coffee, clove bud oil, balsam of Peru, strawberries, tobacco, red and white wines, rum and whiskey.
Chemical Formula	C8-H8-O3
Synonyms	4-hydroxy-3-methoxy-benzaldehyde; 2-methoxy-4-formylphenol; 4-hydroxy-m-anisaldehyde; vanilla.
E number	N/A
FEMA GRAS number	3107

General Information

Council of Europe (CoE)

Number	Comment
107	ADI 10 mg/kg

US Food & Drug Administration (FDA)

Number	Comment
21 CFR 182.60	Substances Generally Recognize As Safe - Synthetic flavoring substances and adjuvants
21 CFR 182.90	Substances Generally Recognize As Safe - Substances migrating to food from paper and paperboard products.

Joint FAO/WHO Expert Committee on Food Additives (JECFA)

Number	ADI	Comment
889	0-10 mg/kg bw	No safety concern at current levels of intake when used as a flavouring agent.

European Food Safety Authority (EFSA)

Number	Comment
05.018	No safety concern at estimated levels of intake as flavouring substance

Flavors & Extracts Manufacturers Association (FEMA)

Number	Comment
3107	Generally Recognized as Safe as a flavor ingredient - GRAS 3

Uses and Exposure

Vanillin is widely used as flavoring agent in foods. It is also used as flavouring in galenicals, and in perfumery; as a reagent in analytical chemistry, and as an aid (flavor) in pharmaceutical industry.

Estimated Intake from Food and Drink

Estimated daily intake is 55 mg/day in Europe and 150 mg/day in the USA[1].

Summary of the Toxicological Investigations on the Use of the Substance in Tobacco Products

Smoke Chemistry

Internal Studies	Level Tested ppm	Comment
Carmines for Philip Morris	23, 70, 276 and 829	The effect of the addition of vanillin at concentrations up to 829 ppm on the composition of the cigarette smoke was investigated.
Philip Morris	60, 1,200 and 3,000	The effect of the addition of vanillin at concentrations up to 3,000 ppm on the composition of the cigarette smoke condensate was investigated.
Philip Morris	182, 1,652 and 3,316	The effect of the addition of vanillin at concentrations up to 3,316 ppm on the composition of the cigarette smoke was investigated.
Philip Morris	250, 2,500 and 5,600	The effect of the addition of vanillin at concentrations up to 5,600 ppm on selected constituent of the cigarette smoke was investigated.
Philip Morris	N/A	The effect of the addition of flavors incapsulated with beta-cyclodextrin to cigarette paper on the composition of the cigarette smoke was investigated.

Neutral Red Uptake Assay (NRU)

Internal Studies	Level Tested ppm	Comment
Carmines for Philip Morris	23, 70, 276 and 829	The effect of the addition of vanillin at concentrations up to 829 ppm on the cytotoxicity, as measured by the Neutral Red Uptake assay, was investigated.
Philip Morris	123, 1,228 and 2,990	The effect of the addition of vanillin at concentrations up to 2,990 ppm on the

		cytotoxicity, as measured by the Neutral Red Uptake assay, was investigated.

AMES Assay

Internal Studies	Level Tested ppm	Comment
Carmines for Philip Morris	23, 70, 276 and 829	The effect of the addition of vanillin at concentrations up to 829 ppm on the mutagenic response, as measured by the *Salmonella* reverse mutation assay, was investigated.
Philip Morris	74, 1,301 and 3,257.9	The effect of the addition of vanillin at concentrations up to 3,257.9 ppm on the mutagenic response, as measured by the *Salmonella* reverse mutation assay, was investigated.

Mouse Lymphoma Assay (MLA)

Internal Studies	Level Tested ppm	Comment
N/A	N/A	N/A

In vivo Micronucleus

Internal Studies	Level Tested ppm	Comment
Philip Morris	250; 2,500; 5,600	The effect of the addition of vanillin at concentrations up to 5,600 ppm on the clastogenic/aneugenic response, as measured by the *in vivo* Micronucleus Assay, was investigated.

Inhalation studies

Internal Studies	Level Tested ppm	Comment
Carmines for Philip Morris	23, 70, 276 and 829	The effect of the addition of vanillin at concentrations up to 829 ppm on the toxicity of cigarette smoke, as suggested in a 90-day inhalation study, was investigated.
Philip Morris	250; 2,500; 5,600	The effect of the addition of vanillin at concentrations up to 5,600 ppm on the toxicity of cigarette smoke, as suggested in a 90-day inhalation study, was investigated.

References

1. 57.Evaluation of certain food additives and contaminants (Fifty-seventh report of the Joint FAO/WHO Expert Committee on Food Additives). WHO Technical Report Series, No. 909, 2002.