

Ethyl Vanillin

1 Nonproprietary Names

USP–NF: Ethyl Vanillin

2 Synonyms

Bourbonal; ethavan; ethovan; ethylprotal; ethylprotocatechuic aldehyde; 4-hydroxy-3-ethoxybenzaldehyde; *Rhodiarome*; vanillal.

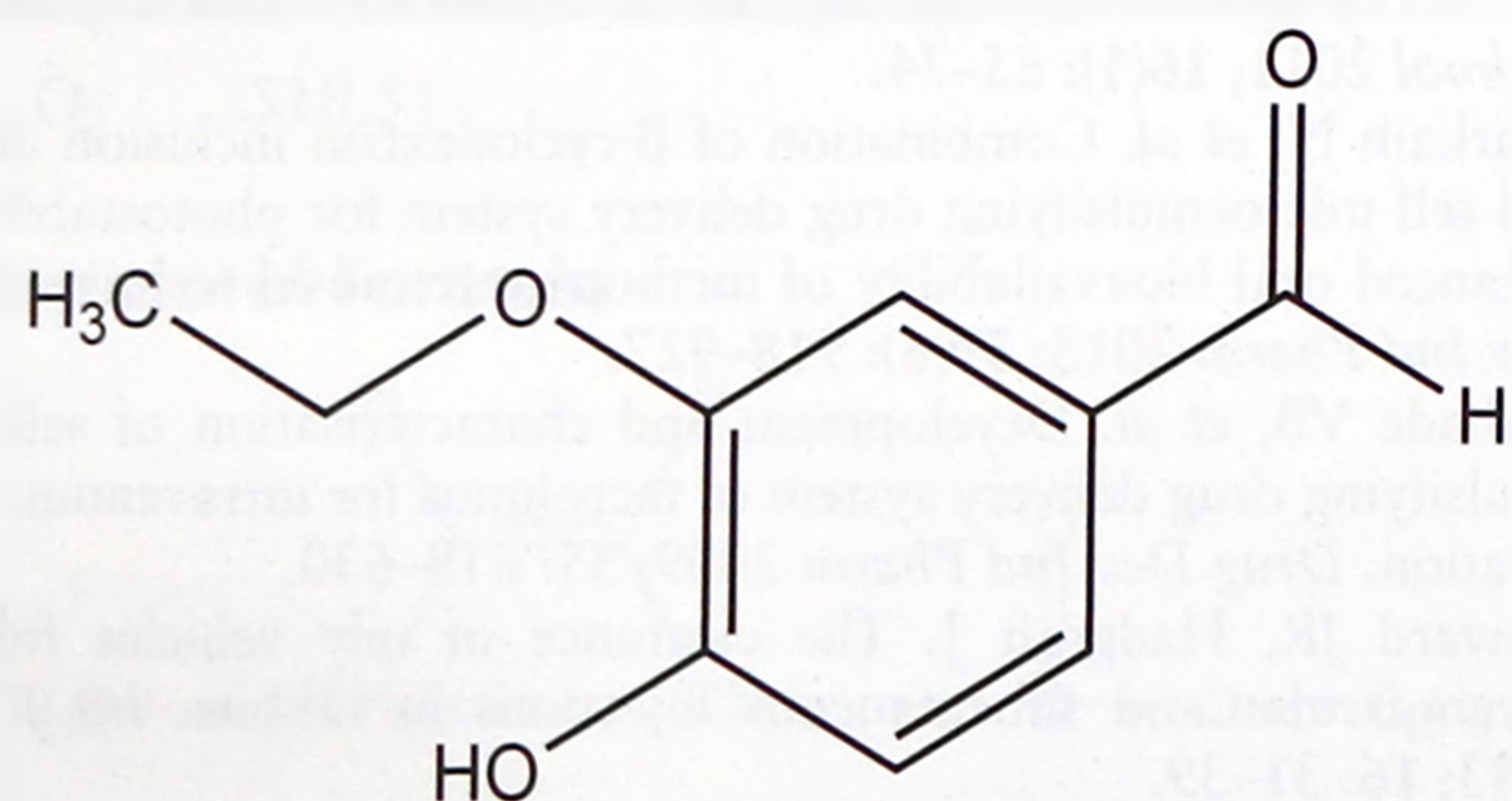
3 Chemical Name and CAS Registry Number

3-Ethoxy-4-hydroxybenzaldehyde [121-32-4]

4 Empirical Formula and Molecular Weight

C₉H₁₀O₃ 166.17

5 Structural Formula



6 Functional Category

Flavoring agent.

7 Applications in Pharmaceutical Formulation or Technology

Ethyl vanillin is used in pharmaceutical preparations as an alternative flavoring agent to vanillin.

Ethyl vanillin possesses a flavor and odor approximately three times as intense as vanillin; hence the quantity of material necessary to produce an equivalent vanilla flavor may be reduced, causing less discoloration to a formulation and potential savings in material costs. However, exceeding certain concentration limits may impart an unpleasant, slightly bitter taste to a product due to the intensity of the ethyl vanillin flavor. See Table I.

Table I: Uses of ethyl vanillin.

Use	Concentration (%)
Foods and confectionery	0.002–0.025
Oral syrups	0.01

8 Description

Ethyl vanillin occurs as white or slightly yellowish crystals with a characteristic intense vanilla odor and flavor.

9 Pharmacopeial Specifications

See Table II.

10 Typical Properties

Boiling point 285°C

Density (bulk) 1.05 g/cm³

Flash point 127°C

Solubility see Table III.

Spectroscopy

NIR spectrum see Figure 1.

Table II: Pharmacopeial specifications for ethyl vanillin.

Test	USP 40–NF 35 S1
Identification	+
Melting range	76–78°C
Loss on drying	≤1.0%
Residue on ignition	≤0.1%
Assay (dried basis)	98.0–101.0%

Table III: Solubility of ethyl vanillin.

Solvent	Solubility at 20°C unless otherwise stated
Alkaline hydroxide solutions	Freely soluble
Chloroform	Freely soluble
Ethanol (95%)	1 in 2
Ether	Freely soluble
Glycerin	Soluble
Propylene glycol	Soluble
Water	1 in 250 1 in 100 at 50°C

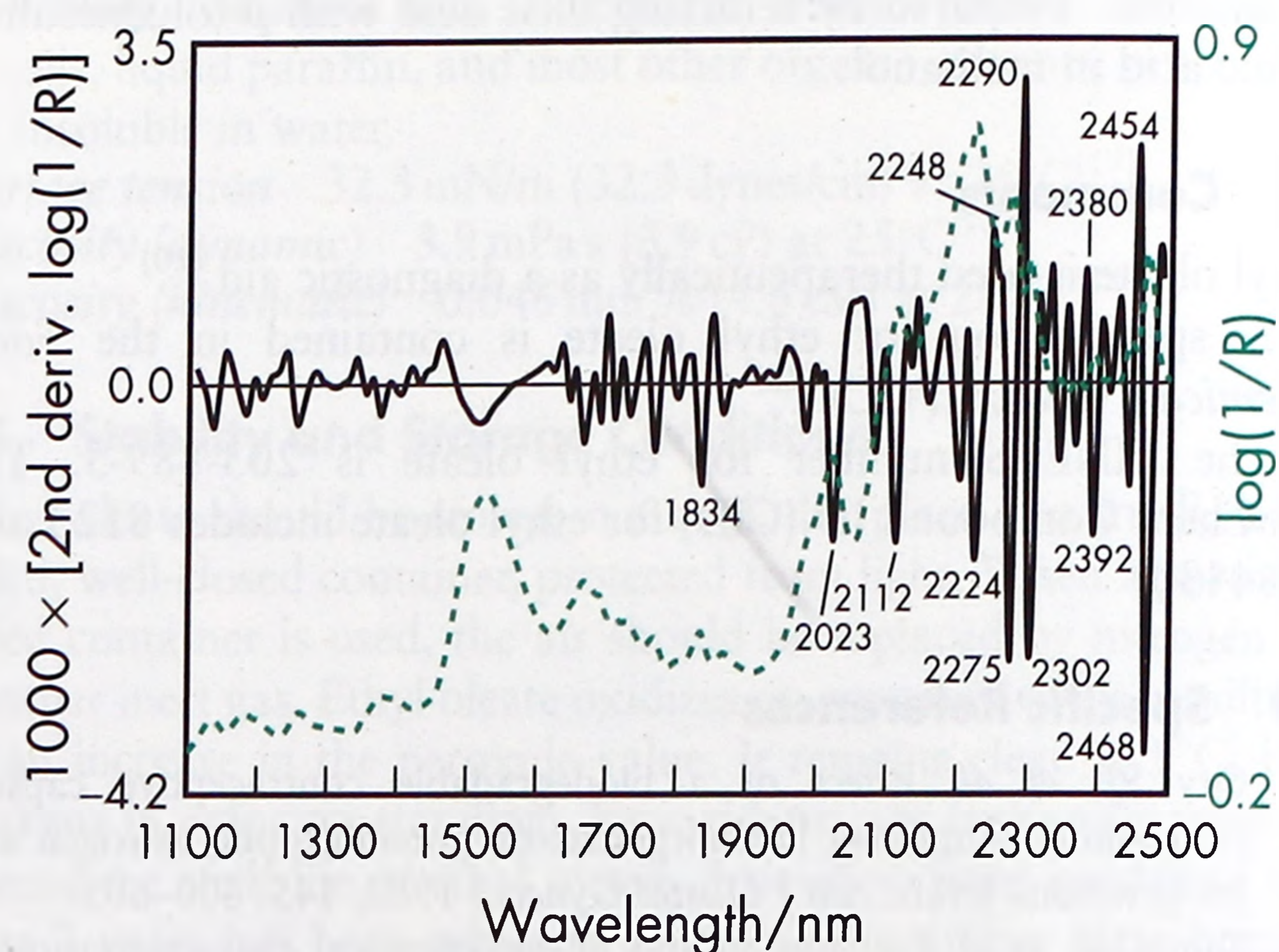


Figure 1: Near-infrared spectrum of ethyl vanillin measured by reflectance.

11 Stability and Storage Conditions

Store in a well-closed container, protected from light, in a cool, dry place. See Vanillin for further information.

12 Incompatibilities

Ethyl vanillin is unstable in contact with iron or steel, forming a red-colored, flavorless compound. In aqueous media with neomycin sulfate or succinylsulfathiazole, tablets of ethyl vanillin produced a yellow color.⁽¹⁾ See Vanillin for other potential incompatibilities.