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## Product Information

### 3,4-Dihydroxy-L-phenylalanine

Product Number **D 9628**

Store at Room Temperature

Replacement for Product Code **15,431-8**

#### Product Description

Molecular Formula:  $C_9H_{11}NO_4$

Molecular Weight: 197.2

CAS Number: 59-92-7

Melting Point: 276-278 °C (decomposition)<sup>1</sup>  $\lambda_{max}$ :

280 nm, 220.5 nm (0.001 N HCl)

Extinction Coefficient:  $E^{1\%}_{1cm} = 2.63$  (280 nm); 6.17 (220.5 nm)<sup>1</sup>

$pK_a(25\text{ }^\circ\text{C})$ : 2.3, 8.7, 9.7, 13.4<sup>2,5</sup>

Synonym: L-DOPA

L-3,4-Dihydroxyphenylalanine (L-DOPA), an antiParkinsonian agent, is the natural isomer of the immediate precursor to dopamine. L-DOPA is the product of the hydroxylation of L-tyrosine by tyrosine hydroxylase in brain and in adrenal medulla. This is the initial and rate limiting step in the biosynthesis of catecholamines (dopamine, norepinephrine, and epinephrine), which serve important biological functions as neurotransmitters and hormones.<sup>3</sup> The actions of L-DOPA are the same as dopamine, since dopamine is the product of the decarboxylation of L-DOPA. *in vivo*.<sup>4,6,7</sup>

The determination of acid metabolites of L-DOPA from urine by reversed-phase high-performance liquid chromatography (HPLC) has been reported.<sup>8</sup>

#### Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

#### Preparation Instructions

L-DOPA is slightly soluble in water (approximately 3.3 mg/ml) and in acidic and basic solutions. It is practically insoluble in ethanol.<sup>1-3,9</sup>

#### Storage/Stability

L-DOPA is unstable in aqueous alkali solution.<sup>10</sup>

Solutions should be freshly prepared since L-DOPA is rapidly oxidized by air and may darken on exposure to air and light.<sup>1,8</sup>

#### References

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8. Stroomer, A. E., et al., Simultaneous determination of acidic 3,4-dihydroxyphenylalanine metabolites and 5-hydroxyindole-3-acetic acid in urine by high-performance liquid chromatography. Clin. Chem., **36(10)**, 1834-1837 (1990).
9. Data for Biochemical Research, 3rd ed., Dawson, R. M. C., et al., Oxford University Press (New York, NY: 1986), p. 12-13.
10. Specifications and Criteria for Biochemical Compounds, 3rd ed., National Academy of Sciences (Washington, DC: 1972), p. 14.

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