



GB 5009.294-2023

National Food Safety Standard Determination of Tryptophan in Food

食品安全国家标准 食品中色氨酸的测定

National Health Commission of the People's
Republic of China
State Administration for Market Regulation

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National Standard of the People's Republic of China

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National Food Safety Standard

Determination of Tryptophan in Food

1 Scope

This standard specifies the determination method for tryptophan in foods.

This standard applies to the determination of tryptophan in infant formula, special medical purpose formula and cereal-based complementary foods for infants.

Method 1: Enzymatic hydrolysis-liquid chromatography

2 Principle

The sample is enzymatically hydrolyzed with protease, diluted with methanol-water, separated by a reversed phase liquid chromatography column, detected by a fluorescence detector or an ultraviolet detector, and quantified by the external standard method.

3 Reagents and materials

Unless otherwise specified, all reagents are of analytical grade and water is Grade-1 water as specified in GB/T 6682.

3.1 Reagents

3.1.1 Methanol (CH_3OH): chromatographically pure.

3.1.2 Acetic acid ($\text{C}_2\text{H}_4\text{O}_2$): chromatographically pure.

3.1.3 Ammonium acetate ($\text{C}_2\text{H}_7\text{NO}_2$): chromatographically pure.

3.1.4 Hydrochloric acid (HCl): 12 mol/L.

3.1.5 2-Amino-2-hydroxymethyl-1,3-propanediol ($\text{C}_4\text{H}_{11}\text{NO}_3$, Tris base).

3.1.6 Streptomyces griseus protease (Type XIV; derived from Streptomyces griseus): activity ≥ 3.5 U/mg.

3.2 Reagent preparation

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