

Information on Immobilized Arginine Enzyme (IA) Product

1. Basic Information of Immobilized Arginine Enzyme:

Enzyme Name: Immobilized Arginine Enzyme

Enzyme Number: EC 3.5.3.1

CAS Number: 9000-96-8

Product Form: Yellow or light yellow spherical particles

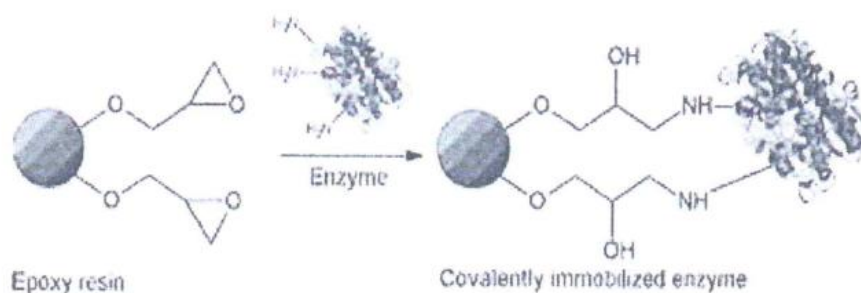
2. Description of Immobilized Arginine Enzyme:

2.1 Enzyme Working Principle:

The immobilized enzyme is composed of porous microspheres, with most of the enzyme proteins distributed on the surface of the pores. Substrate molecules (L-arginine) in the aqueous solution diffuse into the pores and come into contact with the enzyme proteins. Under the catalytic action of the enzyme, ornithine products are formed.

2.2 Principle of Immobilization Reaction:

The immobilized enzyme is immobilized by chemical bonding, where the amino groups on the surface of the enzyme protein are chemically bonded to porous polymer microspheres. The principle of immobilization reaction is as follows:



2.3 Structure of Immobilized Enzyme:

The immobilized enzyme consists of enzyme proteins and a high-molecular-weight carrier. The enzyme protein is the active component, which is a protein with catalytic activity obtained through genetic engineering, fermentation, and purification of *Escherichia coli*. The carrier is a porous spherical particle with a poly(methyl methacrylate) backbone. The carrier is functionalized with epoxy groups that bind to the amino groups of the enzyme, resulting in immobilized enzyme formation. The carrier serves as a support to facilitate the separation of the enzyme protein from the reaction solution, making the enzyme easy to recover.

3. Quality Control of Immobilized Arginine Enzyme:

The production process primarily monitors the enzyme activity to ensure that the product possesses the required activity.

固定化精氨酸酶（IA）产品相关资料

1、固定化精氨酸酶基本信息

酶名称：固定化精氨酸酶

酶编号：EC 3.5.3.1

CAS 号：9000-96-8

产品形状：黄色或浅黄色球形颗粒

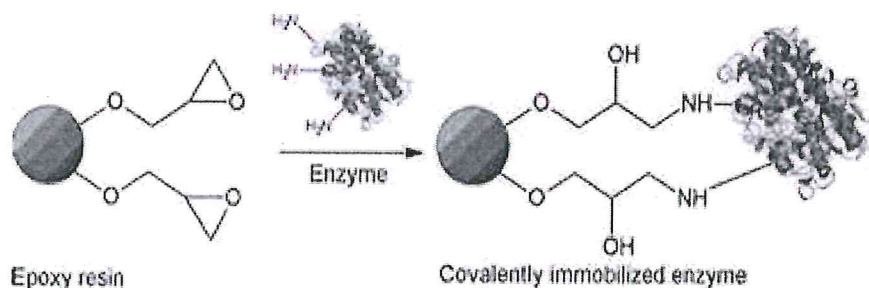
2、固定化精氨酸酶说明

2.1 酶工作的原理

该固定化酶为多孔微球，酶蛋白大多分布于孔道表面，水溶液中的底物分子（L-精氨酸）扩散至孔道中与酶蛋白接触，在酶的催化作用下形成鸟氨酸产物。

2.2 固定化反应原理

固定化酶是采用化学键结合的固定化方式即酶蛋白表面的氨基通过化学键结合于多孔高分子微球上，固定化原反应原理如下：



2.3 固定化酶的结构

固定化酶由酶蛋白和高分子载体两部分组成。酶蛋白为活性部分，是一种具有催化作用的蛋白质，经基因工程大肠杆菌发酵、提取纯化而获得。载体为聚甲基丙烯酸酯为骨架的多孔球形颗粒。载体含环氧基功能基团与酶的氨基结合成固定化酶。载体作为支撑物以便于酶蛋白与反应液分离，使酶易于回收。

3、固定化精氨酸酶的质量控制

生产过程主要监测酶活性，以确保产品具备所需的活性。

湖南福来格生物技术有限公司

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