PITC (Edman’s Reagent)

Number Description
26922 PITC (Edman’s Reagent), 10 × 1mL
Molecular Weight: 135.19
Formula: C₇H₅NS

Storage: Upon receipt store at room temperature.

Introduction
Thermo Scientific PITC (phenylisothiocyanate), also known as Edman’s Reagent, enables the sequential degradation of amino acids in a polypeptide chain, yielding primary structural information.¹⁻² PITC reacts readily with amino acids at alkaline pH. Pre-column derivatization results in phenylthiocarbamyl derivatives (PTC-amino acids) that can be separated and quantified using reverse-phase HPLC.³⁻⁶ This method produces stable products with all amino acids, including proline. PITC is volatile, making it possible to remove excess reagent in vacuo, thereby minimizing the possibility of reagent interference. Detection of picomole quantities of the derivatives can be achieved using a UV detector at 254nm. PITC derivatization followed by reverse-phase chromatography can be used for identification and quantitation of methylated, halogenated, phosphorylated and sulfonated amino acids.⁶

Unlike Fmoc-chloride, PITC does not yield disubstituted tyrosine or histidine derivatives. PTC-amino acids demonstrate improved stability at pH 5-7.5 as well as increased stability at room temperature over o-phthalaldehyde (OPA)-amino acid adducts. Also, unlike OPA, PITC enables the direct analysis of secondary amino acids.

Example Protocol for Derivatizing Amino Acid Standard H

A. Additional Materials Required
- Amino Acid Standard H (Product No. 20088, 10 × 1mL, or Product No. 20089, 10mL)
- Coupling Solution: acetonitrile:pyridine:triethylamine:water (10:5:2:3)
- Analysis Solvent: 0.05M ammonium acetate or water:acetonitrile (7:2)

B. Method
1. Dry 10μL of Amino Acid Standard H in a small test tube. Dissolve dried standard in 100μL Coupling Solution.
   Note: Make sure that all of the HCl is evaporated before derivatization.
2. Dry standard solution by rotary evaporation. Dissolve the residual amino acids again in 100μL Coupling Solution.
3. Add 5μL of PITC and allow reaction to proceed for 5 minutes at room temperature.
4. Evaporate sample to dryness by rotary evaporation under high vacuum.
5. Dissolve the resulting PTC-amino acids in 250μL of Analysis Solvent.
6. Analyze 1-10μL (100 to 1000pmol of each amino acid) by reverse-phase HPLC with UV detection at 254nm.
Related Thermo Scientific Products

25104  Pyridine, 100g
51101  Acetonitrile, 1L
28901  Trifluoroacetic Acid, 500mL
25003  Heptafluorobutyric Acid, 100mL

Cited References


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No other warranties, express or implied, are granted, including without limitation, implied warranties of merchantability, fitness for any particular purpose, or non infringement. Buyer’s exclusive remedy for non-conforming Products during the warranty period is limited to replacement of or refund for the non-conforming Product(s).

There is no obligation to replace Products as the result of (i) accident, disaster or event of force majeure, (ii) misuse, fault or negligence of or by Buyer, (iii) use of the Products in a manner for which they were not designed, or (iv) improper storage and handling of the Products.

Current product instructions are available at [www.thermoscientific.com/pierce](http://www.thermoscientific.com/pierce). For a faxed copy, call 800-874-3723 or contact your local distributor.

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