

# 高效液相色谱-间接光度检测法测定己内酰胺酸团中的正己烷含量

李立南, 段正康\*, 曾红艳, 贺玉平, 陈秋云

湘潭大学化工学院 化工过程模拟与优化教育部工程研究中心, 湖南 湘潭 411105

## Determination of hexane in the acid cluster of caprolactam by high performance liquid chromatography with indirect photometric detection

LI Linan, DUAN Zhengkang\*, ZENG Hongyan, HE Yuping, CHEN Qiuyun

Engineering Research Center of Chemical Process Simulation and Optimization of Ministry of Education, College of Chemical Engineering, Xiangtan University Xiangtan 411105, China

摘要	参考文献	相关文章
----	------	------

Download: PDF (152KB) [HTML](#) 1KB Export: BibTeX or EndNote (RIS) Supporting Info

**摘要** 采用在流动相中添加有紫外吸收的本底试剂的方法,利用高效液相色谱-间接光度检测法直接测定己内酰胺酸团中无紫外吸收的正己烷含量。考察了流动相组成、本底试剂的种类和浓度、波长梯度等对测定的影响。确定的高效液相色谱条件: 色谱柱为Agilent HC-C18柱(250 mm×4.6 mm, 5 μm),流动相为含1.17 mmol/L 1,5-萘二磺酸(本底试剂)的甲醇-水(85: 15, v/v)溶液,柱温为35 ℃,流速为1.0 mL/min,并采用设定波长梯度的方法调整系统峰和被测峰的相对大小。该分析方法的线性范围为0.5~20 mg/kg,相关系数为0.99993,相对标准偏差为2.53%,检出限为0.03 mg/kg,加标回收率为98.45%~102.3%。方法简单,选择性好,灵敏度高,抗干扰强,可快速准确地测定实际样品中的正己烷。

**关键词:** 高效液相色谱 间接光度检测 紫外检测 本底试剂 正己烷 己内酰胺酸团

**Abstract:** An indirect photometric detection method for the determination of hexane in the acid cluster of caprolactam by high performance liquid chromatography was developed. Ultraviolet (UV) absorption background reagents were added in the mobile phase, and the hexane, non-absorption in ultraviolet region, was directly determined by a UV detector. The effects of the mobile phase composition, species and concentration of the background reagents etc. on the analyzed results were studied. The optimization of the separation was performed on an Agilent HC-C18 column (250 mm×4.6 mm, 5 μm). A solution of methanol-water (85: 15, v/v) containing 1.17 mmol/L 1,5-naphthalene disulfonic acid was used as mobile phase at a flow rate of 1.0 mL/min and the column temperature was set at 35 ℃. The gradient of wavelength was adopted to adjust the relative size of systematic peaks and the target peaks. The linear relationship in the range of 0.5~20 mg/kg with a correlation coefficient of 0.99993 in this method was obtained. The recoveries and relative standard deviation for the hexane in the acid cluster of caprolactam were 98.45%~102.3% and 2.53%, respectively. The detection limit was 0.03 mg/kg. The method is simple, and has good selectivity, high sensitivity and strong anti-interference ability for the accurate determination of hexane in practical samples quickly.

**Keywords:** high performance liquid chromatography (HPLC) indirect photometric detection ultraviolet detection background reagents hexane acid cluster of caprolactam

Received 2010-09-19; published 2011-01-21

Fund:

湖南省科技厅项目(No. 2009FJ3043).

Corresponding Authors: 段正康, 硕士, 教授, 主要研究方向为工业分析方法开发、精细化工产品合成及定性定量分析方法建立. E-mail: dzk0607@163.com. Email: dzk0607@163.com

引用本文:

李立南, 段正康\*, 曾红艳, 贺玉平, 陈秋云. 高效液相色谱-间接光度检测法测定己内酰胺酸团中的正己烷含量[J] 色谱, 2011, V29(01): 87-90

LI Linan, DUAN Zhengkang\*, ZENG Hongyan, HE Yuping, CHEN Qiuyun. Determination of hexane in the acid cluster of caprolactam by high performance liquid chromatography with indirect photometric detection[J] Chinese Journal of Chromatography, 2011, V29(01): 87-90

链接本文:

http://www.chrom-china.com/CN/10.3724/SP.J.1123.2011.00087 或 http://www.chrom-china.com/CN/Y2011/V29/I01/87

Service

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ Email Alert
- ▶ RSS

作者相关文章

- ▶ 李立南
- ▶ 段正康
- ▶ 曾红艳
- ▶ 贺玉平
- ▶ 陈秋云