

用。

3 结 语

模拟移动床技术是分离技术的一次革新,是一种真正的连续制备色谱技术,它的出现使色谱分离产生了新的飞越^[18]。由于其分离效率高、连续操作、填料和洗脱剂消耗少,以及可实现调节和控制自动化的诸多优点,在氨基酸工业中引起人们的广泛关注,在其中正扮演着越来越重要的角色。

并且随着 SMB 与其他单元操作的结合,如 SM-BR(模拟移动床反应器)、SF-SMB(超临界流模拟移动床)等,赋予了 SMB 更强大的威力,使其成为氨基酸分离领域中最有前景的一门技术。

参 考 文 献

- 1 张伟国,钱和.氨基酸生产技术及其应用[M].北京:中国轻工业出版社,1997
- 2 达世禄.色谱学导论[M].武昌:武汉大学出版社,1988
- 3 彭奇均,徐玲.制备色谱分离技术的现状和发展[J].离子交换与吸附,2001,17(1):88~96
- 4 姜志新.离子交换分离工程[M].天津:天津大学出版社,1993
- 5 Satinder Ahuja. Handbook of Bioseparations[M]. San Diego: Academic Press, 2000
- 6 Markus Juza. Simulated moving-bed chromatography and its application to chirotechnology[J]. Tibtech March, 2000

(18):108~118

- 7 Ruthven D M. Principles of Adsorption and Adsorption Processes[M]. New York: Wiley, 1984
- 8 DuKneebier G. Modelling and simulation of nonlinear chromatographic separation processes[J]. Chem Eng Sci, 2000(55)(2):373~380
- 9 Ganetsons, Barker P E. preparative and Production Scale Chromatography[M]. New York: Marcel Dekker Inc, 1993. 303
- 10 Pais L S, Loureiro J M, Rodrigues A E. Separation of enantiomers of a chiral epoxide by simulated moving bed chromatography[J]. J Chromatography A, 1999, 45(7):1411~1421
- 11 <http://www.Knauer.com>
- 12 <http://www.novasep.com>
- 13 Zhong G, Guiochon G. Analytical solution for the linear ideal model of simulated moving bed chromatography[J]. Chem Eng Sci, 1996(51):4307~4321
- 14 Storti G, Mazzotti M, Morbidelli M et al. Robust design of binary counter-current adsorption separation processes[J]. AIChE J, 1999(39):471~479
- 15 Ma Z, Wang N. Standing Wave Analysis of SMB Chromatography: Linear Systems[J]. AIChE J, 1997(43):2488~2452
- 16 王弘,齐秀兰,李福得.紫外诱变原生质体选育赖氨酸高产菌株[J].生物工程学报,1990,6(1):32~35
- 17 <http://www.astec.com/>
- 18 Barker P E. Chemical and Biochemical Separation Using Preparative and Large Scale Batch and Continuous Chromatography Process[J]. Separation & Purification Methods, 1988, 17(1):1~65

The Application of SMB Technology on Amino Acid Industry

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ABSTRACT Simulated Moving Bed(SMB) is an advanced separation technology. It has recently drawn attentions of being used as a method of continuous preparative separation process. This paper addresses the basic principle, model set-up and simulation and optimization of operate-condition in SMB unit. And its application on amino acid industry has been discussed with a brief introduction of its current progress.

Key words Simulated Moving Bed(SMB), amino acid industry, preparative chromatography

信息窗

荷兰开发出生产高品质香料的膜技术

经过近 10 年的努力,荷兰科学家开发出一种新型的膜技术,可以生产高浓度、新鲜的天然食品香料。这种膜技术又称全蒸发技术,对特殊挥发性物质有极高的选择性,可分离出各种香味系列。产品具有极强的市场竞争力和高附加值。

据科学家介绍,与当前的技术相比,新技术在膜系统中使用了含有硅的聚合物,使生产的香料更细腻。同时使用该技术后,不需要再使用在香料提取中曾广泛使用的有机溶剂,加工过程也不需要高温来分离提取物。从而避免了产品受污染的危险,使产品更新鲜、更真实。

该技术一次可生产 1 L 至几升的香料浓缩物,可供水果、啤酒、药材、鲜花、咖啡、茶等香料提取物的生产者生产品质更上乘的香料产品。据悉,该技术目前已由荷兰一家大的果汁生产公司采用。