

- [48] Feng, X. D., Song, C. X., Chen, H. Y., *J. Polym. Sci., Polymer Letters Ed.*, 1983, 21, 593.
- [49] Albin, G., Horbett, T. A., Ratner, B. D., *J. Controlled Release*, 1985, 2, 153.
- [50] Hoffman, A. S., Afrassiabi, A., and Dong, L. C., *J. Controlled Release*, in press.
- [51] Afrassiabi, A., Hoffman, A. S., Cadwell, L. A., *J. Membr. Sci.*, in press.
- [52] 国外药学, 1986, 3, 187.
- [53] *Science*, 1980, 209(4463), 全期.
- [54] Hoffman, A. S., *ChemTech*, 1986, July, 426.
- [55] Hoffman, A. S., *Pure Appl. Chem*, 1984, 56(10), 1329.
- [56] Brooks, D. E., *Biotechnology*, 1983, 1(8), 668.

Applications of Polymers in Bioengineering

SUN Yanhui

(Chemistry Department, Peking University, Beijing)

Summary There is a wide variety of polymers which are used in bioengineering field. In general, they are known as polymeric biomaterials. One important application of biomaterials is in medicine. Another usage of biomaterials is in biotechnology. Polymeric biomaterials may be generally categorized according to the polymer properties. They may also be classified based on the different applications, such as in vivo polymers, ex vivo polymers and in vitro polymers. This paper mainly reviews recent developments of antithrombogenic materials, polymers in drug system and polymers in biotechnology. The new research trends in the above fields have been summarized.

Key words Polymeric biomaterial, antithrombogenic materials, controlled release drug, biotechnology

直接制造高分子格氏试剂

Ottawa和Cornell大学的化学家首次实现在不溶性聚合物上直接形成格氏试剂[J. Org. Chem, 52, 4644(1987)]。Ottawa大学的J. M. J. Fréchet说, 以前直接把高分子的卤化物RX氧化加成于金属镁生成相应的格氏试剂RMgX没有成功是因为高分子卤化物和金属镁都是不溶的固体, 无法互相接触和反应。他们的成功

是肇源于用一种已知的镁与蒽和四氢呋喃的可溶性络合物。这种络合物在室温下与交联的氯甲基化聚苯乙烯反应给出90%产率的格氏试剂。高分子的溴化树脂也能起此反应, 但产率较低。这种聚合型的RMgX试剂有潜力用于制备各种新功能基聚合物 Fréchet 的小组成员还有 S. Itsuno, G. D. Darling和 H. D. H. Stöver.

C&EN, Oct. 19, (1987), p. 29