

气相色谱法测定非离子型纤维素醚中取代基含量

Determination of substitution in non-ionic cellulose ether by gas chromatography

Properties of nonionic cellulose ether

Nonionic cellulose ether soluble in water do not dissociate, lipophilic groups and ionic surfactants in the molecular lipophilic groups roughly the same, the hydrophilic group is mainly by a certain amount of oxygen-containing functional groups such as hydroxyl and polyoxyethylene chain constitute. Over the past 20 years, the development of non ionic cellulose ether is very rapid, more and more widely used in the next few years will continue to maintain this momentum. The nonionic cellulose ether in solution is not as ionic state exists, so its stability is high, is not affected by the existence of strong electrolytes. It is not easy to acid, alkali, and other kinds of surface active agent can be mixed use, good compatibility and in various solvents have good solubility and on the solid surface does not occur strongly adsorbed. Non ionic cellulose ethers are mostly liquid and pulp, and its solubility in water decreases with the increase of temperature. Nonionic cellulose ether has good washing, dispersion, emulsification, foaming, wetting, solubilization, antistatic, leveling, anti corrosion, bactericidal and protective colloid, a variety of performance, widely used in textile, papermaking, food, plastics, leather, fur, glass, petroleum, chemical fiber, medicine, pesticides, paints, dyes, chemical fertilizer, film, photography, metal processing, mineral processing, building materials, environmental protection, makeup, fire protection and agriculture.

Nonionic cellulose ether, including methyl cellulose (MC), hydroxypropyl methyl cellulose (HPMC), hydroxyethyl cellulose (HEC). These materials are used in medicine, food, petroleum and so on widely. Due to replace the base content for nonionic cellulose ether material properties have great influence. Therefore, it is a need for accurate and rapid determination of its take substitution in.

Tengzhou City Xiangying Analysis Technology Co., Ltd. the XiangyingGC7990plus gas chromatographic method for the determination of nonionic cellulose ether substituents and on the determination results and in consuming operation, accuracy, repeatability, and cost etc. and chemical titration method are compared, and discussed the effect of column temperature and column length chromatographic conditions on the separation effect.

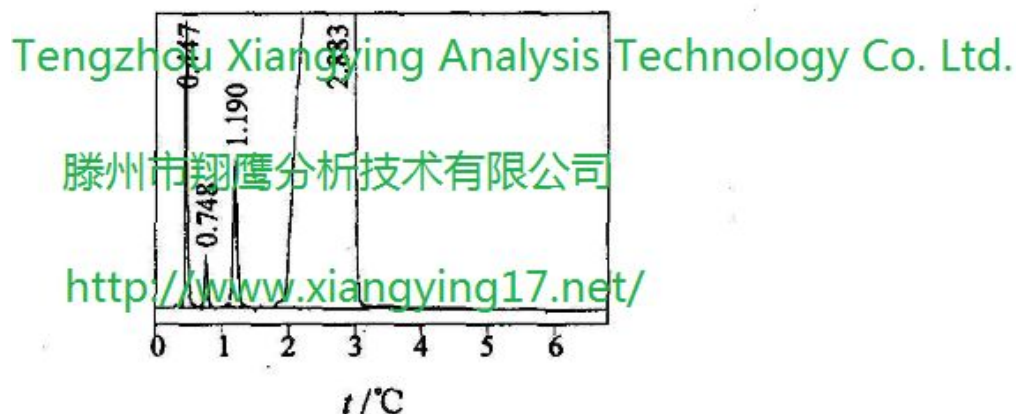
The results show that gas chromatography is a kind of analytical method which is worth popularizing.

非离子型纤维素醚的性质

非离子纤维素醚溶于水时不发生解离，其分子中的亲油基团与离子型表面活性剂的亲油基团大致相同，其亲水基团主要是由具有一定数量的含氧基团（如羟基和聚氧乙烯链）构成。近 20 多年来，非离子型纤维素醚发展极为迅速，应用越来越广泛，今后数年仍会保持这一势头。由于非离子纤维素醚在溶液中不是以离子状态存在，所以它的稳定性高，不易受强电解质存在的影响，也不易受酸、碱的影响，与其他类型表面活性剂能混合使用，相容性好，在各种溶剂中均有良好的溶解性，在固体表面上不发生强烈吸附。非离子纤维素醚大多为液态和浆状态，它在水中的溶解度随温度升高而降低。非离子纤维素醚具有良好的洗涤、分散、乳化、起泡、润湿、增溶、抗静电、匀染、防腐蚀、杀菌和保护胶体等多种性能，广泛地用于纺织、造纸、食品、塑料、皮革、毛皮、玻璃、石油、化纤、医药、农药、涂料、染料、化肥、胶片、照相、金属加工、选矿、建材、环保、化妆、消防和农业等各方面。

非离子型纤维素醚包括甲基纤维素(MC)、羟丙基甲基纤维素(HPMC)、羟乙基纤维素(HEC)等, 这些材料在医药、食品、石油等方面应用广泛。由于取代基含量对于非离子型纤维素醚材料的性能有很大的影响, 因此很有必要准确、快速地测定其取代基含量。

滕州市翔鹰分析技术有限公司采用 XiangyingGC7990plus 气相色谱法测定非离子型纤维素醚中取代基的含量, 对测定结果及在耗时、操作、准确性、重复性、成本等方面与化学滴定法进行比较, 并讨论了柱温和柱长等色谱条件对分离效果的影响。结果表明, 气相色谱法是一种值得推广的分析手段。



HPMC 样品溶液的气相色谱图

XiangyingGC7990plus features:

- 1 excellent performance, competitive price, to meet the customers' choice
- 2 multi industry adaptability
- 3 outstanding performance in all kinds of harsh environment

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A variety of sampling ports can be equipped with: packed column inlet, shunt / non shunt capillary inlet,

Hydrogen flame ionization detector (FID)

Maximum use temperature: 400

The minimum detection limit: $-12 = 2.5 \times 10^{-12}$ g/s (n-C16)

Linear range: 107 (+ 10%)

XiangyingGC7990plus 特点:

1. 卓越的性能，具有竞争力的价格，满足广大客户的选择
2. 多行业适应性
3. 在各种苛刻环境下均表现出色

进样口

多种进样口可配：填充柱进样口、分流/不分流毛细管进样口、
氢火焰离子化检测器 (FID)

最高使用温度：400°C

最小检出限： $\leq 2.5 \times 10^{-12}$ g/s (n-C16)

线性范围：107 (±10%)