

旗舰型离子色谱

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摘要：应用高效液相色谱-电喷雾/质谱(HPLC-ESI/MS)分析88支市售蓝色圆珠笔油墨。液相色谱分离采用Xterra MS C18柱，等度洗脱，正、负离子模式电离，结果表明油墨中含有碱性品蓝、罗丹明B、甲基紫、结晶紫、碱性艳蓝B、碱性艳蓝B0等碱性染料。实验发现碱性品蓝、碱性艳蓝B、碱性艳蓝B0和罗丹明B会发生脱烷基作用，证实油墨中含有新染料成分维多利亚蓝4R(Solvent Blue 2)。根据油墨中存在的染料成分将88支市售蓝色圆珠笔分成九类，为进一步鉴定圆珠笔书写时间，进而建立圆珠笔油墨库创造有利条件。

关键词：蓝色圆珠笔油墨, 高效液相色谱-电喷雾/质谱, 染料, 分类

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[Study the classification of blue ballpoint pen inks by HPLC-ESI/MS](#)

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Abstract: The organic dye components of blue ballpoint pen inks were analyzed by high performance liquid chromatography-electrospray spray ionization mass spectrometry(HPLC-ESI/MS). The Waters Xterra MS C18 column was used under isocratic conditions and the mass spectra was acquired in positive and negative ion mode. The results showed that basic dyes, such as Tetramethyl ParaRosaniline, Rhodamine B, Methyl violet, Crystal violet, Victoria Blue B and Victoria Blue B0, were detected in inks. It has been found that Tetramethyl ParaRosaniline, Victoria Blue B, Victoria Blue B0 and Rhodamine B would be dealkylated. Furthermore new component dye of the blue ballpoint pen inks, Victoria Blue 4R(Solvent Blue 2), was identified by HPLC-ESI/MS. All the 88 ballpoint pen inks from different manufacturers were classified into nine different groups according to disparities of their dye components. This method provides useful information for the determination of writing time and the creation of the ballpoint pen ink library.

Key words: Blue ballpoint pen inks, HPLC-ESI/MS, Dyestuffs, Classification

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