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橡胶防老剂RD的GC/MS研究

@李前荣\$中国科学技术大学结构分析重点实验室!安徽合肥230026 @尹浩\$中国科学技术大学结构分析重点实验室!安徽合肥230026

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摘要 采用气相色谱 (GC/MS)法对橡胶防老剂 RD(2,2,4-三甲基-1,2-二氢化喹啉多聚体)进行了测试和分析。总离子色谱质谱图 (TIC)表明:多聚体 RD中二聚体含量最高,热稳定性最好。质谱分析表明:RD容易失去甲烷分子和甲基形成共轭体的离子,二聚体和三聚体容易形成二聚体的衍生物离子。采用气相色谱-质谱(GC/MS)可使不同分子量的所有多聚体的分子离子峰都出现。给出了 RD分子以及单体的质谱裂解途径

关键词 [质谱学](#) [防老剂RD气相色谱-质谱\(GC/MS\)研究](#) [低聚物](#) [热稳定性](#)

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Study on Antioxidant RD by GC/MS

LI Qian-rong, YIN Hao (Structu

Abstract The antioxidant RD, widely used for rubber, has been determined and analyzed by GC-TOF-MS and TOF-MS using EI (electron ionization) source. It is found from TIC of GC-EI MS that the amount of dipolymer in RD is the largest with best thermal stability. Mass spectra has showed that it is easy to lose a methane molecule and a methyl group from each molecular ion in RD forming a conjugated ion; both di- and tripolymer often crack into a derivative ion of the dipolymer. The molecular ion peaks of all pleionomers in RD with different molecular weight can be appeared in the mass spectrum by heating gradually, from 100 °C to 600 °C of temperature during aquisition, introducing the solid sample RD with probe directly. Possible EI fragmentation pathways of RD and its monomer molecules have been presented and discussed. Therefore, this study forms the basis for the characterization of this kind of products and related classes of pleionomer molecules.

Key words [mass spectrometry](#) [study on antioxidant RD by gas chromatography-time of flight-mass spectrometer\(GC-TOF-MS\)](#) [pleinomer](#) [thermal stability](#)

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通讯作者

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