质谱学报 1994 15 (4): 43-48 ISSN: 1004-2997 CN: 11-2979/TH

用MID/GC/MS检测原油和烃源岩抽提物中金刚烷类化合物及其地质意义探索

@赵红，王占生，朱俊章，陈奇，王培荣$江汉石油学院分析测试研究中心

收稿日期 修回日期 网络版发布日期:

摘要 用ＭＩＤ／ＧＣ／ＭＳ方法检测原油中微量金刚烷类化合物已有报导，本文的进展在于在临界成熟（Ｒｏ０．４８％）的烃源岩抽提物中检出痕量的单金刚烷类化合物和在我国高成熟原油中不仅检出单、双金刚烷类且检出了叁金刚烷类化合物，从而扩大了我国原油中检出金刚烷类化合物的种类和成熟度区间，对其地质意义也作了初步探讨，提出原油和烃源岩抽提物中金刚烷类化合物的形成可能不仅受热力作用的控制，酸催化作用即烃源岩岩性的影响也不容忽视，这对探索用金刚烷类化合物确定原油成熟度方面的应用研究无疑有重要的意义。

关键词 ＭＩＤ／ＧＣ／ＭＳ 有机地球化学 金刚烷类化合物

分类号

Abstract MID/GC/MS Analysis and Geological Significance of Diamondoid Hydrocarbons in Oil and Extract of Source Rock$$$$Zhao Hong; Wang Zhansheng; Zhu Junzhang; Chen Qi; Wang Peirong(The Organic Geochemistry Research Center,Jianghan Petroleum Institute,Jiangling 434102,Hubei,China)Received 1994-07-20Abstract:It has been reported that low level concentration of diamondoid hydrocarbons incrude oils are detected by MID/GC/MS. In present paper the trace compounds of theadamantane series detected in the extract of marginal mature source rock (Ro 0. 48%)and not only the adamantane and diamantane but also the triamantane series detected in high mature crude oil are reported,and thus expanding the class and maturity period ofthe diamondoid hydrocarbons can be detected in crude oils of China. In addition, the geological significance of these compounds are approached, it has been proposed that theformation of the diamondoid hydrocarbons in crude oil and extract of source rock maynot merely be controlled by the thermodynamic action, acid catalysis, that is, effect oflithological character of source rock on its formation should not be neglected to.o. Undoubtedly,there are great significance for research about detemining the maturity of thecrude oil with diamandiod hydrocarbons.Keywords: MID/GC/MS, organic geochemistry, diamondoid.

Key words

DOI

通讯作者