

Accepted Manuscript

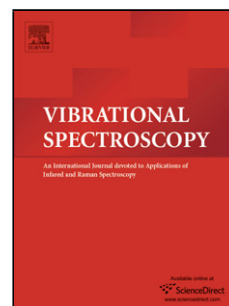
Title: Vibrational spectroscopy assessment of kerogen maturity in organic-rich source rocks

Author: Lucia Bonoldi Lea Di Paolo Cristina Flego

PII: S0924-2031(16)30203-X
DOI: <http://dx.doi.org/doi:10.1016/j.vibspec.2016.08.014>
Reference: VIBSPE 2611

To appear in: *VIBSPE*

Received date: 9-10-2015
Revised date: 25-8-2016
Accepted date: 25-8-2016



Please cite this article as: Lucia Bonoldi, Lea Di Paolo, Cristina Flego, Vibrational spectroscopy assessment of kerogen maturity in organic-rich source rocks, *Vibrational Spectroscopy* <http://dx.doi.org/10.1016/j.vibspec.2016.08.014>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Vibrational spectroscopy assessment of kerogen maturity in organic-rich source rocks

Lucia Bonoldi*, Lea Di Paolo, Cristina Flego

eni S.p.A. Research & Technological Innovation , 20097 San Donato Milanese, Italy

(* *lucia.bonoldi@eni.com*)

Abstract

Source rocks are sedimentary rocks containing organic matter. In order to evaluate if a source rock is suitable for economical exploitation, the evaluation of many factors is required, among which the most important are concentration of the organic matter and its quality (e.g. kerogen type and thermal maturity) that evolves following temperature and pressure over burial history. The most commonly used techniques to characterize the thermal maturity of organic matter are the maximum pyrolysis temperature of generated hydrocarbons and the reflectance of vitrinite macerals (%Ro). The limitations to the applicability of these analyses is the driving force to develop new methods and in particular spectroscopic ones. In this work the maturity of different kerogens (i.e. solid organic matter entrapped into rocks), both naturally and artificially aged, is determined by Raman and Attenuated Total Reflection-InfraRed (ATR-IR) spectroscopies, applied directly to source rocks. The parameterization of spectra by suitable variables proved to allow evaluating kerogen maturity with the best reliability at lower rank for ATR-IR and at higher rank for Raman analysis. Good correlations were obtained between Raman and ATR-IR spectroscopic parameters and the above mentioned vitrinite reflectance (%Ro).

Keywords: Raman spectroscopy, Attenuated Total Reflection IR spectroscopy, kerogen , vitrinite reflectance, thermal maturity

Download English Version:

<https://daneshyari.com/en/article/7690998>

Download Persian Version:

<https://daneshyari.com/article/7690998>

[Daneshyari.com](https://daneshyari.com)