

71

Accession number:20115214650194

Title:Study on tera-hertz time-domain spectroscopy of three kinds of pyrotechnic oxidants

Authors:Huang, Ping (1); Shi, Wei-Fan (1); Qian, Xin-Ming (1); Liu, Zhen-Yi (1); Qin, Pei-Yao (2)

Author affiliation:(1) State Key Laboratory of Explosion Science and Technology, Beijing Institute of Technology, Beijing 100081, China; (2) CNOOC Energy Technology and Service-Oilfield Technology Services, Oilfield Chemistry Branch, Tianjin 300452, China

Corresponding author:Huang, P.(ph6111@bit.edu.cn)

Source title:Beijing Ligong Daxue Xuebao/Transaction of Beijing Institute of Technology

Abbreviated source title:Beijing Ligong Daxue Xuebao

Volume:31

Issue:11

Issue date:November 2011

Publication year:2011

Pages:1370-1374

Language:Chinese

ISSN:10010645

CODEN:BLXUEV

Document type:Journal article (JA)

Publisher:Beijing Institute of Technology, No.5 Zhongguancun Nanda Street, Haidian District, Beijing, 100081, China

Abstract:The absorption spectra of pyrotechnics oxidants of KClO_3 , KClO_4 and KNO_3 , in the frequency range between 0.2 and 2.5 THz, are calculated using quantum chemistry method. The experimental result obtained from THz time-domain spectroscopy system gives the detailed localities of the characteristic peaks of concerned oxidants. The experiment also provides the absorption spectrum of pyrotechnics which contains KClO_4 between 0.2 and 2.5 THz. The characteristic peak of KClO_3 is located at 2.4 THz. The characteristic peaks of both KClO_4 and pyrotechnics which contain KClO_4 are located at 2.0 and 2.2 THz. The characteristic peaks of KNO_3 are located at 1.8 and 2.3 THz. Compared with experiment results, all the evidences indicate that KClO_3 , KClO_4 and KNO_3 have distinct characteristic spectroscopic peaks, which agree with the results of analog calculation.

Number of references:11