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Interactional Mechanism Between Laser and Energetic Compound

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Abstract: The absorption spectra of some primary explosives and explosives were measured, and their laser sensitivities were compared with the different wavelengths laser testes. The results show that there are continuous absorbing peak for DACP in ultraviolet-visible wave, and the laser sensitivity is remarkably increased with 635 nm laser. In 532-1060 nm, there is no relation between BNCP sensitivity and wave. Many new complex compounds have quite high laser sensitivity to 915 nm. According to testing phenomena and results, it is considered that the different laser wavelength shall lead to the different exploding mechanism of compound. If the laser is in ultraviolet-visible wave, photons activate choicely electron energy level or destroy weak bond of compound molecule, and result in chemistry reaction, which is photo leading decomposition mechanism. If the laser is in infrared wave, the chemistry reaction mainly is heat decomposition mechanism.

Key words: physical chemistry; complex compound; primary explosive; absorption spectra; laser sensitivity; reaction mechanism

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征订启事

固体火箭技术
JOURNAL OF SOLID ROCKET TECHNOLOGY

ISSN 1006-2793
CN 61-1176/V
CODEN GHJIFL

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