

Abstract Submitted  
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**A Far- and Mid-Infrared Study of HMX (octahydro- 1,3,5,7-tetranitro-1,3,5,7-tetrazocine) under High Pressure**<sup>1</sup> MICHAEL PRAVICA, MARTIN GALLEY, EUNJA KIM, University of Nevada, Las Vegas (UNLV), PHILLIPE WECK, ZHENXIAN LIU, Geophysical Laboratory, Carnegie Institution of Washington — We report two separate synchrotron FTIR measurements of the high explosive HMX at ambient temperature and static high pressure in the far- (100-500 wavenumbers) and mid- (500-3200 wavenumbers) infrared (IR) regions up to 30 GPa. The sample for the far-IR experiment was loaded with no pressure-transmitting medium and the sample for the mid-IR study utilized a KBr pressurizing medium. Two possible phase transitions from beta-HMX at ambient conditions were observed near 5 and 12 GPa (likely into the epsilon phase). A phase transition was observed near 25 GPa probably into the delta phase. Pressure cycling in both experiments found no irreversible damage within this pressure range.

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