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SMP044-05

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## Simultaneous measurements of density and elastic wave velocities of NaCl at high pressures: absolute pressure scale

Yoshihiro Okamoto<sup>1</sup>, Masanori Matsui<sup>1\*</sup>, Yuji Higo<sup>3</sup>, Tetsuo Irifune<sup>2</sup>, Ken-ichi Funakoshi<sup>3</sup>

<sup>1</sup>School of Sci., Univ. of Hyogo, <sup>2</sup>Geodynamic Research Center, Ehime Univ., <sup>3</sup>Japan Synchrotron Radiation Res. Inst.

The elastic compressional and shear wave velocities and densities of NaCl at 300 K and high pressures were measured using a combination of ultrasonic interferometry, in situ synchrotron X-ray diffraction and radiographic techniques in a large-volume Kawai-type multi-anvil apparatus. We adopted experimental data after heating the sample to 773 - 873 K under fixed press loads, to minimize nonhydrostatic components due to local deviatoric stresses, and have obtained high-quality elastic wave velocity and density data up to 12 GPa at 300 K. Both compressional and shear wave velocities are found to change linearly with density up to 12 GPa, satisfying Birch's law. Based on these measured data, we have derived the P-V equation of state (EOS) of NaCl at 300 K independent of any pressure scale. Comparison of the 300 K EOS between the present and previous studies will be presented in detail.

Keywords: pressure scale, NaCl, elastic wave velocity, high pressure