

## Equation of State for Supercooled Water at Pressures up to 400 MPa

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An equation of state is presented for the thermodynamic properties of cold and supercooled water, based on the two-state model where liquid water is considered as a mixture of two different structures. The equation is valid for temperatures from the homogeneous ice nucleation temperature up to 300 K and for pressures up to 400 MPa, and can be extrapolated up to 1000 MPa. The equation of state is compared with experimental data for the density, expansion coefficient, isothermal compressibility, speed of sound, and heat capacity. In the range of validity, all experimental data that are considered reliable are represented within the experimental accuracy. The melting curve of ice I is calculated from the phase-equilibrium condition between the proposed equation and an existing equation of state for ice I.