

## **Properties of liquid nitrogen and gaseous helium at pressures within 300 GPa**

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In this work density, pressure, temperature and electric conductivity of shock-compressed liquid nitrogen were measured by means of plane-wave and hemispheric shock wave generators. During the experiments record parameters were achieved – density of shock-compressed liquid nitrogen  $\approx 3.25$  g/cm<sup>3</sup> and its temperature  $\approx 56000$  K at pressure  $\approx 265$  GPa.

Density  $\rho \approx 0.8$  g/cm<sup>3</sup> and temperature  $T \approx 50000$  K at pressure  $P \approx 100$  GPa on Hugoniot of gaseous helium having initial density equal to its liquid state density ( $\rho_0 \approx 0.124$  g/cm<sup>3</sup>) were measured. In the second shock wave density of pressed helium  $\approx 5$  g/cm<sup>3</sup> at pressure  $\approx 325$  GPa was measured.

A comparative study of achieved data with well-known experimental and theoretical results was carried out.