

## **Thermophysical Properties of Liquid Uranium**

E.E. Shpilrain <sup>C, S</sup>, V.A. Fomin, V.V. Kachalov and G.F. Sokol

*Institute for High Temperatures, Russian Academy of Sciences, Moscow, Russia*

An experimental study of the density, surface tension, and viscosity of uranium in the liquid phase was carried out. Natural uranium with 0.22 % of U235 was used in the investigation. Materials compatible with liquid uranium at high temperatures were identified and tested. A special technique was developed to fill the experimental crucibles with uranium. The density and surface tension were measured by a slightly modified method of maximum pressure in a gas bubble. Two capillary tubes with different inner diameters were used to inflate the bubble. Measurements were carried out in the temperature range 1459-2093 K. Viscosity measurements were performed at temperatures up to 1600 K using the technique of attenuation of oscillations of a cylindrical vessel suspended on a torsional suspension and filled with liquid uranium. Provision was made to take into account the influence of the liquid's free surface.

The experimental data which have been obtained are presented and compared with other sources.