

**METHODS OF SAMPLE THERMAL MODIFICATION BY MEANS  
DOUBLE VAPORIZATION IN TWO STEP ATOMIZER FOR  
ATOMIC ABSORPTION ANALYSIS.**

Iliia Grinshtein, Yuri Vilpan, Alexei Saraev and Lubov Vasilieva

*Russian Research Center "Applied Chemistry", 14, Dobrolubova Ave.,  
St-Petersburg, 197198, Russia*

*Fax: 7-812-2381162, telephone: 7-812-3254008,*

*e-mail: [grin@an.apchem.spb.ru](mailto:grin@an.apchem.spb.ru)*

After sample vaporization in two-step atomizer with a purged vaporizer sample vapors can be transferred into preheated or into non-heated atomizer. In the last case the atomizer walls trap the vapors and then the sample is second time vaporized and atomized by heating the atomizer. Thermal pre-treatment of a sample using this double vaporization makes possible the direct analysis of samples with strongly interfering matrices including solids. The technique was used for the direct determination of Cd and Pb in human urine, high concentrated water solutions of NaCl, Na<sub>2</sub>SO<sub>4</sub>, NaNO<sub>3</sub>, KH<sub>2</sub>PO<sub>4</sub> and NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub> matrices, potatoes, wheat, bovine liver, milk powder, grass-cereals mixture, caprolactam, bituminous-shale and polyvinyl chloride plastic without chemical modification or any other sample pre-treatment.