

## **X-ray SR-based Microtomographic Investigation of Microporous Granulated Mercury Catalysts**

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There is the wide class of mercury microporous granulated catalysts having a light matrix (quartz, ceramics and others) with the granule size ranged from ~0.5 mm to ~5 mm, and the typical pore sizes of ~0.5-20  $\mu\text{m}$ . To reveal the internal 3D pore structure of such a catalysts and the level of the filling of the pores by Hg, the X-ray microtomography study of the several granulated Hg-containing catalysts was conducted. For the study, the catalysts with the mean pore sizes of 3-10  $\mu\text{m}$  were chosen. The experiments were carried out at the station of X-ray transmission subtraction microscopy and microtomography with the using of the synchrotron radiation (SR) from the 2T wiggler-magnet installed at the VEPP-3 storage ring (2 GeV, 100 mA) (Novosibirsk, Russia) (Dolbnya et al. 1992). The X-ray double-crystal Ge(111) monochromator

was employed. The imaging was performed at two different energies of X-ray quanta 9 keV and 12.3 keV (Hg L<sub>III</sub>-edge). Point-by-point scanning of an object across the properly formed pencil monochromatic beam is used for the X-ray imaging. The transmission (9 keV) and subtraction (at Hg L<sub>III</sub>-edge) images have been acquired. The space cross-sectional resolution was established to be 2  $\mu\text{m}$ , and the slice height size was ~10  $\mu\text{m}$ . The results of such investigations are presented and discussed.

### **REFERENCES**

- Dolbnya IP, NG Gavrilov, NA Mezentsev, VF Pindyurin. 1992. Rev. Sci. Instrum. **63**: 609.