

ON THE FOULING MECHANISM OF NON-BOUNDED OIL SHALE ASH DEPOSITS ON BOILER HEAT-TRANSFER SURFACES*

A. OTS, T. TIIKMA

Thermal Engineering Department
of Tallinn Technical University
116 Kopli St., 11712 Tallinn, Estonia

As shown by preliminary pilot-scale experiments on oil shale combustion in circulating fluidized bed, deposition of very fine particles in the convective part of boiler takes place. Assuming a quite complete binding of sulphur in CFB combustor and taking into account low-temperature level of this combustion process, there will not be adequate conditions for formation of bounded deposits on convective boiler surfaces and the fouling process will be controlled mainly by thermophoretic, diffusion and adhesion forces. That might invoke a forced increase in deposits with high thermal resistance. The prognosis of that process is presented in the given paper.

* Presented at the 2nd International Symposium on Oil Shale, Tallinn, Nov. 2002.