20.23 **Effect of Process Conditions on Kerogen Recovery in Oil Shale Solvent Extraction**

Jeong-Geol Na, Soo Hyun Chung

Korea Institute of Energy Research, Daejeon, Korea, Republic of

The oil shale retort processes all require a source of heat and therefore it may be advantageous for mineral material in oil shale to be removed before retorting for energy and cost saving. In order to get organic components exclusively from oil shale, solvent extractions were carried out under mild conditions using various solvents including N-methylpyrrolidone (NMP), light cycle oil (LCO) and the heavy fraction of shale oil. The effects of solvent types, extraction temperature, pressure, and solvent/oil shale ratio on the extraction yield were investigated. The analysis results for the extracts indicate that high extraction yield can be obtained due to the solvent-induced relaxation of kerogen by nitrogen-containing compounds as well as the thermal-induced relaxation of them. The extracts were further processed by thermal cracking and the shale oils were obtained. The characteristics of the shale oil were examined by SIMDIS (simulated distillation), TLC and GC-MSD and compared with the shale oil from Fischer assay retort and conventional crude oils.