

## Organic Geochemistry of Miocene Oil Shale Deposits in the Eskişehir Basin, Western Anatolia, Turkey

S. KORKMAZ<sup>1</sup>, R. K. GÜLBAY<sup>1</sup> AND İ.ŞENGÜLER<sup>2</sup>

Karadeniz Technical University,

Department of Geological Engineering, Trabzon/Turkey

General Directorate Mineral Research and Exploration (MTA),

Energy Branch, Ankara/Turkey

In the Eskişehir Basin, which is located in western Turkey, oil shales occur in alternation with claystone, siltstone, conglomerate and coal (lignite) levels in lacustrine deposits of Early-Middle Miocene age. In boreholes 37, 52 and 57 opened at three locations, oil shales with respective thicknesses of 20, 25 and 30 m were cut. Organic geochemical features of the shale core samples were evaluated based on the results of TOC/pyrolysis, GC and GC-MS analyses.

Oil shales are represented by very high TOC contents (6.32-37.15 wt. %), Hydrogen Index (HI=392-777 mgHC/gTOC), Potential Yield (PY=35.50-159.32 mgHC/g rock) and very low Oxygen Index (OI=13-92 mgCO<sub>2</sub>/gTOC) values. Oil shales with dominant Type II kerogen show high HI values, S<sub>2</sub>/S<sub>3</sub> (5.49-56.79) ratios and have organic matter sufficient to generate oil. Oil shales possess low T<sub>max</sub> (421-435°C) and PI (0.01-0.05) values.

Extremely low Pr/Ph ratios (0.17-0.96) of oil shales are indicative of anoxic conditions. C<sub>27</sub> is the dominant sterane for samples from both wells and surface samples. C<sub>28</sub> is dominant sterane for only one sample. Normal steranes are more abundant than iso- and diasteranes and diasterane abundances are very low. 20S/(20S+20R) and ββ/(ββ+αα) sterane ratios are also quite low.

While oil shale samples have generally low tricyclic terpane (C<sub>19</sub>-C<sub>29</sub>) abundance, these oil shales were characterized by very high C<sub>30</sub> (R+S) tricyclic terpane content. For all the oil shales C<sub>29</sub>/C<sub>30</sub> hopane, C<sub>31</sub>R homohopane/hopane and moretane/hopane ratios are high and Ts/(Ts+Tm) and C<sub>29</sub>Ts/(C<sub>29</sub>Ts+C<sub>29</sub>H) ratios are low. 22S homohopanes are recorded in lower quantities in comparison to 22R epimers and 22S/(22S+22R) homohopane ratio is very low.