

MINERALOGICAL INVESTIGATION OF DEGRADED KAOLINITES FROM DUNÁNTÚL (TRANSDANUBIAN) AREA

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ABSTRACT

In the Dunántúl area clay occurrences with degraded kaolinite were found. These kaolinites can be well characterised by thermoanalytical methods. In the X-ray diffraction pattern the basal reflection is absent.

In the last years a series of clay samples were investigated. The clay mineral content of them was thermoanalytically well characterized, but the basal reflections in the X-ray diffraction pattern were absent. These clay samples were mostly red-clays. This kaolinite type was also found in different types of other sedimentary rocks. In Dunántúl area there exists an older type in connection with Permian and Mesozoic and a younger type in connection with Pannonian and Pleistocene (*Fig. 1*). The older type was investigated.



Fig. 1. Occurrences of samples investigated

The material may be characterized:

a) thermoanalytically:

1. high absorbed water content,
2. convex peaks at 300 °C in DTA curves
3. an intensive endothermic reaction at 550 °C
4. the loss of weight at 550 °C may be 8% or more,
5. a characteristic endothermic-exothermic inversion between 850 and 920° without loss of weight. (*Fig. 2*)

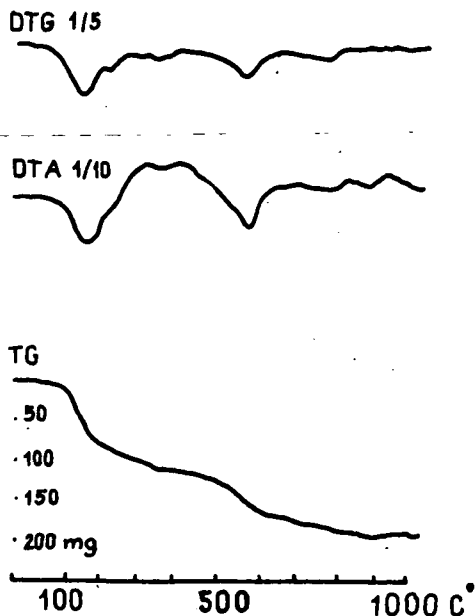


Fig. 2: Derivatographic curves of degraded kaolinite (Siklós)

b) by X-ray patterns:

1. basal reflection (0,713 nm) absent or very weak,
2. 0.448 nm reflection very strong,
3. 00l reflections weak, hk0 reflections strong. (Fig. 3)

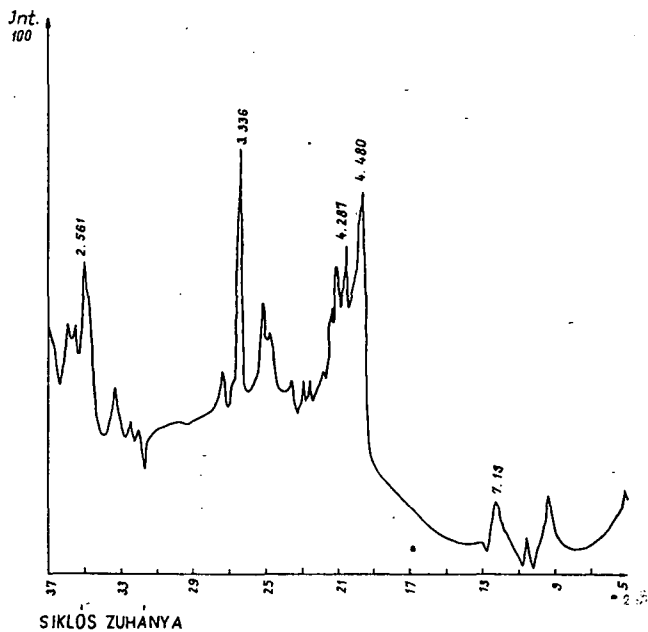


Fig. 3. X-ray pattern of degraded kaolinite (Siklós)

It was not possible to prepare pure material until now, therefore chemical composition could not be determined. Few samples of this material were investigated by electron microscopy and electron diffraction by dr. I. DÓDONY, too. The result of these investigations proved that all these samples were kaolinite.

Occurrences:

a) In connection with Mesozoic carbonate sediments:

1. In Villány Mountains (southern Hungary). The material is underlain by Mesozoic limestone and covered by loess.
2. Samples from northern Bakony Mountains are found also on Mesozoic limestones or dolomites and there they are covered by young sedimentary rocks. In the two mountains also well crystallized kaolinite can be found.

b) In connection with Permian red sandstone near to Lake Balaton:

In the northern side of Lake Balaton Permian sandstone strata are found. In the red-stone clay strata are situated between the sandstone strata. This clay has a degraded kaolinite content.

c) Other occurrences (characterized only by means of derivatograph):

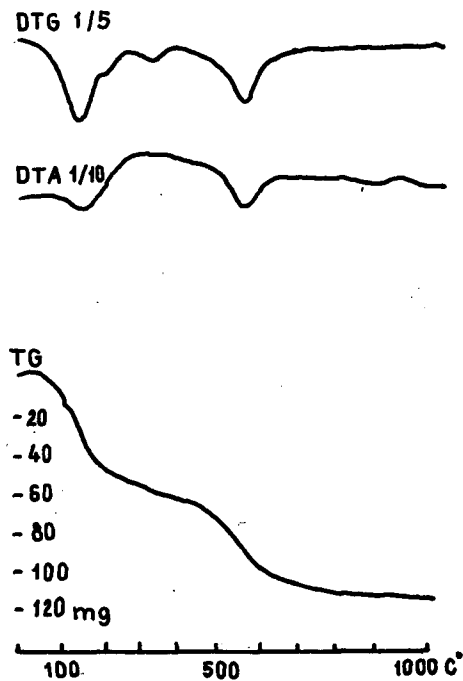


Fig. 4. Derivatographic curves of solution residue of a limestone ("marble") from Villány

Western side of Mecsek Mountains at Abaliget, on Mesozoic limestone. Red clay at Sümeg on Mesozoic limestone. The mineral components of the insoluble residue of Ladinic limestone ("marble") of Villány is similar to those of the investigat-

ed samples mentioned above. The only difference was, that in X-ray pattern a reflection at 1.001 nm was found. (*Fig. 4*).

It was observed that these degraded kaolinite occurs in those Mesozoic areas where also Jurassic and Cretaceous rocks can be found.

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