GEOCHEMISTRY OF THE CRETACEOUS-PALEOGENE BOUNDARY CLAY (FISH CLAY) AT HOJERUP (STEVNS KLINT, DENMARK): CU IN THE SMECTITE CONCENTRATE

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The Fish Clay (of earliest Danian age) at Højerup belongs to one of the classic Cretaceous-Paleogene deposits at Stevns Klint. The main part of this sediment constitutes basal black marl. The mineralogy of the marl is comparatively simple, authigenic (mainly biogenic) calcite and detrital (cheto-) Mg-smectite being the principle components.

We report here a geochemical study of trace Cu in the smectite concentrate of the basal black marl. This metal is chosen primarily because of the relatively simple chemistry of its ions in natural waters. Cu was determined by inductively coupled plasma-optical emission spectroscopy in the whole rock sample and the smectite concentrate.

The analytical results show that geochemical concentration of the Cu in the smectite concentrate is 160 ppm and that the most of Cu (74 %) resides in this fraction of the black marl.

We suggest that Cu is mainly terrestrial in origin and was probably leached by the impact-induced (-acid?) surface waters from the nearby soil. The incorporation of the metal into the smectite took place during the Cretaceous-Paleogene boundary but before its redeposition to the Fish Clay site.

Keywords: Cretaceous-Paleogene, Fish Clay, smectite.