

FIELD REPORT OF SAMPLING PERFORMED ON CRANDALLITE PARTINGS IN
KENAI COALS, NEAR HOMER, JUNE 8-10, 1988

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Crandallite-bearing (aluminocalcic phosphate) partings were discovered to be present in the Tertiary Kenai coal-bearing section, between Diamond Creek and Mutnai Gulch (map attached) during the course of graduate studies performed by LRS. The beach outcrops can be accessed by foot trail from the Sterling Highway along the north side of Diamond Gulch. Alternative access would be by small boat from Homer or Anchor Point, Alaska, although beach landing could be hazardous due to the abundance of large glacial erratics.

The partings are present in several coal seams throughout the section. They typically pinch and swell up to 10 cm in thickness and are composed of soft, bentonitic to consolidated material (attached table). Previous P_2O_5 analysis performed by the USBM and LRS (attached table) shows significant P_2O_5 values and considerable compositional variation between partings. Appreciable amounts of Sr (up to 5%) and Ba (up to 5%) were also detected.

The purpose of the sampling was to obtain more material for mineral characterization studies and to investigate the potential of the material as representing a critical and strategic mineral resource (in particular Sr). If the Kenai coal deposits are ever developed, the partings could be produced as a by-product from the washing plant discharge. Description of samples is attached along with photographs of some of the sample localities.

The following references contain additional information on crandallite:

Brownfield, M.E., Affolter, R.H., and Stricker, G.D., Crandallite group minerals in the Capps and Q coal beds, Tyonek Formation, Beluga energy resource area, south-central Alaska. (attached)

Fleischer, M., Wilcox, R.E., and Matzko, J.J., Microscopic determination of the nonopaque minerals, USGS Bull 1627, 453 p. (pages 344-345).

Slansky, Maurice, 1986, Geology of sedimentary phosphates: Elsevier, New York, 210 p. (pages 33-36)

SAMPLE NUMBER	OLD	WEIGHT(lbs)	P ₂ O ₅ (%)		SAMPLE DESCRIPTION
	USBM NUMBER		LBS*	USBM	
CM26850(DC-1)	CM26281	6.3	21.87	14.3	Fine-grained, light brown consolidated material, 1-3 cm thick; pinches and swells.
CM26851(DC-8)		11	9.64		Brown to beige-orange, wet clay. Soft, bentonitic to partly consolidated, 3-8 cm thick. Base of parting is organic-rich.
CM26852(DC-12)	CM26822	8.6	15.09	8.72	Dark brown to orange, wet clay to partly consolidated coarse-grained material. Approximately 5 cm thick. Mixed with coal layers; pinches and swells.
CM26853(DC-51)		4.1	22.32		Fine-grained, light brown consolidated material, 1-5 cm thick. Disseminated, contains abundant amber.
CM26854(DC-60)	CM26824	6.3	15.57	12.4	Fine-grained, light brown to yellow consolidated material, variable thickness; pinches and swells.
CM26855(DC-60A1)	CM26825	6.8	28.79	19.6	Brown to light brown, wet clay; pinches and swells
CM26856(DC-60A2)	CM26825	5.5	28.79	19.6	Medium-grained, light brown consolidated material, weathers white; pinches and swells up to 4 cm.
CM26857(DC-69)	CM26826	4.6	12.41	8.2	Medium-grained, light to dark brown consolidated material.
CM26858(DC-70)	CM26827	11.6	22.68	14.6	Parting found in carbonaceous shale, rather than coal, light brown consolidated with clay material present.

* LBS removed H₂O before analysis



DC-60



DC-12

10m N.

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DC-70
DC-69

DC-60A
DC-60

DC-51

DC-12
DC-8
DC-1

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