

Mineralogy, chemical composition and application of bentonite from Deh Mohammad, Shirgesht, and Chah Cam 1 and 2 (Khorasan-Yazd, Iran)

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Abstract: Mineralogy and chemical composition of Deh Mohammad, Shirgesht, Chah Cam-1 and Chah Cam-2 bentonite deposits were studied in detail. Tests for foundry moulds uses carried out on raw and processed. Deh Mohammad with 300000 tons reserve is the biggest deposit. Deh Mohammad consists of 75 – 95% montmorillonite, 5 - 25% cristobalite, 0 - 3% calcite, and less than 1.5% halite. The colloidal index for raw bentonite (24 hour) is 20 – 30. Based on chemical composition, Deh Mohammad is Na-bentonite and is good for foundry moulds. Shirgesht has about 135000 ton bentonite. It contains of 74 – 92% montmorillonite, 8 - 28% cristobalite, 3 - 10% calcite, and 0 - 1.5% halite. The colloidal index for raw bentonite (24 hour) is 14 - 22. Based on chemical composition, Deh Mohammad is Na-bentonite and in most part is good for foundry moulds. The bentonite reserve at Chah Cam 1 and 2 mines are 73000 and 62500 ton 60 - 80% montmorillonite, 15 – 35 % quartz- cristobalite, 1 - 5% calcite, and 1 - 5% Halite. The colloidal index for raw bentonite (24 hour) is 0 - 20. Based on chemical composition, Deh Mohammad is Na-bentonite. The colloidal index of some samples are good for foundry use but high halite content is a problem, therefore this bentonite must be mixed with a bentonite having low or no halite such as Shirgesht.