Bentonite, a complex aluminosilicate clay obtained from the soils in various parts of the world is used in extremely large quantities for bleaching, decolourizing, catalysis and a myriad of other applications. In the pharmaceutical industry it is mainly used as a thickening agent and as a dispersions stabilizer. Information concerning bentonite deposits in Gujarat State is found in brief reports issued by the Directorate of Geology and Mining, Gujarat. In recent years intensive exploration programmes have revealed that Gujarat is the leading producer of bentonite in the country. The occurrence of bentonite deposits are reported from each district of the state but the main deposits are located and surveyed in detail in the districts of Kutch and Bhavnagar of the state. Estimated reserves of about 2.25 million tonnes in Kutch district and 40.79 million tonnes in Bhavnagar district have been reported. Of these deposits some have been considered sufficiently important to warrant commercial development.

Our interest in the material arose when claims were made that certain beds contained bentonite comparable to those being imported at present. However subsequent enquiry
revealed that insufficient information was available to allow for an adequate pharmaceutical evaluation of bentonites from any of the known deposits. A study was therefore undertaken with a view to determining the presence of pharmaceutical grade clay in the state. At present the requirements of medicinal and cosmetic grade bentonites are mostly met by imports. Indian bentonites receive no treatment at the hands of suppliers except hand sorting at the mines or quarries to remove impurities and iron stained materials. On the other hand imported bentonites are processed before sale. Processing consists essentially of drying, crushing and grinding.

Most Indian bentonites have strong inherent colours which severely limits their utilization in pharmaceutical and cosmetic formulations where the impetus is on the aesthetic appearance of the product. The indigenous resources therefore remain unexploited. It was with the purpose of evaluating the possibility of utilizing indigenous bentonites of Gujarat State that this work was undertaken. A process has also been developed to refine these bentonites.

The entire work has been divided into the following sections:
Section I  gives a brief introduction to bentonite, its structure, properties and industrial uses.

Section II  deals with the identification and chemical analysis of Gujarat bentonites.

In Section III  pharmaceutical limits have been evaluated.

Section IV  deals with properties such as rheological behavior, cation exchange capacity, adsorbing and suspending properties.

Section V  gives a novel process for refining and upgrading indigenous bentonites.

Section VI  deals with formulation.

Culminating in general discussion and summary in Section VII.