

TREATMENT.

The "spar," which comes from the mine or quarry in the form of lumps, must be crushed and ground to about 150 to 200 mesh to prepare it for most of the uses to which it is put. When the product is to be used for ceramic purposes, great care must be taken to avoid the introduction of particles of iron from the grinding machines. For this reason the grinding is usually done in special chaser mills, or pebble mills. In the chaser mills the spar is ground under quartzite or buhrstone wheels running over a bed of quartzite blocks. The pebble mills are lined with quartz, while flint pebbles are used to effect the grinding. In some cases the crushing is preceded by calcining in kilns in order to shatter the mineral and thus facilitate the crushing and grinding.¹

According to the same authority feldspar is graded as follows:—No. 1, No. 2 (sometimes called "Standard"), and No. 3. "No. 1 is carefully selected, free from iron-bearing minerals, largely free from muscovite, and contains little or no quartz, usually less than 5 per cent; No. 2 is largely free from iron-bearing minerals and muscovite, but usually contains when ground from 15 to 20 per cent of quartz; No. 3 is not carefully selected and contains somewhat higher percentages of quartz, muscovite, and iron-bearing minerals."

USES.

The main uses of feldspar are in the ceramic arts. Feldspar, either No. 1 or No. 2 grade, is one of the principal ingredients of the body and the glaze of porcelain. In the body it fuses during the firing and forms a firm bond between the particles of quartz and clay. In the glaze it fuses and combines with the other ingredients to form an opalescent, glassy covering to the ware on which it is applied. Thus it will be seen that the temperature of fusion is an important factor in selecting a feldspar for these purposes. The melting point depends largely upon the percentages of alkalis in the spar. The higher the percentage of potash the lower will be the point of fusion. Where a small

¹ Page 856, Mineral Resources of the United States, Part II, 1907.