Sri GVG Visalakshi College for Women (Autonoumus)
Department of Chemistry
Report On Industrial Visit
Industry Visited : Chalk factory, Krishnapuram

Date :27.02.2018

A batch of II BSc. Chemistry students (52) and three staff coordinators visited Chalk industry situated at Krishnapuram on **27.02.2018**. This unit is mainly focusing on the preparation of White and coloured chalk piece materials.

In the first session Mr. S. Sriram, Operations Head, addressed the students and introduced about the preparation processes. He explained about the functioning of this Unit and Manufacturing process.

The raw material used for chalk is calcium sulfate ($CaSO_4$), which is derived from gypsum ($CaSO_4.2H_2O$). Gypsum, like limestone, is also quarried and pulverized. The major difference in processing gypsum is that it must be dehydrated to form calcium sulfate, the major component of colored chalk. This is done in a kettle, a large combustion chamber in which the gypsum is heated to between 244 and 253 degrees Fahrenheit (116-121 degrees Celsius). It is allowed to boil until it has been reduced by twelve to fifteen percent, at this point its water content will have been reduced from 20.9 percent to between 5 and 6 percent.

To further reduce the water, the gypsum is reheated to about 402 degrees Fahrenheit (204 degrees Celsius), at this point it is removed from the kettle. By now, almost all of the water has

evaporated, leaving calcium sulfate. To make white classroom chalk, the manufacturer adds water to form a thick slurry with the consistency of clay.

The slurry is then placed into and extruded from a die an orifice of the desired long, thin shape. Cut into lengths of approximately 24.43 inches (62 centimeters), the sticks are next placed on a sheet that contains places for five such sticks. The sheet is then placed in an oven, where the chalk cures for four days at 188 degrees Fahrenheit (85 degrees Celsius).

After it has cured, the sticks are cut into 80 millimeters lengths and packed. Making colored classroom chalk: Pigments are mixed in with the Calcium sulphate while both are dry (the procedure is similar to sifting flour and baking powder together before adding liquid, as in a cake recipe). Water is then added to the mixture, which is then baked in the same manner as white classroom chalk.

During the trip students gained practical knowledge about the raw materials, handling of the raw materials and preparation of chalk pieces. Many of the points explained theoretically in the first session were explained again practically in the second session.

All the students expressed their thanks to the officials for the opportunity given.

This trip was highly useful for the students in terms of practical knowledge about the Chalk manufacturing process. This trip will also be helpful for them to start a small scale chalk unit of this type in near future.