

**CUMI PRODORITE****ABRASION RESISTANT FRP - 1711****WEARSHIELD** Abrasion Resistant FRP in MINERAL PROCESSING PLANT**The Technology:**

**CUMI Prodorite Division** had acquired a technology from USA for manufacturing of Abrasion Resistant FRP (AR FRP) products targeting the upcoming Flue Gas Desulphurization (FGD) market in India. FGD is used in Coal fired thermal power plant to control the emission of  $SO_x$  and  $NO_x$ . The spray system and the piping which handles Lime slurry are essentially made of AR FRP and had been a success in US and Europe for the last 40 Years.

**Product development for Alternate market:**

After acquiring the technology to manufacture Abrasion resistant products, we started looking for other industries where this product can be utilized. One of our customer in South India has  $TiO_2$  manufacturing units where there is an issue with abrasive slurries.

They use Ilmenite beneficiation process for upgrading the titanium dioxide ( $TiO_2$ ) content of the Ilmenite, the raw Ilmenite is transferred to a reduction kiln wherein a portion of the ferric iron content is reduced to the ferrous state after which the reduced Ilmenite is cooled and charged into a digester. In the digester, hydrochloric acid (leach liquor) is added and a hydrochloric acid vapor is introduced for heating purposes.



After the digestion is completed, the spent acid (leach liquor) is removed from the digester and water is added to wash the Ilmenite. The spent acid is processed through an acid regeneration, sub-process wherein solid products are removed and the hydrochloric acid is recovered for recycle back to the digester. The water is removed from the digester and the digester is moved to a position whereby the digested material may be discharged via gravity into a trough from which it is discharged for further processing. The digested Ilmenite is dewatered, washed, calcined and cooled to produce the beneficiated Ilmenite having a titanium dioxide ( $TiO_2$ ) content of about ninety to ninety-five percent (90% to 95%).

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**CUMI PRODORITE**

**ABRASION RESISTANT FRP - 1711**

One of the application in this industry is charging and discharging of material in Digester which composes of Ilmenite, HCL and Steam. Thus the pipes and fittings are subjected to Abrasion, Corrosion and temperature.

The product used there was rubber lined and Teflon lined pipes, having a superior technology we started provided sample to address various application.

**The development Cycle:**

- Identifying the process and application where product can be used
- Providing sample
- Monitoring the performance.
- Fine tuning the product formulation to suit the application
- Providing solution to customer.

**Performance:**

The pipes and fittings was subjected to 33% HCL and the temperature was upto 150°C during this time the fittings were also subjected to thermal shocks. The performance of this product was monitor continuously and it was found that the wear was less and the fittings lasted more than the expected life.



WEARSHEILD SLEEVES



WEARSHILED FITTINGS

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