What is Tata Nirman?

Tata Nirman is a branded product made of LD Slag, ideal for Fly Ash Brick making and Clinker making. Tata Nirman can be used as a fly ash brick making material replacing sand and lime. It can also be used as a partial replacement of limestone in clinker making.

Tata Nirman's Chemical Composition:

- Silica: 10-12%
- Alumina: 3-5%
- CaO: 32-36%
- MgO – 0-4%
- Sulphur: 0.1-0.15%
- Iron: 20-22%
- Lime <10%
- Gypsum 5%-10%
- OPC/PSC
- GGBS
- Mixer
- Conveyer
- Final Bricks
- Press Shop

Fly Ash Brick making

The process for making Fly Ash Bricks using Tata Nirman.

- Fly Ash Bricks
- Filler
- Blinder
- Fly Ash 40-60%
- Tata Nirman <44%
- Crusher Dust
- Bad Dust
- Sand
- Lime <10%
- Gypsum 5%-10%
- OPC/PSC
- GGBS
- Mixer
- Conveyer
- Final Bricks
- Press Shop

Chemical Composition of Fly Ash

- Silica: 35 - 70 %
- Alumina: 10 - 35 %
- CaO: 0.2 - 2.0 %
- MgO: 0.1 - 3.8 %
- Sulphur: 0.5 - 1.5 %
- Iron: 2 - 7 %

Advantages of using Fly Ash Bricks:

- Fly Ash Brick is an eco-friendly product because it uses fly ash which is a waste product of thermal power plants. However, it also uses sand which is a natural resource. Since, sand mining is being heavily discouraged, using LD Slag as a substitute for sand makes the brick more eco-friendly and economical.
- LD Slag also contains free lime. Therefore, it can partially substitute lime as a binding material in Fly Ash bricks.
- The Fly Ash bricks made out of LD Slag are of superior quality and greater strength than that of red bricks.
- Government regulations in most of the states promote the usage of Fly Ash bricks in government projects and otherwise. Hence, there is a hike in the demand for Fly Ash bricks. Moreover, the production of Fly Ash bricks causes no pollution unlike red bricks.

Clinker Making

Advantages of Tata Nirman in Clinker Making

As Tata Nirman has significant lime content, it can be used as a partial replacement of limestone. Successful trials with different cement companies indicate that limestone can be replaced by Tata Nirman up to 1-2%. Use of Tata Nirman in making the raw mix for clinker not only reduces the grinding & fuel cost, but also fetches revenues against Carbon Credits as well.
Other Potential Applications of LD Slag

**LD Slag in Hardstands**
A hardstand is a paved area for parking heavy vehicles, storing raw materials/finished products etc. Steel Slag aggregates have better strength, abrasion and impact resistance as compared to natural aggregates. Hence, they are particularly suitable for use in areas subjected to heavy vehicle loads and high shear stress.
LD Slag has been successfully used in following areas:

- Making Railway Siding Platforms
- Temporary Roads in and around residential colonies
- Pathways near Rail Tracks
- Parking Yards
- Storage Yards

**LD Slag in Cement**
Trials have found that LD Slag can also be used as a partial replacement of BF Slag. Use of LD Slag reduces the cost of making PSC. Also, inclusion of LD Slag in PSC making as per the BIS specifications will strengthen its widespread usage in making PSC.

**Ordinary Portland Cement (OPC) Manufacturing:** LD Slag can also be utilized in making Ordinary Portland Cement as a performance improver. The guidelines in IS 269 mentions its usage up to 5%. Use of LD Slag in OPC making not only reduces the cost of manufacturing OPC but also improves the quality of Cement.