

ITT WEDECO supplies the first ozone plant for pulp bleaching to India

ITT WEDECO was contracted in 2006 by ITC Ltd. to supply the first ozone system for pulp bleaching to India in Andhra Pradesh. The ozone system was supplied in September 2007 and successfully started-up in November 2007. The ozone gas is used for both fibre lines, the reengineered existing fibre line and in the new fibre line. With ozone as part of the bleaching sequences ITC Ltd. has chosen for their pulp mill one of the most efficient bleaching processes. "With this ozone plant for ITC we will convince the P&P industry in India that ozone is more than just an alternative to Chlorine dioxide" says Mr. Robert Serfass, formerly Director of the ITT WEDECO Pulp & Paper group.

Ozone for environmental protection

Modern pulp mills like ITC considering ozone at the initial phase of their project in order to reduce:

- The COD and BOD to be treated and finally rejected
- The AOX content in the effluent and remaining into the pulp.
- The colour in the effluent
- The water consumption and total reject by implementing water recirculation back to the recovery.

The introduction of a new bleaching sequence with ozone at the ITC mill marks a clear milestone in the development of environmentally sound bleaching methods. It allows combining high brightness and pulp strength with cost efficiency. The pulp mill of ITC Ltd. is a very good example of how a high consistency (HC) ozone bleaching stage can be integrated in an existing but as well in a new fibre lines. The Z-stage is normally designed to consume up to 6 kg O₃/ADT of pulp.

Ozone - Fast and selective

Next to fluorine, ozone is the strongest oxidising agent, and when correctly applied, able to contribute enormously to improve the condition of our life and environment. The gas is an unstable molecule and therefore must be generated at the point of use. The decomposition product of the reactive molecule is oxygen, making it environmentally friendly. Ozone is produced on-site by means of silent electrical discharge from oxygen containing feedgas (cold plasma). During the ozone generation oxygen molecules are initially split inside the cold plasma. The resulting oxygen atoms react with oxygen molecules forming ozone. In the ozone reactor of the Z-stage, the virtually dry fibres whirl around like flakes in a snowstorm allowing the ozone/oxygen mixture to effectively react with the fibres.

ITT WEDECO Scope of Supply

The ozone plant for the ITC pulp mill is designed for a maximum ozone production capacity of 200 kgO₃/h at a concentration of 12 wt% (or 230 kgO₃/h @ 10wt%) from a VSPA-oxygen. This represents the worldwide largest single ozone generator. The total scope of ITT WEDECO for the project of ITC included:

- One(1) containerized ozone system (Type PDO 9500),
- One(1) ozone gas distribution system (to provide ozone to the existing and to the new fibre line)
- Two(2) ozone destruction systems, skid mounted, each incl. three ozone destructors, water separator and gas/steam heat exchanger (one system is for the existing fibre line and one system is for the new fibre line),
- One(1) set of measurement and safety equipment,
- PLC-system and central control and monitoring system (CCMS),
- Supervision of installation, commissioning, start-up and training.

Containerized Turnkey Technology

ITT WEDECO has developed especially for the P&P industry container solutions which meet the high requirements considering the aggressive ambient air conditions at mill sites. The container (L x W x H = 15 x 3.5 x 3.5m) provides housing for the complete ozone system including the ozone generator vessel, the power supply units and the PLC system. All systems are designed and manufactured with regard to international standards for the application of ozone. Containerized ozone systems are an ideal solution for a very compact outdoor installation and offer the following advantages:

- The entire ozone system is completely pre-assembled and tested at ITT Wedeco's factory in Herford, Germany.
- No expensive housing and ventilation required as all containers are insulated and air-conditioned.
- Minimizing of installation and commissioning time and cost on site with a "plug & play" concept
- Modular design makes a further extension of the system very easy
- Effective corrosion reduction
- Effective noise reduction



Figure: Worldwide largest single containerized Ozone Generator / ITC pulp mill.

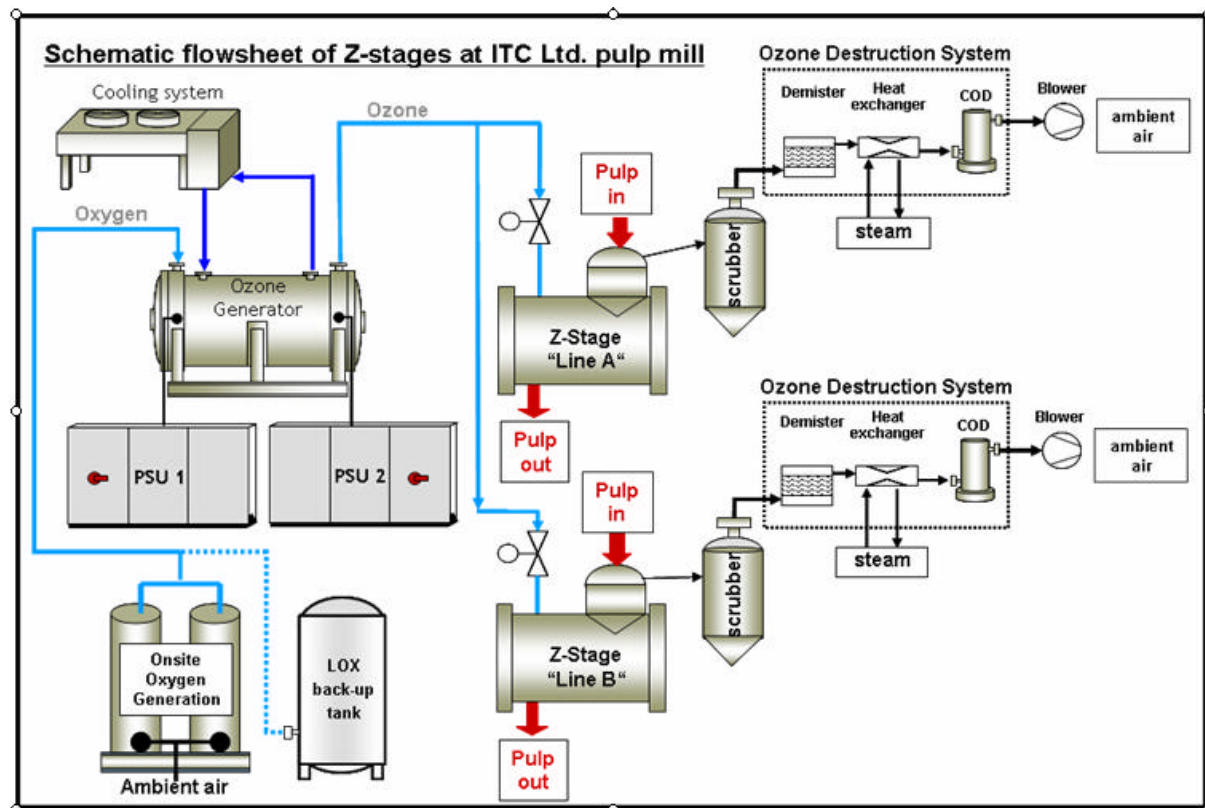


Figure: Schematic flow sheet of Z-stages at ITC Ltd. Pulp mill