



## **OXYGEN** Application

### **O<sub>2</sub> APPLICATION**

Oxygen (O<sub>2</sub>) is an active, life-sustaining component of the atmosphere: making up 20.94%. It is colorless, odorless and tasteless. Oxygen is commonly used, with or instead of air, to increase the amount of oxygen available for combustion or biological activity. This increases reaction rates and leads to greater throughput in existing equipment and smaller sizes for new equipment.

Oxygen has numerous uses in steelmaking and other metals refining and fabrication processes, in chemicals, pharmaceuticals, petroleum processing, glass and ceramic manufacture, and pulp and paper manufacture. It is used for environmental protection in municipal and industrial effluent treatment plants and facilities. Oxygen also has numerous uses in healthcare, both in hospitals, outpatient treatment centers and home use. For some uses, such as effluent treatment and pulp and paper bleaching, oxygen is converted to ozone (O<sub>3</sub>), an even more reactive form, to enhance the rate of reaction and to ensure the fullest possible oxidation of undesired compounds.



#### **Pulp & Paper Manufacturing**

Oxygen is increasingly important as a bleaching chemical. In the manufacture of high-quality bleached pulp, the lignin in the pulp must be removed in a bleaching process. Chlorine has been used for this purpose but new processes using oxygen reduce water pollution. Oxygen plus caustic soda can replace hypochlorite and chlorine dioxide in the bleaching process, resulting in lower costs.

In a chemical pulp mill, oxygen added to the combustion air increases the production capacity of the soda recovery boiler and the lime-reburning kiln. The use of oxygen in black liquor oxidation reduces the discharge of sulfur pollutants into the atmosphere.

