

2001 **Title:** **Concept Description and Safety Considerations for the Application of Oxygen Enriched Air (OEA) Technology in Recovery Boilers**

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ABSTRACT:

Oxygen is a well known chemical in our industry that is increasingly used to cut costs, improve pulp yield, raise capacity, and lower environmental impact [1]. With the advent of today's improved air separation techniques, oxygen has become a relatively low-cost commodity. JANSEN's expertise in recovery boilers and combustion air delivery systems, combined with Air Liquide's expertise in on-site oxygen production, handling, and delivery, forms a unique alliance for the safe and efficient application of oxygen enriched air technology (OEA). OEA can significantly increase the throughput on already highly loaded recovery boilers and improve the profitability of pulp mills.

The main factors to the capacity increase are: (1) enriching the oxygen in the combustion air reduces the total volume of nitrogen (contained in "plain" air) entering the furnace, and (2) a reduced volume of combustion air is supplied below the liquor guns. The capacity of the boiler can be increased proportionally to the reduction of nitrogen "dead load" in the flue gas.

Other predicted benefits of applying OEA in recovery boilers are more stable operation, reduced emissions of air pollutants, and higher thermal and reductions efficiencies. Further, the installation costs for OEA and required boiler downtime are significantly lower than for other methods to increase the recovery boiler solids capacity.

This paper addresses the following technical topics:

1. Concept Description
2. Benefits and Features
3. Technical Issues and Safety Factors
4. Potential Operational Disadvantages.