



ERCO Worldwide

A division of Superior Plus LP

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9001:2000
REGISTERED

ERCO® R-Series chlorine dioxide process technology from ERCO Worldwide is a top choice of pulp mills around the world. With one of the largest installed generator bases and seven modern plants to supply sodium chlorate, the ERCO team helps customers produce stronger, brighter pulp with minimum effect on the environment. ERCO is dedicated to meeting the evolving future needs of customers by developing new technology today. Our systems and our people are at your service.

“ Another excellent job of building, training and commissioning.

“ If all vendors followed this worth ethic, bad mill start-ups would be history. ”

THE R7® PROCESS AND PLANTS

The patented ERCO R7 process is a reliable, high efficiency chlorine dioxide generation technology - supported by a quality service organization, dedicated to keeping your mill up and running.

BENEFITS OF THE ERCO PROCESS

- *Most reliable supply of ClO_2*
- *Easy to operate*
- *Rapid process start-up and shutdown*
- *High sodium chlorate efficiency*
- *Production of neutral sodium sulphate*
- *Safe operation*

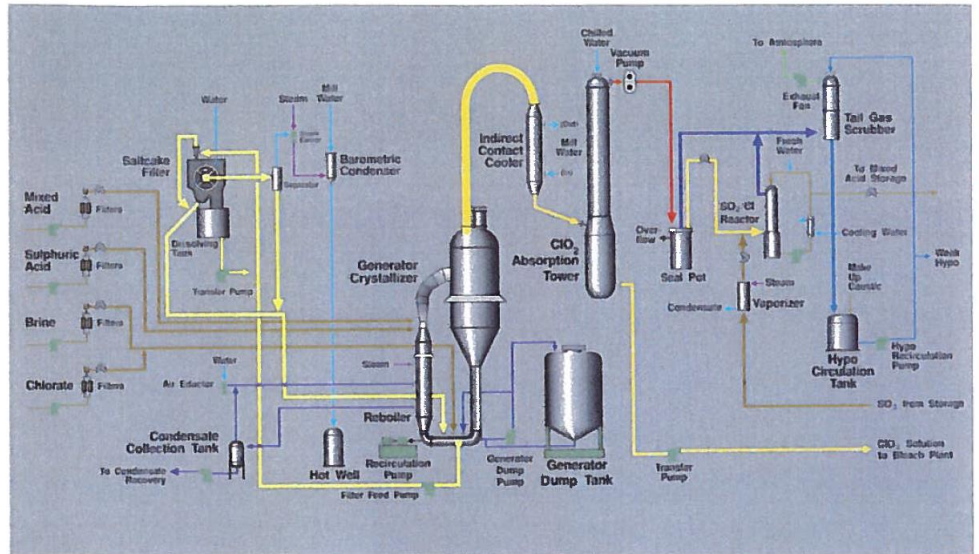
The System and its Chemistry

When by-product chlorine is not required and a reduction in saltcake by-product is necessary, the R7 process is an attractive alternate to the R3 process.

The generating system consists of a Generator and a tube and shell Heat Exchanger. This unit operates at about 70°C and 190 mm Hg. The Generator liquor is circulated by an axial pump in the line between the Heat Exchanger and the Generator. The sodium chlorate feed is introduced before the Pump, while the sulfuric acid and mixed acid from the Cl₁/SO₂ reactor are added to the Heat Exchanger discharge.

Steam is supplied to the Heat Exchanger and, under the vacuum conditions in the Generator the water introduced into the system is evaporated resulting in crystallization of anhydrous sodium sulfate. The evaporated water acts as the diluent.

The chlorine dioxide gas passes into an Indirect Contact Cooler where the evaporated water is partially condensed thus automatically increasing the concentration of the chlorine dioxide. This stream of chlorine dioxide, chlorine and water vapour then passes into the Chlorine Dioxide Absorber. The water flow to this tower is adjusted by an on-line photometric analyzer to provide the required chlorine dioxide solution strength. Chlorine leaving the Chlorine Dioxide Absorber reacts with SO₂ in a Chlorine-Sulfur Dioxide Reactor to form mixed acid of H₂SO₄ and HCL which is returned to the Generator. The Generator, Indirect Contact Cooler and Tower are maintained under vacuum by a steam jet ejector or vacuum pump.



Generator slurry is pumped to a Rotary Vacuum Filter. Here the anhydrous sodium sulfate is continuously removed and the mother liquor and wash water are returned to the Generator. The sodium sulfate is fed by gravity into a dissolving tank from where a saturated solution of sulfate is then sent to the Kraft recovery system. Water, weak or strong black liquor can be used for transporting the salt cake.

Plants can be supplied in modular form or for conventional construction. The same basic R3 Generating Plant is used for production of ClO₂ by the R7 mode of operation.

The plant can be readily adapted for any mode of ERCO R SERIES ClO₂ operation.

The R7 process is disclosed in Canadian patents and U.S. patent owned by Superior Plus LP.

CHEMICAL CONSUMPTION

INPUT	kg/kg ClO ₂
Sodium Chlorate	1.64
Sodium Chloride	0.34
Sulphuric Acid	0.50
Sulphur Dioxide	0.35
CREDITS	
Sodium sulfate	1.45
Chlorine	0.20