

OptimumAcid™

The OptimumAcid™ technology was developed to produce sulfuric acid from non-condensable gases. The sulfuric acid can be used in the pulp process as required. The OptimumAcid™ technology presents a way to control the sodium/sulfur balance of the mill.

The problem

The non-condensable gases presents a source of sulphur through contents such as hydrogen sulfide, methyl mercaptan and dimethyl sulfide. These are typically burned to produce SO₂ gas which in turn requires a scrubber to fulfill the environmental legislations. The increasing degree of closing the cycle in a pulp mill faces challenges regarding maintaining the Na:S balance as optimal as possible.

The solution

NORAM's OptimumAcid™ technology presents an opportunity to utilize the sulphur content in the NCGs and produce sulphuric acid. The NCGs are then removed from the cycle and offers a way to control the Na:S-balance of the mill.

How it works

The NCGs are burned in a burner together with an additional sulphur stream to achieve higher SO₂ concentrations and thereby higher acid production rates. It allows the system to have **flexibility** with the varying concentrations in the NCGs. Figure 1 shows an installed SO₂ plant by NORAM in another industry. A boiler is used for steam production and cooling the gases before being sent to a quench tower for water removal. The OptimumAcid™ technology is a dry process and the gases are sent to a drying tower before the catalytic converter where SO₂ is converted to SO₃. Thereafter, an absorption tower is used to produce the sulphuric acid.



Figure 2 NORAM SO₂ plant

The benefits

The NCGs are eliminated as a sulfur input in the recovery cycle which **reduces the caustic or soda ash make-up** due to more control over the Na:S balance.

The production of commercial grade sulphuric acid presents a **revenue** together with additional steam production. The higher sulphuric acid concentration is a benefit due to its **lower corrosiveness**. Figure 2 shows two installed sulphuric acid plants supplied by NORAM in another industry.



Figure 1 NORAM sulphuric acid plants

Sulfuric Acid Technologies

NORAM has both Pulp&Paper and Sulphuric acid as business areas. For sulphuric acid and sulphur dioxide new plants are supplied as well as plant upgrades and modernizations. Emission reductions, increased capacity and higher reliability are some of the focus areas in NORAM's strategy. Figure 3 shows one of NORAM's supplied sulphur burners.



Figure 3 Installed sulphur burner

