Polysulfide Cooking

with PAPRILOX®

NORAM

pulp & paper group

Paprilox® is a simple, low-cost process to generate polysulfide, a chemical which enhances the yield of chemical pulp. Developed and patented by Paprican, Paprilox® was first implemented in a Paprican Member Company mill and is now available from

Paprilox Reactors

Polysulfide is well known for its yield enhancing properties, but until now, the processes available for its production have been relatively expensive and application has occurred primarily in Japan where wood costs are especially high.

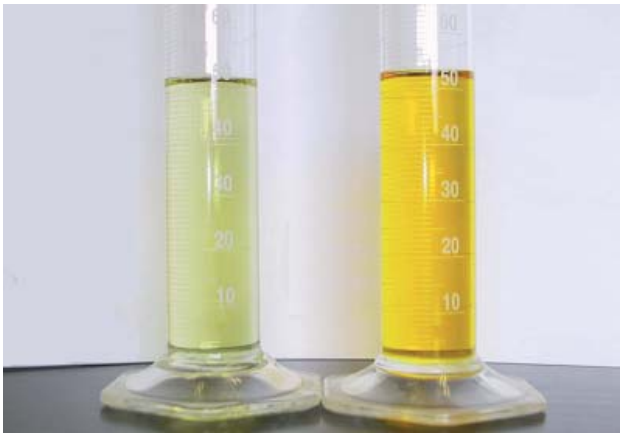
The Paprilox® process can be integrated within the recausticizing system, rather than requiring a completely new unit operation. The capital cost and operating costs of Paprilox® are very attractive, resulting in payback periods as short as six months for North American sites.

Paprilox® polysulfide works well alone but due to a synergy of yield and pulping rate enhancements it is usually used together with anthraquinone. If your mill is using AQ now, additional yield benefit can be obtained through Paprilox®. If recaust system improvements are needed, but project returns are minimal, Paprilox® can provide a positive return for the overall project.

Research by Paprican is uncovering new attributes of polysulfide pulps. In addition to well-known characteristics of easier beating and better bonding pulps, researchers have shown that polysulfide improves cellulose molecular weight and fiber strength.

Features and benefits

- mill proven process, simple and robust
- pulp yield increased by 2-3% resulting in wood savings of 4-6%
- potential to reduce kappa number while still increasing yield, resulting in 10-30% lower bleaching costs and lower AOX, BOD, COD
- potential to increase mill throughput by up to 8-12%
- improved pulp properties including beatability, bonding, fibre strength and cellulose molecular weight

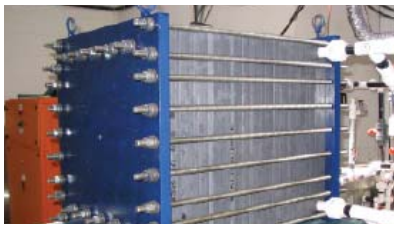


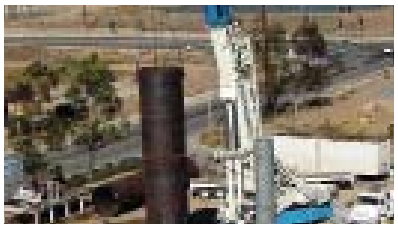
White Liquor Polysulfide Liquor

technology and engineering solutions for the process and resource industries

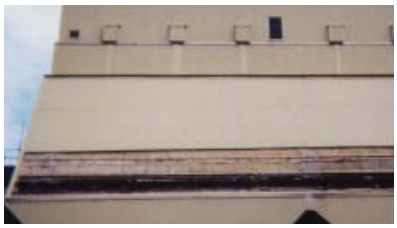

Nitration


Sulfuric Acid


Electrochemical


Biosystems


Pulp&Paper


Environmental

Company Profile

NORAM is a private engineering and technology firm based in Vancouver BC, Canada. We specialize in the development, engineering and commercialization of new chemical processes, and in the improvement and optimization of existing technologies. Since 1988 NORAM has provided leading-edge technologies to the chemical, pulp and paper, minerals processing, wastewater and electrochemical industries.

Today NORAM is the world's leading supplier of nitration technology. In addition, we offer sulfuric acid plants, biological treatment facilities, energy systems, and technologies for the clean-tech sectors.

Our business has developed around the supply of proprietary engineering and equipment packages to our clients.

Core competencies include:

- Nitration and NOx Technology
- Electrochemical Systems
- Sulfuric Acid Manufacture
- Biological Wastewater Treatment
- Computational Fluid Dynamics & Finite Element Analysis
- Heat Transfer & Heat Exchangers
- Hydrogen, Sulfur and Chlorine Chemistry
- Fluidised Bed Systems
- Energy Storage
- System Closure

Partnering with Innovation and Experience

NORAM works extensively with early-stage technology companies. We draw on established competencies in process design and engineering, provide custom in-house fabrication capabilities, and offer pilot plant and contract research facilities to support the commercialization process.

We've teamed up with organizations around the globe to allow project execution on 5 continents. Our strategic relationships include:

- Bateman Engineering BV
- Canadian Hydrogen and Fuel Cell Association
- ECO-TEC Inc.
- First Chemical Corporation (a DuPont Company)
- FP Innovations
- Kemetco Research Inc.
- Membrane Reactor Technologies
- Ostara Nutrient Recovery Technologies Inc.
- Radient Technologies Inc.
- Siloxy Limited
- Simon Carves Ltd (Punj Lloyd Group)
- Electrosynthesis Company Inc.

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