

CASE STUDY 4

PT INDAH KIAT'S PERAWANG PRODUCTION FACILITY

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PURAFIL PREVENTS CORROSION 4 PT INDAH KIAT'S PERAWANG PRODUCTION FACILITY



ABOUT PT INDAH KIAT

PT Indah Kiat, a subsidiary of Asia Pulp & Paper Company Ltd (APP), is one of the largest pulp and paper manufacturers in Asia outside Japan. Indah Kiat's Perawang production facility, where Purafil's gas-phase air filtration systems are in operation, has an annual BHK pulp production of 1,701,000 tonnes. IKPP Perawang, located in the Riau Province, South Sumatra, consists of four pulp mills: PM#1, PM#2, PM#8, and PM#9.

In the fourth quarter of 1998, APP completed a major expansion project of PM#1, PM#2, and PM#9 to make room for new, state-of-the-art equipment, including paper machines or "pulpers." Indah Kiat consulted with Purafil to protect the mills' new control room equipment from high concentrations of corrosive hydrogen sulfide gas.

THE PROBLEM

World-class pulp and paper mills are utilizing state-of-the-art computer process control equipment to facilitate operations and maximize return on investment. Although the need for computerization is great in the pulp and paper making process, operating conditions are often not accommodating for electronics.

The digestion of pulp is the primary generator of acid gases, such as hydrogen sulfide and sulfur dioxide. Batch digesters mix log chips, water, and caustic material to form a slurry, which is then cooked under intense pressure and heat. This process reduces the chips to cellulose and lignin, which is dissolved out of the wood, leaving cellulose and black liquor. High loads of hydrogen sulfide gas are emitted during this process.

It is generally accepted that a hydrogen sulfide level of 5 parts per million exists throughout a pulp and paper mill. In order to keep computerized process control equipment from experiencing corrosion, the hydrogen sulfide level must be reduced to 3 parts per billion. Failure to maintain acceptable gas levels can result in extensive damage to the metal components of electronic equipment found in nearby control rooms and motor control centers.

Paper machines, like those installed at Indah Kiat's Perawang production facility, feature several control rooms and motor control centers – at the wet end, at the dryers, and at the rewinder – all requiring protection from corrosive gas emissions.

PURAFIL PROVIDES THE SOLUTION

Ali Soeria, Section Chief of Instrumentation for the Perawang production facility, aware of the benefits of gas-phase air filtration, contacted Purafil's representative in Indonesia. Based on Purafil's design standards for controlled environments, Purafil installed their Deep Bed Scrubber (DBS) at the fresh air intake of each control room and motor control center to provide clean, pressur-

ized air to the controlled space. Designed as a draw through unit, air entering the scrubber first passes through a 35% ASHRAE prefilter, then two stages of Purafil dry scrubbing media (i.e., Purakol and Purafil respectively), and lastly a final filter section.

While pressurization prevents corrosive gases from infiltrating the room through small cracks, airborne contaminants can also enter the controlled space on personnel clothing. At Perawang production facility, Soeria expected the control rooms and motor control centers located at the wet end of the paper machine to see a lot of foot traffic. To reduce the risk of control room contamination, P.T. Seltech Utama also installed Purafil's Corrosive-Air (CA) System within each protected space. The units would polish recirculation air and provide additional protection of process control equipment.

Ideal for areas with high levels of gaseous contaminants, the DBS is designed to deliver G1-class air (as defined by the Instrument Society of America) to control rooms, motor control centers, rack rooms, switch gear rooms, or other environments housing sensitive electronic and electrical equipment. The DBS is constructed of corrosion-resistant materials, making it suitable for installation outside of the space it is protecting. Systems are available from 700CFM and higher, offering design flexibility for specific applications.

The CA System is a self-contained air purification system designed to recirculate and clean air within controlled environments containing sensitive computer, electronic equipment. The CA is ideal for those environments where low corrosive gas levels are required. The CA contains four stages of contamination control media and offers optional gage units to read filter particulate pressure differential. Available in four vertical configurations, ranging from 500 cfm to 4,000 cfm, the CA offers flexibility to meet varying air filtration needs.

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