Plantweb keeps oil crude and tall

Emerson Process Management has supplied PlantWeb digital plant architecture with Foundation fieldbus technology and intelligent process instrumentation to a greenfield plant for Forchem in Finland. The new plant distills and processes crude tall oil (CTO), a pulp industry by-product.

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The plant started production in November 2002, just 13 months after work began, and at full capacity will achieve 150,000 tons a year. Over 300 intelligent field devices were supplied by Emerson, approved intrinsically safe for use in a hazardous area, according to the FISCO concept. instrumentation included Rosemount temperature and pressure transmitters, and pH meters and toroidal conductivity measurement systems from Rosemount Analytical.

The plant has installed over twenty Rosemount 848T eight channel temperature measurement systems, which are specifically designed for multiple point temperature monitoring on Foundation fieldbus installations. Flowmeters supplied include Micro Motion Coriolis meters, plus Rosemount vortex and magnetic flow transmitters, with Fisher and Baumann control valves using Fieldvue digital valve controllers.

In addition to its core use of Foundation fieldbus technology, the DeltaV digital automation system also uses Profibus-DP fieldbus communications for discrete controls such as motor control centres and frequency converters. A redundant Modbus interfaces to fail-safe PLCs. SIS installations use Rosemount pressure and temperature transmitters with conventional 4-20mA loops, supervised using HART digital communications. Via the OPC server, the DeltaV system enables access to monitoring of over 900 electrical heat tracing loops. All intelligent field devices are managed by the integrated AMS predictive maintenance software, providing a single window concept to the field.

Optimised performance Forchem is able to monitor and optimise the performance of the plant and production processes remotely. This access to the PlantWeb architecture is achieved using web-browsers, served by the DeltaV web-server and OSI PI ProcessBook remote concepts. This enables continuing process development and optimisation, based on current plant conditions and performance and the results of the process simulation.

The contract for the know-how, design, supply, and construction of the crude tall oil fractionation plant was entrusted to Rintekno of Espoo, Finland. Simulation techniques were used in the design and test of new distillation concepts, to optimise the process yield and save energy. Systecon, a subsidiary of Rintekno, engineered the plant and supplied the process automation and information management systems, plus electrical systems.

Systecon also remotely monitors the DeltaV system performance, and via remote access uses AMS predictive maintenance software within DeltaV to monitor device diagnostics within the field instrumentation, and other sub-systems, for maintenance prediction and planning. Both device and equipment health and process health

information, including device alarms are made available over the PlantWeb network to those running the plant both locally and remotely.

Forchem plant management uses the same web-server functions through their office PC network to access plant data. The information feeds into company-wide ERP systems where it is used to maximise the benefits from efficient information management. The Event Historian and Continuous Historian databases are provided as part of the OSI PI ProcessBook utilised by the DeltaV system. Additionally, overall loop performance is measured continuously by the DeltaV Inspect application, and this information guides operations and engineering to focus on and optimise the key "money making" loops.

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