

# Poles get the R&D treatment

Several things happened before FFS started researching the treatment of utility poles with coal tar-creosote solutions.

Firstly a fully operational scale model treatment plant had to be designed and built.

This involved the design and fabrication of the vacuum-pressure vessel with its quick-release door. Many timber treaters experience sealing problems on their existing vessels where the door rotates on the seal, causing damage and subsequent leakage. FFS designed a door closure that did not rotate on the seal and fabricated the mini-version for demonstration purposes. This design has been made available to FFS's customers to allow replacement of existing doors and double-door

conversions to improve process flow and thus productivity.

The pilot process plant, which was originally manually operated, has been automated. The process is now controlled by a SCADA system where all the input parameters can be entered.

A record is kept of the key process parameters of each batch for quality management control. The product is heated to the correct temperature before treatment and the temperature profile in the process vessel is recorded for the duration of the treatment cycle. Vacuum is generated by a compressed-air ejector and the pressure is produced by a high-pressure positive displacement pump.

The process vessel is capable of

treating three by one-metre lengths of pole of up to 250mm diameter, with the ends of the poles sealed to ensure radial penetration only.

Secondly a continuous supply of suitable pole off-cuts have been generously supplied by Timber Treated Products of Pietermaritzburg.

Thirdly a method to measure the actual quantity of creosote retained in the pole had to be developed.

This has allowed FFS to start testing the various conditions under which successful treatment can be achieved, and what level of retention is possible and how to determine it.

FFS is also testing fire retardants to reduce the risk of pole failure due to fires. This development should be of considerable value to Eskom. ■