

TNO Science and Industry



TNO report

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TNO CATO pilot plant at E-On Maasvlakte

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Public Summary

Under the Dutch national program of CO₂ capture, transport and storage, CATO, TNO has performed pilot plant tests at the coal fired power plant of E-On at the Maasvlakte in The Netherlands. For the first time the environmentally friendly proprietary TNO CO₂ capture solvents CORAL[®] AUG and CORAL[®] XPT were tested under practical conditions of coal fired power plant flue gas (post-combustion capture). MEA capture solvent was also tested at 30% concentration in this pilot plant and acted as a benchmark.

The pilot plant tests resulted in the following findings:

1. High capture rates proved possible well over 90%
2. Excellent solvent stability, no degradation found
3. Virtually no emissions, no ammonia formation, no evaporation losses
4. Comparable energy consumption to MEA standard
5. Low temperatures proved possible which broadens application of waste heat
6. Membrane application showed feasibility of ultra-compact absorption

Operations showed to be smooth with fast reaction towards changes of settings, usually within several resident times.

Continuation of pilot testing with new to be developed CO₂ capture solvent types from the CORAL[®] class family is highly recommended.

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