

Corus, Europe's leading Iron and Steel producer, has acquired Strathkelvin's latest respirometer resulting in the vastly improved security of their Biological Wastewater Treatment Processes in IJmuiden, Netherlands.

Dutch-Anglo iron and steel producer Corus installed a biological wastewater treatment plant that was put into operation at their major production facility in IJmuiden, the Netherlands. Following the first year of operation serious problems were encountered. The most probable cause was toxic components in one of the wastewater flows that dramatically decreased the removal efficiency of the plant within a short period of time.

After the process was re-established it was decided that there should be better control of influent composition and sludge health. Since it was not known which particular components in the influent could cause inhibition or toxicity additional chemical analysis was not useful. So it was decided that controlling bacterial performance by regularly analysing the possible effects of the different wastewater flows on the biomass would give the extra information needed to prevent toxic or inhibiting shocks.

After exhaustively researching the alternatives Corus decided to use respirometry since that would give them a direct measure of the bacterial performance of their plant, so they could quickly react to any critical changes to their plants operational capability.



Corus needed an instrument that would be easy to use by a range of plant personnel, would produce results and reports that needed no intervention, and provide them in the quickest time possible.

They chose Strathkelvin Instrument's Strathtox respirometer, and commenced a trial in late 2004 that has been so successful that they have acquired the unit, which now forms an integral part of their daily programme of plant testing and analysis.

Antoine van Hoorn, working for Corus's Environmental Management Department says: "Already on one occasion inhibitory materials in the wastewater arriving at the treatment plant could be detected before any harm was done. The respirometer's software makes it possible to measure sludge health and analysing the trend gives additional information about the decrease in health providing an early warning system that makes it possible to take corrective measures quickly and effectively....."

Strathtox is simple to operate, and plant personnel easily performed the tests after a short period of training. The automated reports, combined with quick and efficient test procedures make Strathtox ideal for controlling the day-to-day operation of the plant. Nitrification Inhibition tests are completed well within 30 minutes.....

Shock loading or toxification of the biological process causes the effluent limits set by the water authorities to be exceeded and in the end leads to fines and penalties. So using the results from Strathtox reduces the operational cost of the plant."

Processing a combination of different wastewater inflows this plant removes COD and TKN by more than 90%. In total approximately 300 m³/hr of wastewater is treated, produced from the sintering process, the blast furnaces and coke plants, where the water is pre-treated to remove suspended solids and heavy metals. The wastewater treatment plant is mission critical to the Coke production operation at IJmuiden, and the security that Strathtox provides will ensure that the plant will no longer be subject to the risk of highly expensive toxic events and the opportunity to reduce operating costs by increasing the plant's bacterial performance.

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