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# Water In Oil Analysis Turns To Tar

**ABLE Instruments & Controls Ltd is pleased to report a successful acceptance testing phase for measuring coke tar moisture at Corus Steel Plant in Scunthorpe, using their Drexelbrook CM6 on-line water in oil analyser.**

Corus Steel Plant in Scunthorpe is one of the UK's three integrated Steel Works. There are two coke making plants at Scunthorpe and their main purpose is to convert coal into metallurgical coke for use in the Blast furnaces. Tar is an important by-product of the coke making process and is transported via road tankers off site to tar distillation companies for processing. It is important to measure the moisture content of the tar to ensure the correct quality of tar is being transported to the distillation company.

The present method of despatch tar moisture analysis at both Dawes Lane and Appleby Coke ovens, involves the operator taking a 'spot' sample during the tanker loading operation. The sample is then collected by the coke oven laboratory chemist & taken back to the laboratory and analysed using a Karl Fischer technique.

There were many disadvantages with this testing method causing possible inaccuracies in measurement and also time and cost impacts. The spot sample only provides a 'snap shot' of the tanker load and therefore may not be fully representative of the moisture content of the whole tanker load. In addition, the tanker driver has often left the site by the time the analysis is completed and may not be aware of the moisture content of the load.

There is also a time & cost impact due to the fact that on occasion the chemist has to travel to and from the plant for the purpose of picking up and analysing a single tar sample.

Analysing the sample using this method involves undesirable, indirect contact with the tar, both for the chemist and plant operator. There is an environmental impact and cost regarding the safe disposal of contaminated plastic sample pots, gloves, plastic syringes and rags.

An Engineer at Corus noticed an advert in International Environmental magazine which stated that ABLE Instruments & Controls Ltd marketed a Drexelbrook CM6 on-line water in oil analyser. The instrument consists of a sensing element & RF transmitter unit and operates on the principle that the capacitance of the oil is proportional to the water content.

Previous attempts to measure the moisture content of Coke Oven tar using this technique had not been successful, ABLE instruments were confident however, that the CM6 analyser was proven technology on heavy oils & did not have any reservations with regard to moisture in tar applications.

It was agreed with ABLE that the instrument would be assessed for a trial period at Appleby Coke Ovens. The sensing probe was installed on 2nd October 2007 on a vertical down facing section of the tar delivery pipe just outside the pump house.

During the trial, the on-line moisture analyser compared well with the Laboratory results. The instrument has been on-line for approximately 3 months and has performed very well, not requiring any significant maintenance.

Section Chemist, Roy Scott, comments; *"This new method has ensured that we have more accurate analysis of the whole tanker load with improved control of the tar loading operation, for example, reduction of despatch tar tankers leaving with high moisture content, improvement to health & safety operation for plant operator & chemist. Furthermore, the benefits of ABLE's solution include, reduced chance of exposure to tar, reduced environmental impact & costs regarding disposal of contaminated plastic sample pots, gloves, pipettes & cleaning fluids/cloths and finally, time and fuel savings for chemist having to pick up & analyse single tar samples."*

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