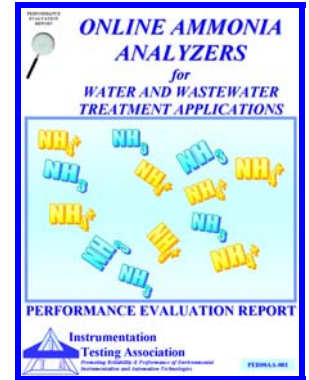
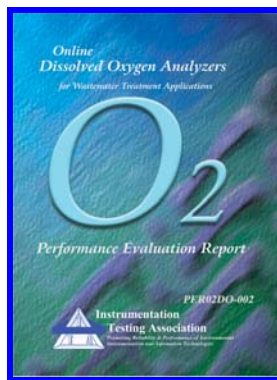


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## ITA ACTIVATED SLUDGE PACKAGE



### Online Interface/Sludge Blanket Level Analyzers Performance Evaluation Report

This report contains evaluations of:

- [Entech Design, Inc.](#) BinMinder Model 9300 (Ultrasonic)
- [Hach Company](#) OPTIQUANT SLM (Ultrasonic)
- [Royce Technologies](#) Model 2501 and 25DN Sensor (Ultrasonic)
- [Solartron Mobrey Ltd](#) Model MSL 600 Sludge Blanket Level Monitor (Ultrasonic)

The Instrumentation Testing Association (ITA) and the District of Columbia, Water and Sewer Authority (DC WASA), Blue Plains Advanced Wastewater Treatment Plant (AWTP), conducted a performance evaluation of online/interface sludge blanket level analyzers (ISBLA) over a period of 3 months and documented the results of the field-test in this report.

ITA's performance evaluation report presents the results of online interface/sludge blanket level analyzer (ISBLA) field-tests conducted in real-time process monitoring conditions in a wastewater treatment environment of secondary settling basins (clarifiers). The evaluation of four ISBL analyzers were performed over a period of three months utilizing ultrasonic analyzer technology supplied by four different manufacturers.

The ITA test report provides:

- an overview of performance test procedures;
- a description of how ISBL analyzers work;
- detailed instrument specification and cost information;
- test results in a graphical and statistical format;
- field-test maintenance records; and
- instrument operations and maintenance (O&M) manuals.

### Online Dissolved Oxygen Analyzers for Wastewater Treatment Applications Performance Evaluation Report

This report contains evaluations of:

- [ABB, Inc.](#) Model 4640 and 9408-762E Sensor System (Galvanic)
- [Danfoss Water and Wastewater](#) Model Evita Oxy Dissolved Oxygen Meter Model 4100 / 5000 (Polarographic)
- [Endress + Hauser](#) Model Liquisys M COM 253 transmitter and COS 41 DO Sensor (Polarographic)
- [Hach Company \(GLI\)](#) Model D53 Analyzers and 5500 Series Clark Electrode (Polarographic)
- [IC Controls](#) Model 855-8-32-52 Instrument and 802-1-3-94 Sensor (Galvanic)
- [Insite Instrumentation Group, Inc.](#) Model 1000 Instrument and Model 10 Probe (Fluorescence)
- [Royce Technologies](#) Model 9100 D Analyzer (Galvanic)
- [Royce Technologies](#) Model 9200 Analyzer (Galvanic)
- [WTW Measurement Systems, Inc.](#) Model 184 Sensor Net Transmitter and TriOxmatic 700IQ DO Sensor (Polarographic)

The Instrumentation Testing Association (ITA) and the Sanitary District of Decatur (SDD), of Decatur, Illinois, sponsored this test. This report presents the results of online dissolved oxygen analyzer tests conducted to evaluate performance in near real-time process monitoring conditions. The evaluation of 9 dissolved oxygen analyzers were performed over a period of three months utilizing three different analyzer technologies (galvanic, fluorescence and polarographic) supplied by eight different manufacturers.

### Online Dissolved Oxygen Analyzers Maintenance Benchmarking Study

This maintenance benchmarking study includes an investigation of the use of online dissolved oxygen analyzers for industrial, influent, activated sludge, and effluent treatment process applications.

This study presents varying technologies, calibration and maintenance practices, and reported effectiveness of online dissolved oxygen analyzers used for wastewater and industrial treatment processes.

The Instrumentation Testing Association (ITA) performed its investigation by developing and conducting a survey of wastewater and industrial treatment facilities. This study reports the findings of the benchmarking survey, presents results in both a graphical and tabular format. Analyses include reported technologies in use; practiced installation, maintenance, and reported performance, accuracy, and estimated maintenance materials costs.

Together, these items form a basis of knowledge to assist in understanding the advantages and limitations of online dissolved oxygen analyzer technologies used to monitor and control treatment process systems.

### Online Ammonia Analyzers for Water and Wastewater Treatment Applications Performance Evaluation Report

This report contains evaluations of:

- [ASA, Inc., ChemScan](#), Model UV 2150 NH<sub>3</sub>-N)
- [Bran + Luebbe](#) Model Monitor 90 S ISE
- [Danfoss Analytical](#) Model Evita Insitu Colorimetric
- [FPM Analytics](#) Model IonChem 2005 Ammonia ISE
- [Hach Company](#) Model APA 6000 NH<sub>3</sub>-N ISE
- [Waltron Ltd.](#) Model  $\mu$ AI-8232 Ammonia Monitor ISE
- [WTW Measurement Systems, Inc.](#) Model TresCon BA43111e02 NH<sub>4</sub>-N ISE
- [Zellweger Analytics](#) Model Z polyanalyzer 8810 Ammonia ISE

This report presents the results of online ammonia analyzers field-tested in a wastewater secondary activated sludge aeration basin. This report includes evaluations of eight online ammonia analyzers representing three different technologies (ion-selective electrodes-ISE, colorimetric, and UV absorbance) tested over a period of 90 days at the City of Houston's Beltway Wastewater Treatment Plant. This report presents test data in a graphical and statistical format and includes detailed ammonia analyzer specification and cost information.

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