ChemScan® Process Analyzer
#102
Analysis Techniques, Products and Parameters

Analysis Techniques

ChemScan Process Analyzers using photometry or spectrophotometry are designed to detect and measure the concentrations of chemicals in water or other liquid media by analyzing the ultraviolet-visible light absorbance signature from the sample using the following techniques:

Primary Absorbance (PA) is used to detect chemicals that possess unique natural light absorbance characteristics that change in proportion to chemical concentration within certain wavelength ranges.

Secondary Absorbance (SA) adds a reagent and/or pH buffer to the sample in order to amplify or create light absorbance characteristics for a specific chemical parameter that change in proportion to concentration within certain wavelength ranges.

Photometry uses a limited number of wavelengths for analysis (1 or 2), with or without an additional measurement to compensate for turbidity. Spectrophotometry uses analysis of a full absorbance spectrum over a range of wavelengths.

ChemScan Process Analyzers using amperometry are designed to detect and measure the concentrations of chemicals in water or other liquid media by measuring the potential between a measurement and reference electrode.

Products

A-2000	is an amperometric analyzer for continuous side stream analysis of a single parameter. A pH buffer is usually added to the sample flow.
UV-0254	is a photometric analyzer for continuous side stream analysis of a single parameter using primary absorbance.
UV-2150	is a spectrophotometric analyzer for rapid batch analysis of one secondary absorbance parameter in up to four sample lines.
UV-2150/S	is a special purpose spectrophotometric analyzer for water applications. Analysis is a combination of primary absorbance and secondary absorbance, but is limited to four parameters specific to chloramination control.
UV-3150	is a spectrophotometric analyzer for rapid batch analysis of one or two primary absorbance parameters. Analysis can be performed in up to eight sample lines, provided that there are not more than eight outputs.
UV-4100	is a special purpose spectrophotometric analyzer designed specifically for wastewater monitoring applications. Analysis is a combination of primary

absorbance and secondary absorbance, but is limited to up to four specific parameters. Analysis can be performed in one or two sample lines, provided that there are no more than eight outputs.

UV-6101 is a general purpose spectrophotometric analyzer. Any parameter or combination of parameters capable of being analyzer using primary or secondary absorbance is eligible for analysis by this product, up to a total of eight parameters, provided that no more than four reagents are required for all secondary analysis procedures. A total of up to eight sample lines can be monitored. Up to 16 analog outputs can be provided, with MODBUS recommended if more than 16 outputs are needed.

Parameters

The attached parameter list is not a complete list of parameters capable of analysis. There are hundreds of parameters capable of analysis using amperometry, photometry or spectrophotometry. The list shows only those parameters that ChemScan has experience with as of the latest revision date. Contact ASA, visit www.chemscan.com or contact your local ChemScan representative for parameters not shown on the list.

Pub #	Parameter	Analysis	Amperometric Analysis A-2000	Photometric Analysis UV-0254	UV-2150	UV-2150/S	Spectrophotometric Analysis UV-3150	UV-4100	UV-6101
		Techniques*							
158	Aquatic Humic Substances (AHS)	PA		X			X		X
41	Ammonia, Free	SA			X	X		X	X
163	Ammonia, Total	SA			X	X		X	X
136	Barium	SA			X				X
162	Chloramine	SA			X				X
49	Chlorine, Free	Amp, SA	X		X			X	X
121	Chlorine, Total	Amp, SA	X		X	X			X
133	Chrome VI	PA					X		X
39	COD Correlation	PA		X			X		X
52	Color, Apparent	PA					X		X
125	Color, True	PA					X		X
66	Copper	PA					X		X
159	Dissolved Organic Carbon (DOC)	PA		X			X		X
165	Fluoride	SA			X				X
85	Hardness, Total	SA			X				X
160	Humic Matter	PA					X		X
166	Iodine	Amp, PA	X				X		X
141	Iron, Ferric	PA					X		X
43	Iron, Ferrous	SA			X				X
129	Iron, Total	SA			X			X	X
134	Manganese	SA			X			X	X
123	Molybdate	PA					X		X
122	Monochloramine	PA			X	X			X
68	Natural Organic Matter (NOM)	PA		X			X		X
56	Nitrate	PA					X	X	X
57	Nitrite	PA					X	X	X
130	Nitrogen, Total	PA					X	X	X
124	Nitrogen, Total Oxidized	PA					X	X	X

			Amperometric	Photometric			Spectrophotometric		

Pub #	Parameter	Analysis	Analysis A-2000	Analysis UV-0254	UV-2150	UV-2150/S	Analysis UV-3150	UV-4100	UV-6101
		Techniques*							
151	Oil	PA					X		X
157	Ozone, Dissolved	Amp, PA	X				X	X	X
42	Percent Transmittance	PA		X			X		X
40	Phosphate, ortho	SA			X			X	X
132	Phosphate, poly	SA			X			X	X
131	Phosphorous, Total	SA			X			X	X
149	Polymers, Synthetic	SA			X				X
69	Potassium Permanganate	Amp, PA	X				X		X
144	Silica	SA			X				X
167	Solids Correlation	PA					X		X
127	Specific Absorbance	PA		X			X	X	X
128	Spectrum Matching	PA					X		X
135	Sulfate	SA			X				X
168	Sulfite	PA, SA			X		X		X
161	Tannin	PA					X		X
126	TOC Estimation	PA		X			X		X
120	Triazole	PA					X		X
67	Turbidity	PA		X			X		X

***Analysis Techniques:**

PA = Primary Absorbance (Photometry or Spectrophotometry without reagents)

SA = Secondary Absorbance (Spectrophotometry after reagent addition)

Amp = Amperometric using measurement and reference electrodes

	Amperometric	Photometric			Spectrophotometric		
	Analysis A-2000	Analysis UV-0254	UV-2150	UV-2150/S	Analysis UV-3150	UV-4100	UV-6101
PARAMETER Limit	**1**	**1**	**1**	**4**	**2**	**4**	**8**
OUTPUT Limit	**1**	**1**	**4**	**8**	**8**	**8**	**64**
SAMPLE LINE Limit	**1**	**1**	**4**	**2**	**8**	**2**	**8**