



# A new standard for Bayer liquor analysis



BAYER LIQUOR ANALYSIS BY INFRA-RED

BLAIR

File FTIR Autosampler Queue Method Database Help

Queue Results Controls

### Result database

Name contains

Name	A	C	S	Na2SO4	NaCl	TOC	Oxalate	Density	Acetate	Formate	Succinate	Malonate	Total Na
synth_liq_3	47.6	236.3	258.5	8.9	5.9	9.3	0.3	1.238	9.2	9.8	9.7	9.3	294.0
synth_liq_4	47.7	237.3	257.9	9.0	6.2	9.3	0.3	1.240	9.4	9.8	8.8	9.7	295.4
synth_liq_5	47.5	237.6	258.2	8.8	6.1	9.3	0.3	1.241	9.2	10.1	9.4	9.2	296.1
synth_liq_6	48.0	238.0	258.8	8.9	6.9	9.3	0.4	1.241	9.6	9.9	8.9	9.4	296.7
synth_liq_7	48.4	239.0	259.3	8.9	5.9	9.3	0.4	1.242	9.7	9.7	8.5	9.8	297.6
synth_liq_8	48.3	238.2	259.1	8.8	6.1	9.3	0.4	1.241	8.9	9.5	9.1	10.0	296.2
synth_liq_9	48.3	237.7	258.6	8.7	5.1	9.2	0.4	1.241	8.8	9.5	9.0	9.6	296.0
synth_liq_10	47.8	237.5	258.8	8.8	5.3	9.3	0.3	1.240	8.7	9.5	9.2	9.3	295.7
synth_liq_11	47.4	237.4	258.0	8.5	5.4	9.2	0.3	1.241	9.2	10.0	8.9	9.4	294.4
synth_liq_12	47.9	237.4	259.3	8.4	6.4	9.2	0.3	1.241	9.5	10.1	8.8	9.3	296.2
synth_liq_13	47.6	237.3	258.4	8.9	6.9	9.4	0.3	1.242	10.0	10.1	8.7	9.6	296.9
A2	48.0	237.8	259.1	9.1	6.6	9.4	0.3	1.242	10.0	10.1	8.2	9.3	296.7
A3	48.5	238.0	259.5	9.1	6.7	9.5	0.3	1.241	9.6	10.4	8.7	9.4	296.7
A4	48.0	237.2	258.1	9.0	6.0	9.3	0.3	1.241	10.4	10.3	8.4	9.3	297.5
A5	48.2	237.4	258.8	8.9	6.4	9.5	0.3	1.240	10.4	10.5	8.7	9.4	297.5
A6	47.6	236.6	258.2	9.4	7.0	9.6	0.4	1.241	9.8	10.0	8.5	9.8	297.8
A13	48.1	237.0	259.3	9.3	7.8	9.8	0.4	1.242	9.8	10.0	8.4	9.8	297.5

## Fast, comprehensive and reliable analysis

BLAIR is Bayer Liquor Analysis by Infra-Red. It's a powerful technology for quantitatively analysing Bayer liquors which conveniently provides over twelve Bayer liquor parameters. BLAIR requires no messy titrations, no dilutions and no additional reagents. The older classical methods of analysis are time consuming and provide unreliable results if not constantly maintained. BLAIR gives repeatable and reliable results, whether you are measuring an occasional sample or analysing continuously.

## The all-in-one system

BLAIR provides a wealth of chemical information that previously would have required several instruments. It provides this information at a lower cost and in far less time than current methods of Bayer liquor analysis.

A single BLAIR measurement provides:

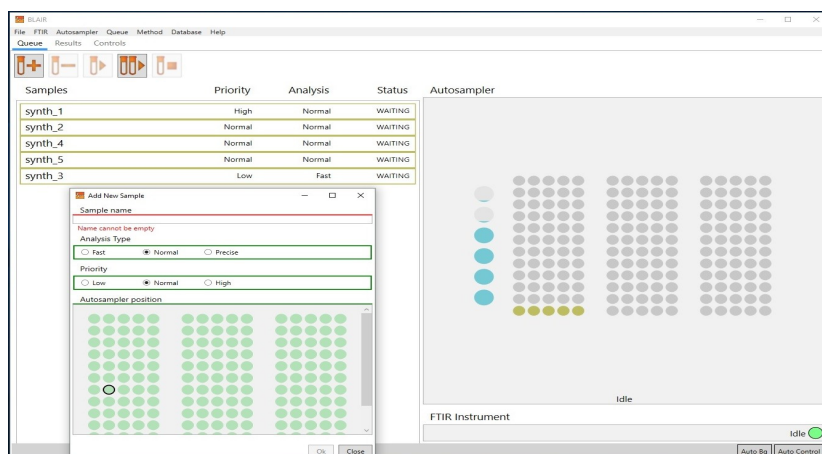
- alumina
- total alkalinity
- oxalate
- formate
- malonate
- sulfate
- total caustic
- TOC
- acetate
- succinate
- chloride
- density

## Analysis of Bayer organics made easy

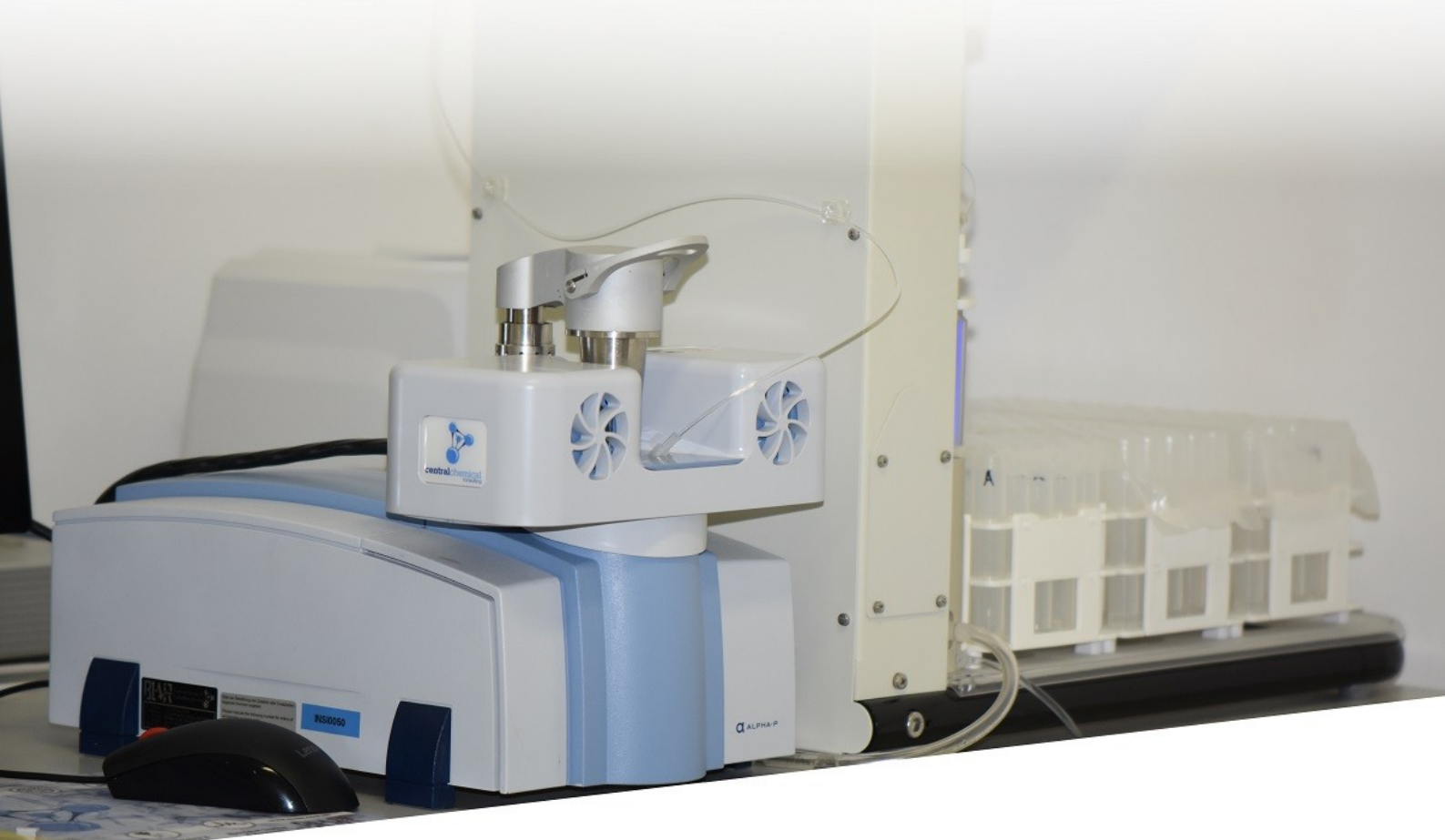
In less than five minutes BLAIR measures TOC, oxalate, acetate, formate, succinate and malonate. A relative measure of the oxidation and breakdown of organics between liquors can also be quickly assessed through the Borg value (a parameter unique to BLAIR).

## Advantages of BLAIR

- Over twelve Bayer liquor parameters in less than five minutes
- Small sample volumes and no additional reagents needed
- Direct measurements over the whole Bayer liquor range
- Low capital cost and robust system
- No prior sample knowledge or dilution required
- Less on-going maintenance
- Applicable for laboratory based and on-line monitoring







## BLAIR Specifications

Measurement parameters	A, C, S, TOC, oxalate, acetate, formate, succinate, malonate, sulfate, chloride, density and the Borg value			
Minimum sample volume	10 mL (automated system, 180 sample capacity)			
Measurement time	less than 5 minutes (in normal mode)			
Accuracy#	A	1.2 g/L	TOC	0.5 g/L
	C	2.6 g/L	oxalate	0.2 g/L
	S	2.2 g/L	acetate	0.7 g/L
	sulfate	0.5 g/L	formate	0.3 g/L
	chloride	1.5 g/L	succinate	0.7 g/L
	density	0.004 g/mL	malonate	0.6 g/L
Precision^	A	0.3 g/L	TOC	0.1 g/L
	C	0.5 g/L	oxalate	0.1 g/L
	S	0.6 g/L	acetate	0.3 g/L
	sulfate	0.2 g/L	formate	0.2 g/L
	chloride	0.9 g/L	succinate	0.4 g/L
	density	0.001 g/mL	malonate	0.2 g/L
Dimensions	main unit		autosampler	
	30 x 40 x 25 cm (w x d x h)		28.5 x 49 x 51 cm (w x d x h)	
Weight	7 kg		13.5 kg	
Power Supply	100 – 240 VAC, 50 - 60 Hz			

<sup>#</sup> Root mean square error (RMSE) for a validation set of twenty-eight process and synthetic Bayer liquors

<sup>^</sup> Standard deviations for a set of forty-one replicate measurements taken over several days for the same synthetic Bayer liquor.

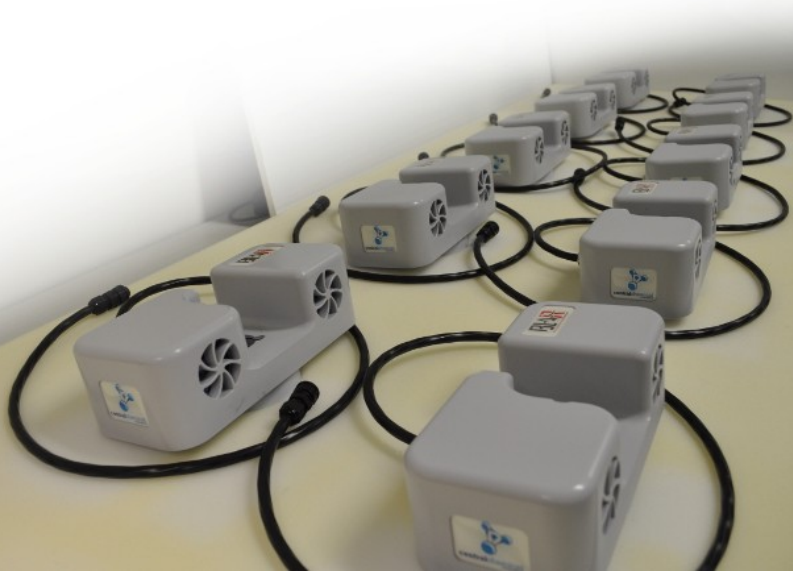


## Real Time Online Process Monitoring

The BLAIR system is also available for real time process stream monitoring anywhere on the plant where a Bayer liquor process stream's composition is required for the real time control of the process.

## Advantages of Online BLAIR

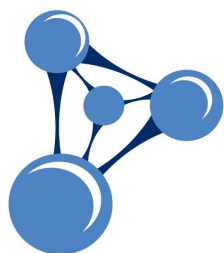
- Over twelve Bayer liquor parameters updated every 10 minutes
- Interfaces with any DCS or SCADA system
- Reports parameters to the control system in real time allowing unprecedented response times for process parameter manipulation
- Rapid return on investment followed by significant savings due to increased process efficiencies
- Engineering customisable to any site standards/requirements







We are the original developer of BLAIR and are committed to its success. We are also committed to increasing the efficiency of your Bayer liquor analyses. Our aim is to help you get the best from your alumina refinery - quickly, conveniently and at a low cost. Our PhD qualified R&D group have decades of experience in providing expert technical backup, support and training that is second to none. Please consider BLAIR, and contact us for more information about the BLAIR system, or to discuss your specific requirements.



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