

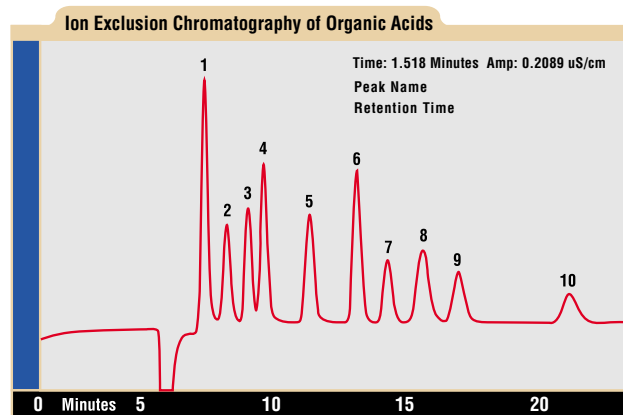
CG - Analytical Methods with Improved Dynamic Range and Accuracy

Other analyzers are designed for clinical applications where expected concentration ranges in blood and serum samples are narrow. In contrast, the BIO+ uses methods developed with actual fermentation broth and cell culture samples. As a result, the wide range of concentrations encountered during process evolution is anticipated in the chemistry to reduce sample dilutions and re-runs.

Also, the sample matrices are complex and often viscous requiring special considerations during analytical method development to ensure good recoveries for accurate determinations. The BIO+ can determine several important nutrients and by-products in both fermentations and cell cultures in the laboratory and on-line. Custom and confidential development is available.

CGS 3001.01

Analyte	Concentration Range	
Ammonia	10 to 1000 mg NH ₃ /L	
Glucose	1.0 to 25 g/L	
Glutamate	0.2 to 10 g/L	
Glutamine	0.05 to 1.0 g/L	
Glycerol	0.2 to 10 g/L	
Lactate	0.2 to 10 g/L	
Phosphorus	15.3 to 1226 mg PO ₄ ³⁻ /L	
TKN	0.2 to 20 mg/L	
Urea	0.2 to 2.5 g N/L	
Organic Acids		
2-ketoglutarate	6 to 720 mg/L	0.1 to 10 mg/L
Acetate	6 to 720 mg/L	0.1 to 10 mg/L
Butyrate	6 to 720 mg/L	0.1 to 10 mg/L
Formate	6 to 720 mg/L	0.1 to 10 mg/L
Fumarate	6 to 720 mg/L	0.1 to 10 mg/L
Malate	6 to 720 mg/L	0.1 to 10 mg/L
Malonate	6 to 720 mg/L	0.1 to 10 mg/L
Propionate	6 to 720 mg/L	0.1 to 10 mg/L
Succinate	6 to 720 mg/L	0.1 to 10 mg/L
Phosphate	3 to 360 mg/L	0.05 to 5 mg/L



Peak number	Peak name	Retention Time
1	phosphate-P	7.600
2	2-ketoglutarate	8.433
3	malate	9.217
4	malonate	9.800
5	succinate	11.500
6	formate	13.250
7	acetate	14.400
8	fumarate	15.700
9	propionate	17.033
10	butyrate	21.167