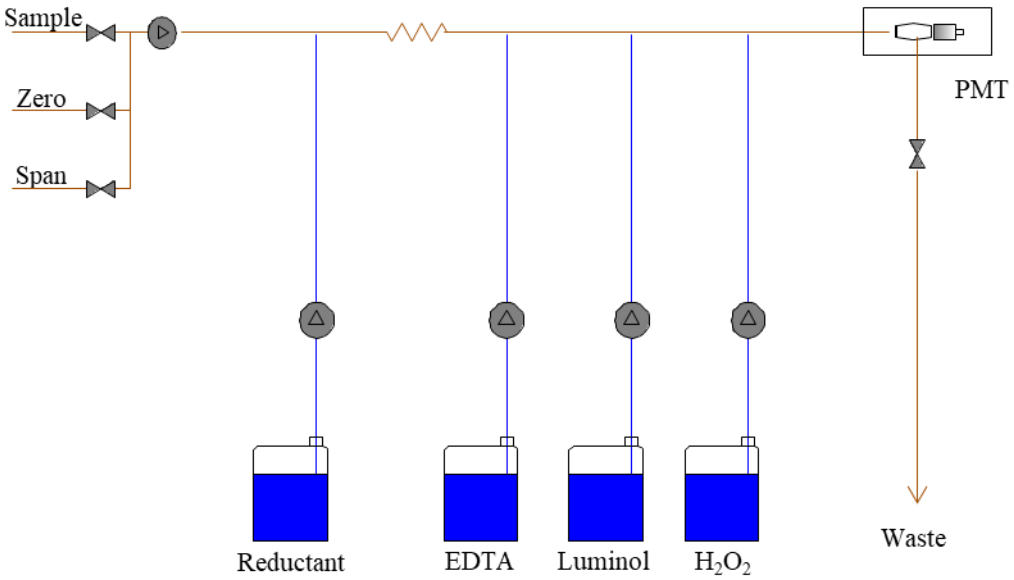
Monitor application M016CL

Total Dissolved Chromium in Water

Description

Sample which contains Cr^{6+} is converted as Cr^{3+} by reductant. Now all Chromium formed Cr^{3+} and it is mixed with EDTA and luminol and hydrogen-peroxide(H_2O_2) to produce chemiluminescence. The luminescence intensity is based on concentration of Cr^{3+}. The intensity is measured by PMT spectrometer without any light source.

Operation:	Cyclic
Dilution:	None
Interferences:	Co, Cu, Fe, Ni



Typical performance data using aqueous standards (in percent of range)

Measurement Accuracy:	≤ 5%, 0.02mg/L (whatever is higher)
Repeatability(Coefficient Variation 50%)	1.0 %
Detection limit(lowest range)	0.005mg/L
Calibration time;	20 min
Measurement time;	10 min

316 Simin-daero Anyang-si Gyeonggi-do, Korea. www.blprocess.co.kr info@blproces.co.kr Tel; +82 31 345 8200 Fax;+82 31 345-8202

BL Process

Hardware Specification

Measuring system:	PMT detector
Number of pumps	1(Digital injector)

Reagent Consumption (10min Cycle)

Calibration solution 1 & 2	Depend on calibration frequency
Reductant	~30L
EDTA	~15L
Luminol	~50L
H2O2	~50L

System Maintenance

Weekly	Check function of valves and pumps Check calibration parameters Check tubing cleanliness
3-monthly	Change tubes Check and clean measuring cell
Yearly	pump rotors and replace if necessary Replace all tubing Check reagent and sample detectors

Data Sheets and Reagents

Total dissolved Cr (mg/L)	Calibration	Required reagent
0-0.50…0-1.00	0.9	Reductant. EDTA, Luminol, H2O2

References

Remarks

Cr^{3+} can be measured direct chemluminescence method and Total Cr(Cr^{6+} and Cr^{3+}) is measured after reduction of Cr^{6+} in to Cr^{3+} . Cr^{6+} is measured total Cr- Cr^{3+}. So the measurement time would be 15min to measure Cr^{3+} and Cr^{6+}.

Cr^{6+} = Cr^{3+} Measurement(5min), Cr^{6+} + Cr^{3+} Measurement(10min)

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System schematic