

FINANCIAL ASPECTS OF ELEMENTAL ANALYSIS



VISIT BOOTH # 2727
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FINANCES IN THE LABORATORY

- Maximize productivity
- Reduce carry over
- Reduce maintenance
- Reduce consumable costs
- Reduce the need for additional instruments
- Increase laboratory profit

NIAGARA PLUS-CM

- Method wizard calculator.
- Purpose built 6/7 port valve.
- Positive displacement pump.
- NEW Control Module.

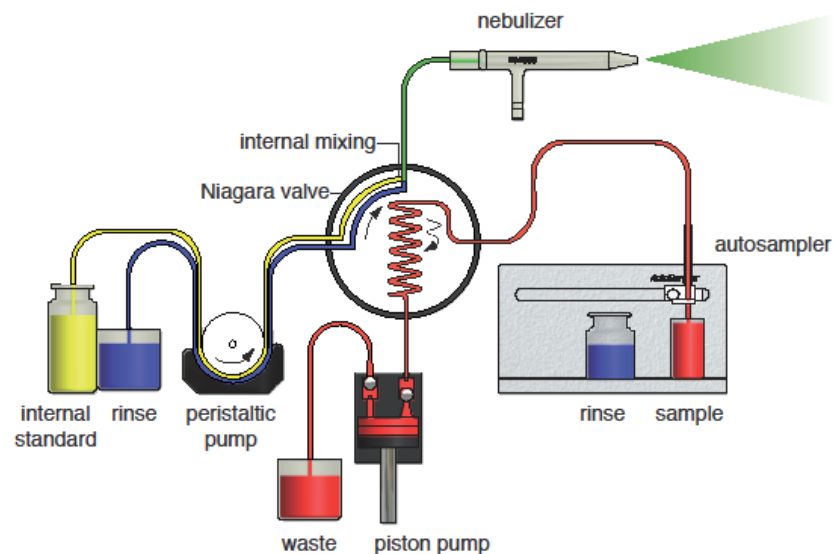


Part Number

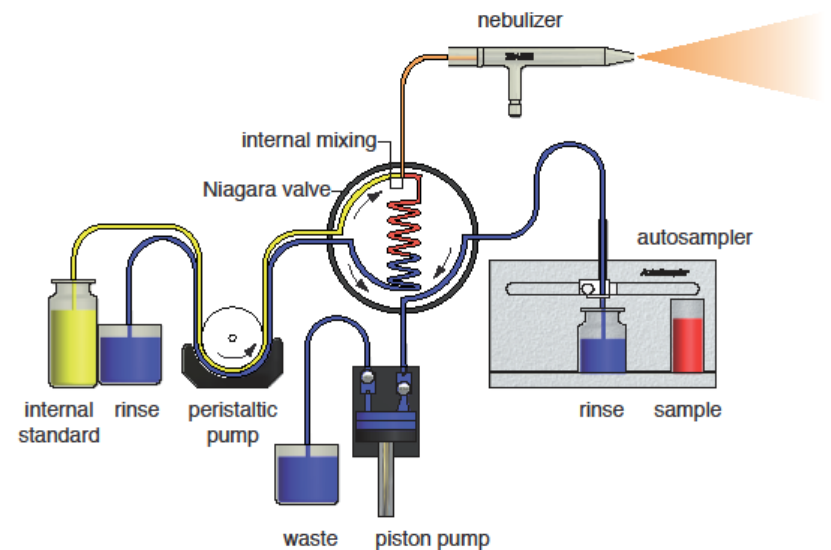
KT-1118

FLOW DIAGRAM FOR NIAGARA PLUS

Fill sample loop, rinse nebulizer and spray chamber



Aspirate sample, rinse autosampler probe



TIME SAVINGS FOR NIAGARA PLUS

Table 1. Varian Vista Pro ICP-OES operating conditions

	Without Niagara Plus	With Niagara Plus
RF power (kW)	1.20	1.20
Plasma gas flow (L/min)	15.00	15.00
Auxiliary gas flow (L/min)	1.50	1.50
Nebulizer gas flow (L/min)	0.80	0.80
Replicate read time (sec)	10.00	10.00
Stabilization delay (sec)	15.00	18.00
Sample uptake delay (sec)	18.00	0.00
Rinse time (sec)	30.00	0.00
Pump rate (rpm)	20	10
Fast pump	On	Off
Replicates	3	3
Total analysis Time (sec)	93	48

Provided courtesy of Marine and Freshwater Research Laboratory (MAFRL) at Murdoch University.

TIME BENEFITS OF NIAGARA PLUS*

	w/o Niagara	With Niagara Plus	Extra samples	Time Saved
Hour	38	75	37	32 min
8 hour day	309	600	291	4 hrs
40 hour week	1,545	3,000	1,455	19.4 hrs
30 day Month	6,180	12,000	5,820	76 hrs
Year	80,340	156,000	7,5660	1000 hrs

* Numbers are based on a 93 second analytical cycle without Niagara Plus, and a 48 second cycle with Niagara Plus.

COST BENEFITS OF NIAGARA PLUS*

	w/o Niagara	With Niagara Plus	Extra samples	Extra \$\$
Hour	38	75	37	1,850
8 hour day	309	600	291	14,550
40 hour week	1,545	3,000	1,455	72,750
30 day Month	6,180	12,000	5,820	291,000
Year	80,340	156,000	75,660	3,783,000

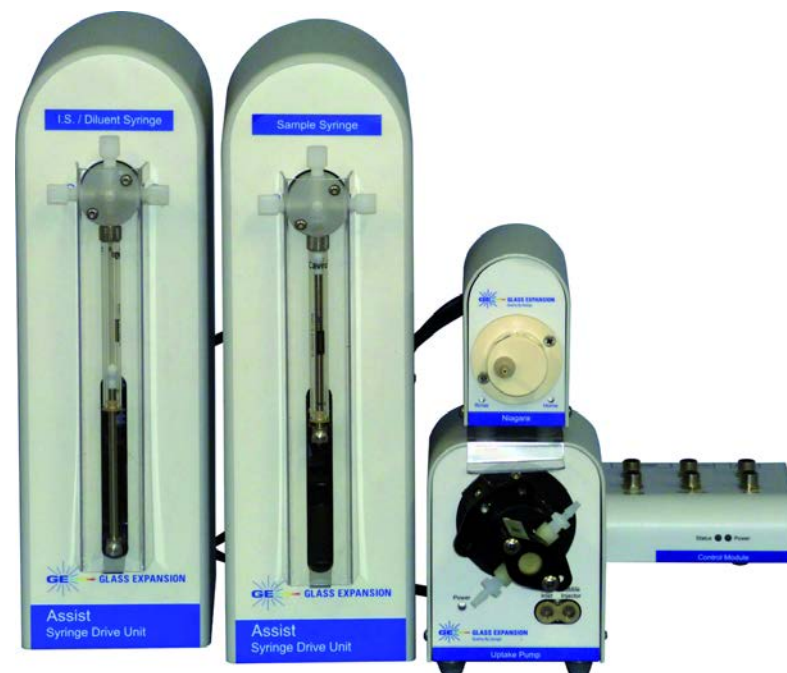
* Numbers are based on an 80 second analytical cycle without Niagara Plus, a conservative 44 second cycle with Niagara Plus, 10% overhead for standards and controls, and a price per sample of \$50.

IMPROVED CALIBRATION

Element (λ)	Correlation Coefficient	% Recovery
Ag 328	0.999999	105
As 188	0.999967	101
Ba 233	1.000000	100
Ca 422	1.000000	101
Co 228	1.000000	100
Cu 327	0.999990	98
Fe 238	1.000000	100
K 766	1.000000	99
Mg 279	1.000000	101
Mn 257	1.000000	101
Mo 202	0.999999	100
Na 589	1.000000	103
P 213	1.000000	101
Pb 220	0.999985	101
S 181	1.000000	102
Se 196	0.999999	99
Zn 213	0.999999	100

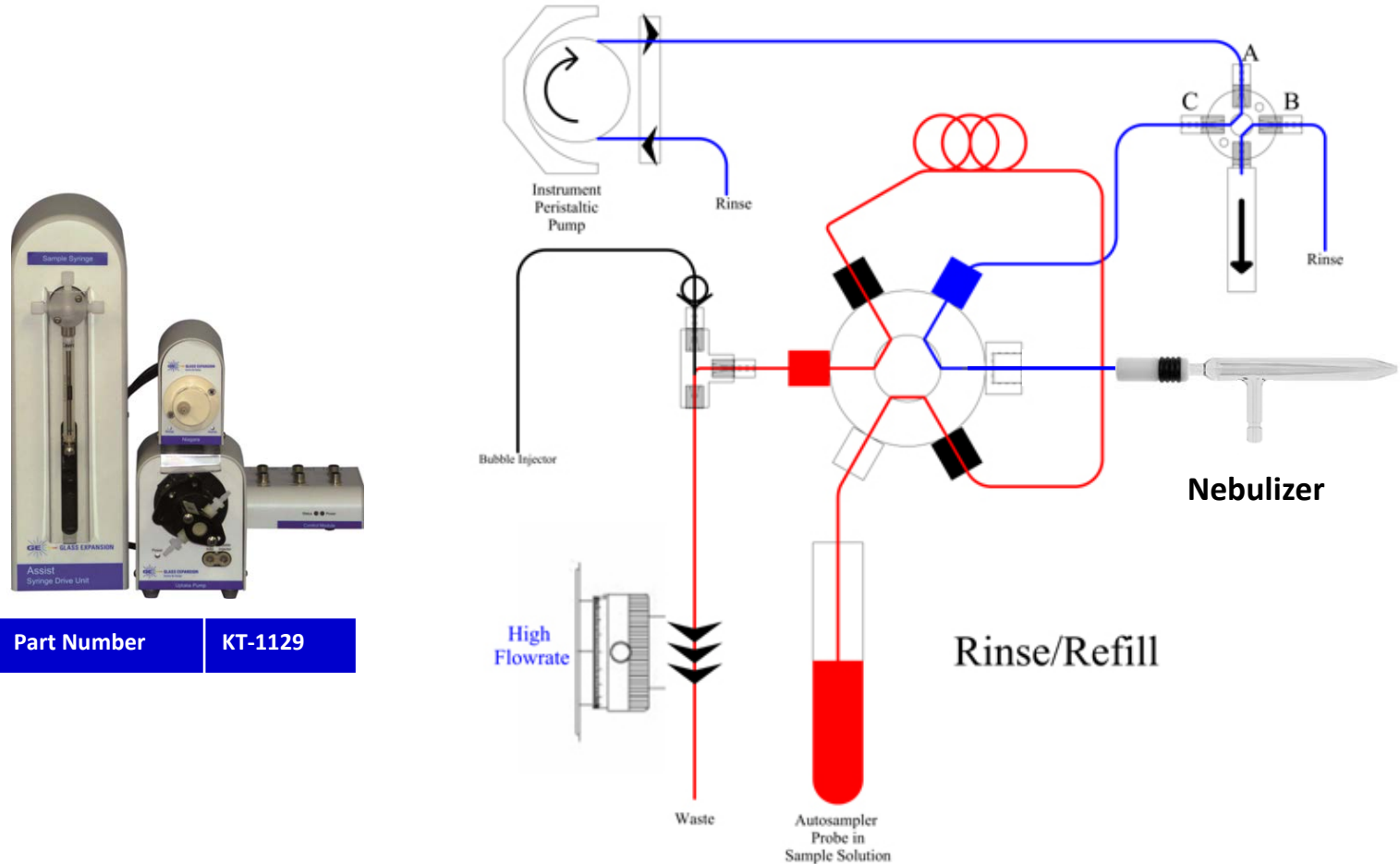
ASSIST SYRINGE-DRIVEN SAMPLE INTRODUCTION

- Assists you with faster throughput
- Assists you improved accuracy
- Assists you with better precision
- Assists you with automatic dilution
- Assists you with addition of internal standard



ASSIST BASIC PACKAGE

Flow Diagram – Rinse/Refill Position



Part Number

KT-1129

TIME BENEFITS OF THE ASSIST

	Without Assist	With Assist
Probe to sample (sec)	4.00	4.00
Replicate read time (sec)	15.00	8.00
Replicates	2	2
Sample uptake delay (sec)	40	7
Stabilization time (sec)	10	5
Pump rate (rpm)	40	25
Rinse time (sec)	30	0
Fast Pump	Yes	No
Total Time (sec)	114.00	32.00

Method parameters with and without the Assist, provided courtesy of American Assay.

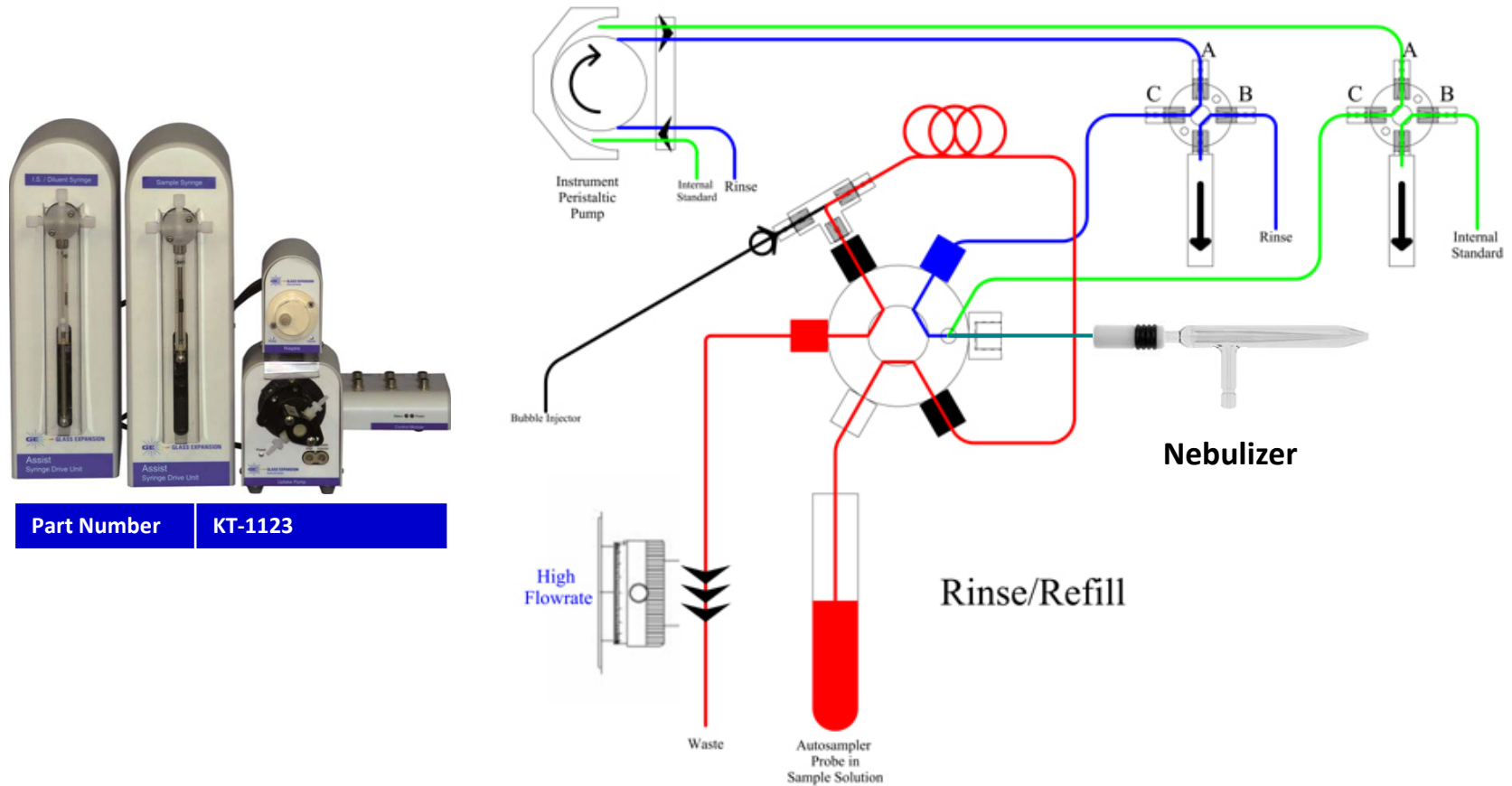
ASSIST BASIC PACKAGE (1 SYRINGE)

Benefits provided to American Assay:

- Three-fold increase in sample throughput.
- Elimination of lengthy washout, previously up to 2 mins.
- Capable of analyzing a 200ppm Au sample and achieve 5ppb Au in next blank.
- Signal precision improved by a factor of 2.
- Correlation coefficients of at least five nines.

ASSIST PREMIUM PACKAGE

FLOW DIAGRAM – RINSE/REFILL POSITION

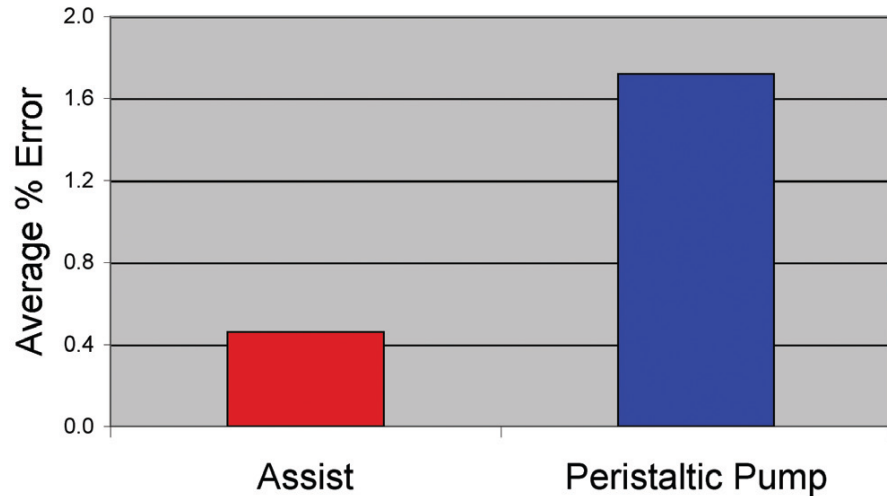


Part Number **KT-1123**

ASSIST PREMIUM PACKAGE (2 SYRINGE DRIVES)

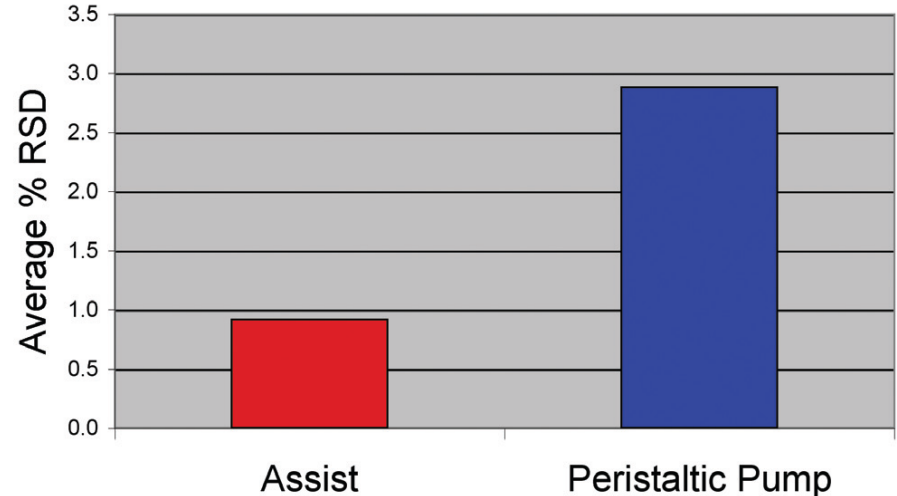
INLINE ADDITION OF INTERNAL STANDARD OR DILUENT

Inline Addition of IS



- Average error in the measured concentration when IS is delivered inline using the Assist compared to delivery using a peristaltic pump. The ratio of IS to sample is 1:10.

Inline Addition of Diluent



- Average RSD for inline dilution using the Assist and peristaltic pump. The dilution factor is 10:1.

BENEFITS OF NIAGARA PLUS & ASSIST

- Increased sample throughput, ~ 90% of sample cycle devoted to measurement.
- Reduced carry over, minimum sample volume usage.
- Syringe drives provide accurate flow rates of the Sample and Internal standard, minimize fluctuation.
- Syringe drives provide accurate ratio of Sample to Internal standard.
- Online dilution of samples at a fixed and accurate ratio.
 - Dilution of up to 100 to 1 with syringe drives.
- Reduced running costs, short pay- back period, and reducing the need for additional Instruments.