Still Measuring Manually?

Know the risks:

	AT1000 Automatic Titration	Manual Titration
Easy to Use	No need for sample preparation (automatic acid addition by pump, no colour indicator needed) Automatic measurement by pressing one button	Manual sample preparation with acid and colour indicator addition Need certain expertise and burette maintenance (e.g rinse, etc)
Accuracy and Repeatability	Accurate and repeatable measurement (electrochemical measurement) Not operator dependent	Bad accuracy and repeatability because colour change is difficult to see (precipitation) Very operator dependent (visual perception)
Safety	Good safety with minimal reagent contact No need to use colour indicator Automatic acid addition before titration	Risky with direct exposure to reagent and CMR colour indicator
Use Cost	Quick return on investment compared to manual titration related to lower titrant consumption, lower maintenance, and time saved ($AgNO_3$ is an expensive reagent)	Cheap equipment but extensive time and higher titrant consumption than automatic titrator (use and rinse) Risk of spillage and breakage ($AgNO_3$ is an expensive reagent)
Evolutivity / Extra Parameters	Extra parameters available (e.g. pH, Total Acidity, SO_2, Salt, etc) on the same instrument	No extra parameters possible with the same equipment
Traceability	Complete traceability with easy export features (USB or PC software)	No traceability
Automation	Sample changer available for high throughput	No automation

Summary

Automatic titration offers many key benefits compared to manual titration:

- More accurate and repeatable analysis
- Short return on investment compared to manual titration.

For more information on Hach titration solutions, visit: uk.hach.com



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