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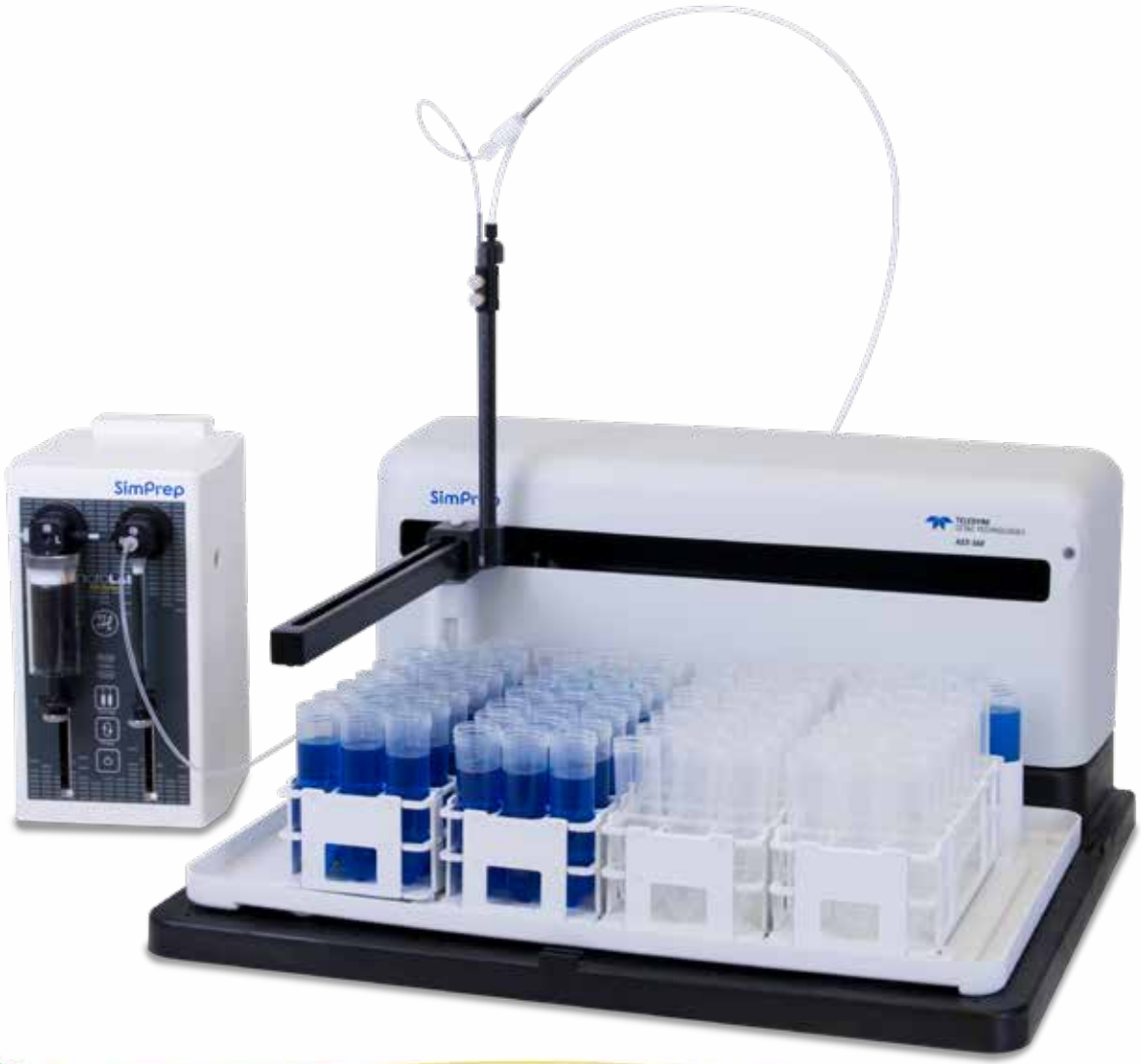
SimPrep

Automated Liquid Handling Station



AUTOMATION

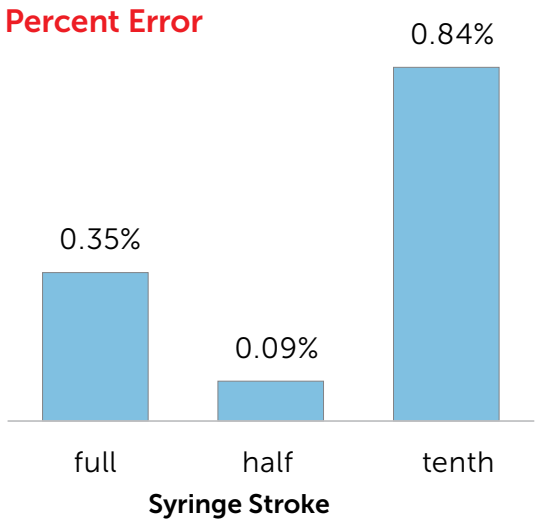
More Than Just Diluting and Dispensing

- Save labor and free up personnel
- Eliminate inconsistent manual pipetting
- Intuitive and flexible software
- Mobile, offline dilution system for the whole lab
- One unit for both preparation and sampling
- Serving multiple techniques and markets:
  - ICP, ICP-MS, AA, IC, FIA and more
  - Environmental, Ag (soils), mining, coolants, clinical, pharmaceuticals ...

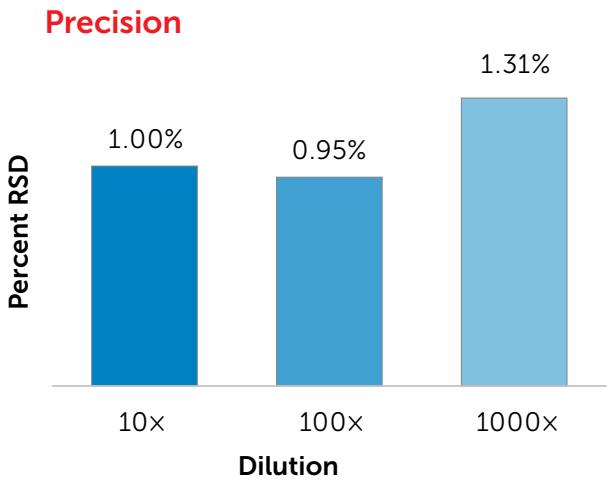
SimPrep Data Quality

Data quality for automated pipetting systems can be described with three basic metrics. These are accuracy, precision and carryover.

Accuracy – The SimPrep excels at delivering the prescribed amount to the intended location. A wide range of syringes (10 µL to 50 mL) are offered, which allows you to tailor the setup to get the best results for a wide array of different applications. This specialization allows you to perform anything from dilutions to dispensing while staying within 1% of the target volume.



Precision – It is not enough to hit the target once; the SimPrep hits the target every time. Variations from sample to sample can lead to serious problems for any analysis. This is a particular challenge with hand pipetting, and one that is removed by the automation provided with the SimPrep. In the figure at right you can see the data summarized from three sets of 10 replicates at different dilution levels.



Carryover – The carryover of the SimPrep system was tested by analyzing a blank solution (1:10 dilution) that was prepared directly after a 10 ppm standard (made from a 100 ppm standard). This was compared with an undiluted blank solution to quantify the carryover from the preparation step.

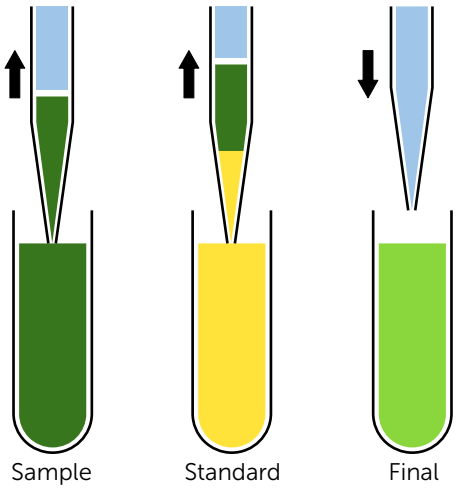
Element		Carryover (%)	Element		Carryover (%)
As	188.979	0.0022%	**Mo**	202.031	0.0005%
Cd	228.802	0.0036%	**Ni**	231.604	0.0027%
Co	228.616	0.0004%	**Pb**	220.353	0.0037%
Cr	267.716	0.0013%	**Sb**	206.836	0.0083%
Cu	327.393	0.0055%	**Ti**	334.940	0.0004%
Fe	238.204	0.0025%	**Tl**	190.801	0.0001%
Mg	285.213	0.0023%	**V**	290.880	0.0010%
Mn	257.610	0.0007%	**Zn**	206.200	0.0047%

SimPrep Utility

The SimPrep does much more than simply dilute samples. The intuitive software and dual syringes allow it to achieve a wide range of functions. A few of these functions are highlighted below:

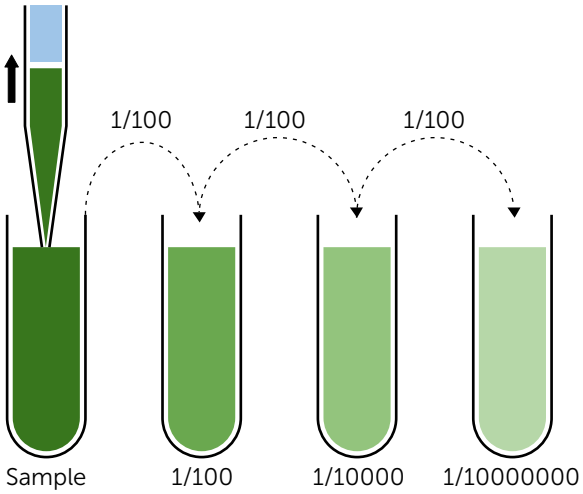
Standard Addition – The software allows the user to add standard solutions for a number of different applications. No matter whether it is a sample spike or a 1:10 dilution, the SimPrep makes it easy.

- Matrix spikes
- Internal standard addition
- Prepping calibration curves



Serial Dilution – Programmable rinsing and mixing options make it easier than ever to do accurate and simple serial dilutions.

- High concentration sample
- High matrix sample



Splitting – The same sample can be prepared several different ways. This is perfect for users who want to prep not only for ICP-MS, but for AA and IC as well.

SimPrep Automated Liquid Handling Station

The SimPrep is more than just a diluting and dispensing tool; it can automatically create:

- Calibration curves
- Splitting (prep 1 sample 3 different ways)
- Matrix spikes
- Internal standard additions
- Serial dilutions

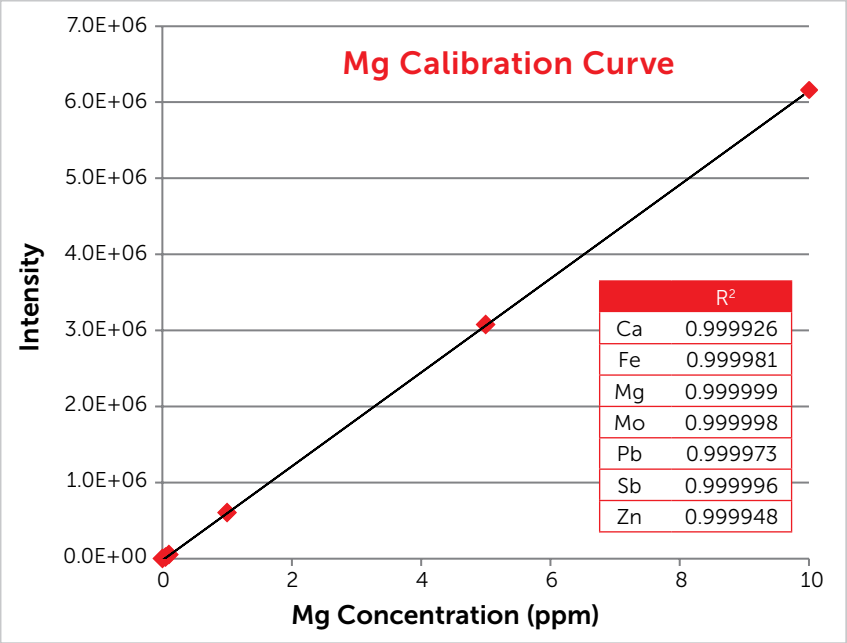
Typical Results

- Carryover < 0.01%
- Precision 100% at 1%
- Accuracy 100% ± 1%

Reproducibility

	RSD		RSD
Ca	0.577%	**Mn**	0.688%
Cd	0.356%	**Mo**	0.347%
Co	0.407%	**Sb**	0.804%
Cu	0.524%	**Se**	0.859%
Fe	0.410%	**Ti**	0.713%
Mg	0.672%	**Zn**	0.575%

Replicate RSDs for 10× dilution



Standard Preparations – The SimPrep can prepare the entire curve from a single stock solution. This brings a high level of precision and accuracy to the most important prep of the day. Don't worry about the analyst on duty or the day of the week - get the same prep every time. Autocalibration data from a 6 point curve. *Standards prepared from a 100 ppm stock at 10× to 2000× dilution.*

Easily Switch Between Prep and Analysis

Using the built-in functionality of the ASX-560 autosampler, along with a simple switching USB hub, the SimPrep system can go from preparation mode to sample analysis mode at the press of a button and a quick exchange of sample probes. Talk to your Teledyne CETAC representative to learn more.

Switching USB Hub - Part Number SP7672

Technical Specifications

Autosampler Dimensions

	ASX-560	ASX-280
Height*	62 cm (24")	62 cm (24")
Width	58 cm (22.8")	36 cm (14")
Depth†	56 cm (23.5")	55 cm (23.2")
Weight	11.7 kg (26 lbs)	8.1 kg (17.8 lbs)

*with sample probe
† allow addtional space for cables

Rack and Vial Options

90x7mL | 60x14mL | 40x20mL | 24x30mL | 21x50mL

Dilution Module Dimensions

Height	26.7 cm (10.5")
Width	14 cm (5.5")
Depth	17.8 cm (7")
Weight	5.9 kg (13 lbs)

Syringe Sizes

µL	10	25	50	100	250	500
mL	1.0	2.5	5.0	10.0	25.0	50.0

Power Requirements

100-240 VAC, 47-63 Hz, 1.9 A

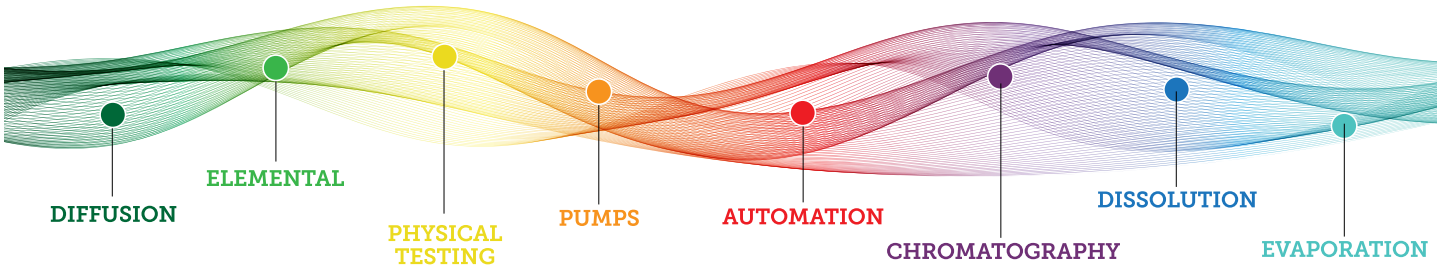
Computer Requirements

Microsoft Windows® 7 or higher

Optional Accessories

ENC DC series autosampler enclosures
Mobile cart

Teledyne LABS enhances the visibility for our brands, products, and services, aiding customers in finding solutions that meet their current and future needs. The existing Teledyne brands will remain, providing ongoing value to customers.



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Intertek