

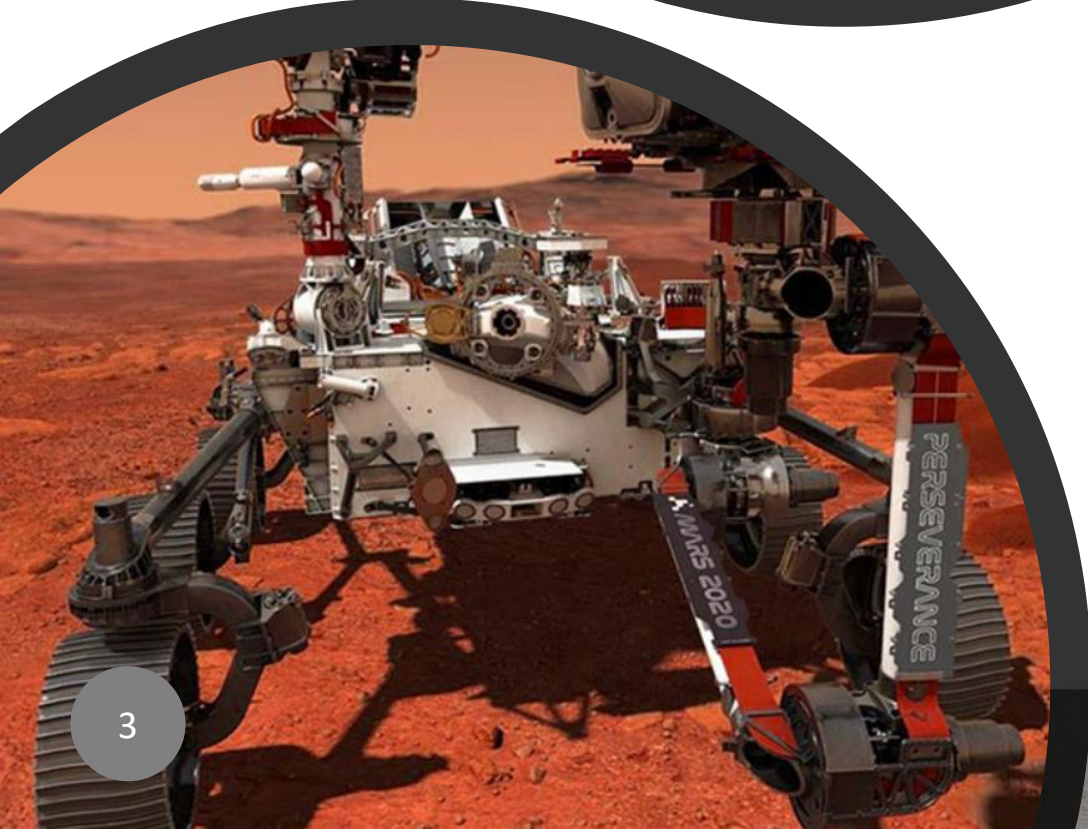


Everywhere outlook

- Aerospace and Defense
- Factory Automation
- Air and Water Quality Environmental Monitoring
- Oceanographic Research
- Energy
- Medical Imaging
- Pharmaceutical Research
- Electronics Design

An abstract, swirling pattern of red, orange, and blue colors, resembling a topographical map or a fluid simulation, contained within a circular frame.

everywhere you'll



- Driving Technology: Improving our Night Vision
- Tracking Air Quality Onboard an Aircraft in Real Time
- Improving Water Safety and Early Virus Detection
- Measuring Ocean Conditions in Storms
- Detecting Cancer and Treating It
- Temperature Screening by Thermal Imaging
- Tracking Ocean Garbage from Space
- Understanding Asteroids

Teledyne Technologies

Instrumentation

Digital Imaging

Aerospace and
Defense Electronics

Engineered Systems

Instrumentation

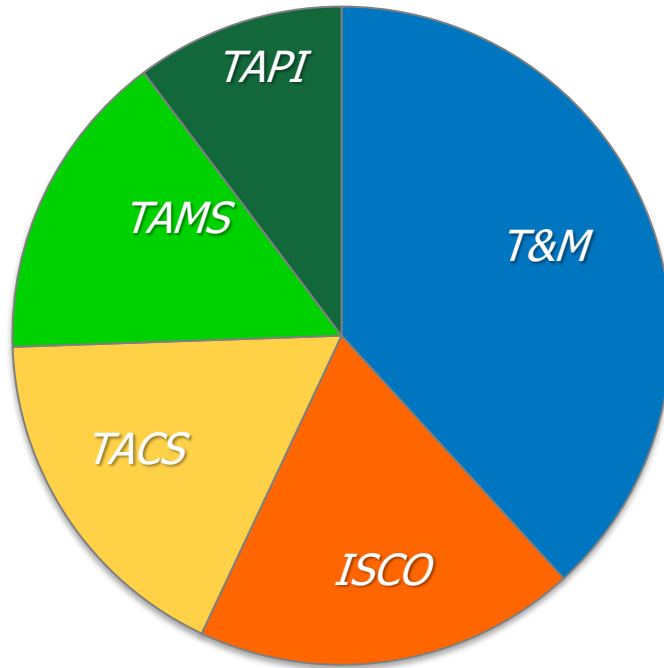
Our Instrumentation segment provides measurement, monitoring and control instruments for marine, environmental, scientific and industrial applications. We also provide power and communications connectivity devices for distributed instrumentation systems and sensor networks deployed in mission critical, harsh environments.



- 25 Businesses
- Accounts for about 45% of overall Teledyne Technologies sales
- Presented as 4 market segments: Instruments, Water Quality, Marine and Oil & Gas
- Tekmar participates in the Instruments and Water Quality segments
- Tekmar is part of the **EEMI Group – Environmental and Electronic Measurement Instruments**
 - Test & Measurement, ISCO, API, TAMS and TACS

Teledyne Environmental & Electronic Measurement Instruments (EEMI)

Vicki Benne– Chief Executive Officer



T&M: Teledyne Test and Measurement

ISCO: Teledyne ISCO

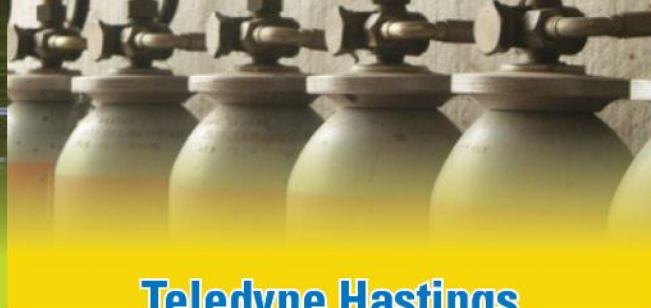
TACS: Teledyne Advanced Chemistry Systems

TAMS: Teledyne Advanced Monitoring Solutions

TAPI: Teledyne Advanced Pollution Instruments



Teledyne Tekmar-Leeman



Teledyne Hastings



Teledyne CETAC Technologies

**Laboratory Instrumentation for
Organic and Inorganic Analysis of
Food, Water and Soil Quality:**

- Sample Preparation and Concentration of Trace VOCs
- Total Organic Carbon (T)C
- Measurements for Various Water Analyses

**Instrumentation for Elemental
Analysis**

- Inductively Coupled Plasma Spectrometers
- DC Arc Spectrometers
- Mercury Analyzers

**Instrumentation and Sensors for
Measurement & Control of Gas
Flows & Vacuum Pressures**

- Thermal, Pirani, Piezo, & Ionization Vacuum Sensors
- Thermal Flow Sensors & Proportional Control valves

**Accessories for Sample Introduction
and Elemental Analysis**

- Autosamplers
- Sample Preparation
- Nebulizers
- Laser Ablation Systems

OEM Automation Services

**Laser-based Sample Introduction
Systems and Analytical Instruments**

- Excimer Laser Ablation Systems
- Femtosecond Laser Ablation System
- Diode Laser Systems
- CO2 Laser Systems



TELEDYNE ADVANCED CHEMISTRY SYSTEMS
Everywhere you look™



TELEDYNE
ADVANCED CHEMISTRY
SYSTEMS



Current Laboratory Challenges



- Pipette Tips not available
- Staffing Shortages
- Social Distancing

**All have negative impact on
sample preparation**



What's so bad about sample preparation?



For the Analyst

- Repetitive Motion
 - Decapping
 - Transferring
 - Pipetting
 - Risk of Carpal Tunnel
- Seems to take all day
- Low job satisfaction
 - Leading to high turnover
- Boring!



IS THIS WHY I BECAME A CHEMIST???





Who made the standards?

For the Manager

- Nature of repetitive work leads to mistakes
 - Which then requires more sample preparation
- Time Consuming
- Even the best analysts:
 - Get Sick
 - Take Leave
- Paying someone to stand in one place all day...
- High Staff Turnover



Every Manual Step is an
Opportunity for Error....and
why not use your analysts
for more important things?



Introducing the SimPrep



- Based on CETAC automation
- Recognized excellence of Hamilton micro station
- Use same sample racks ICP autosamplers and SimPrep
- Simple easy to use software
- Small mobile footprint
- Full sample homogenization
- Aqueous sample handling including
 - Soil digests
 - Mining
 - Drinking Water
 - Waste Waters
 - List goes on....



Video of Operation

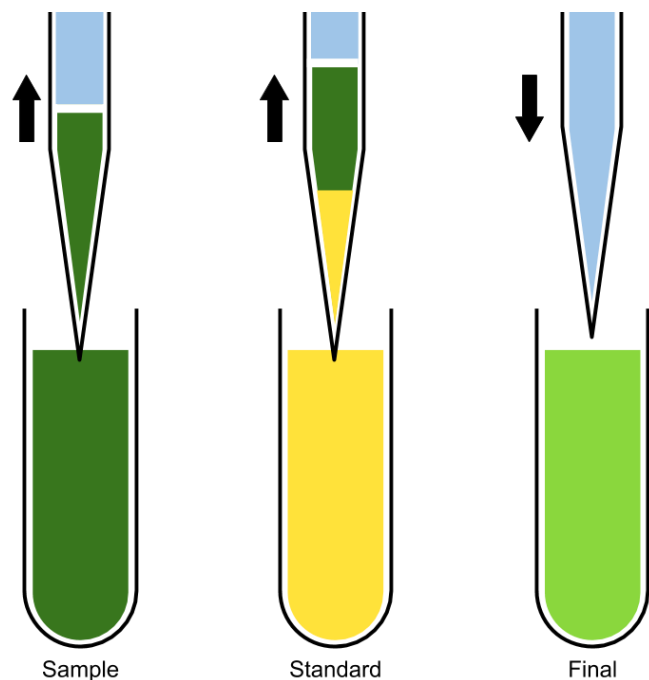


TELEDYNE
CETAC TECHNOLOGIES
Everywhere **you** look™

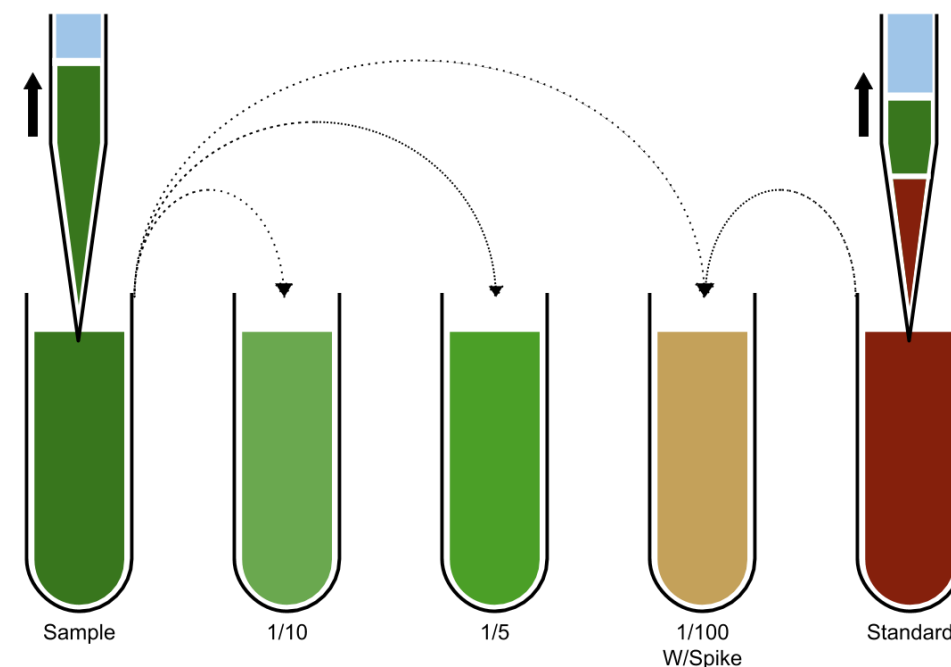


TELEDYNE
ADVANCED CHEMISTRY
SYSTEMS

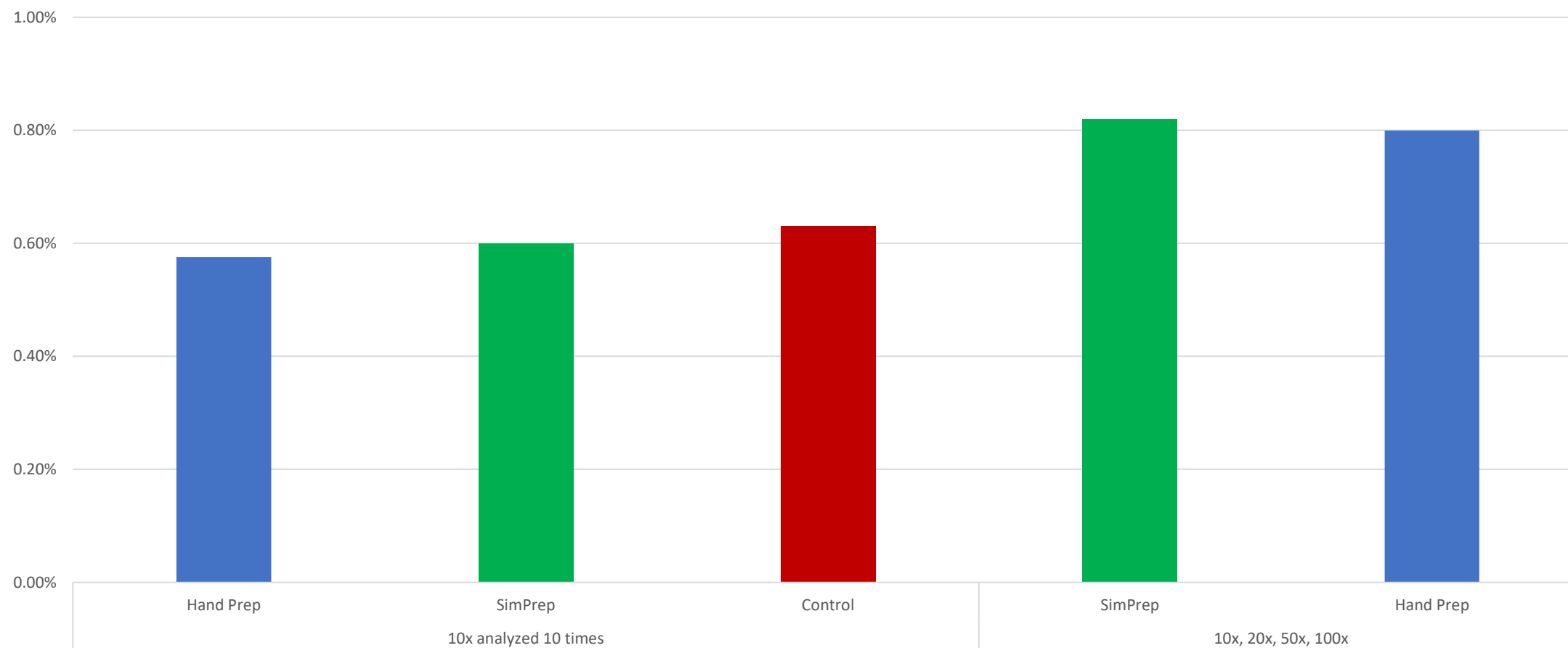
More than Just Dilution



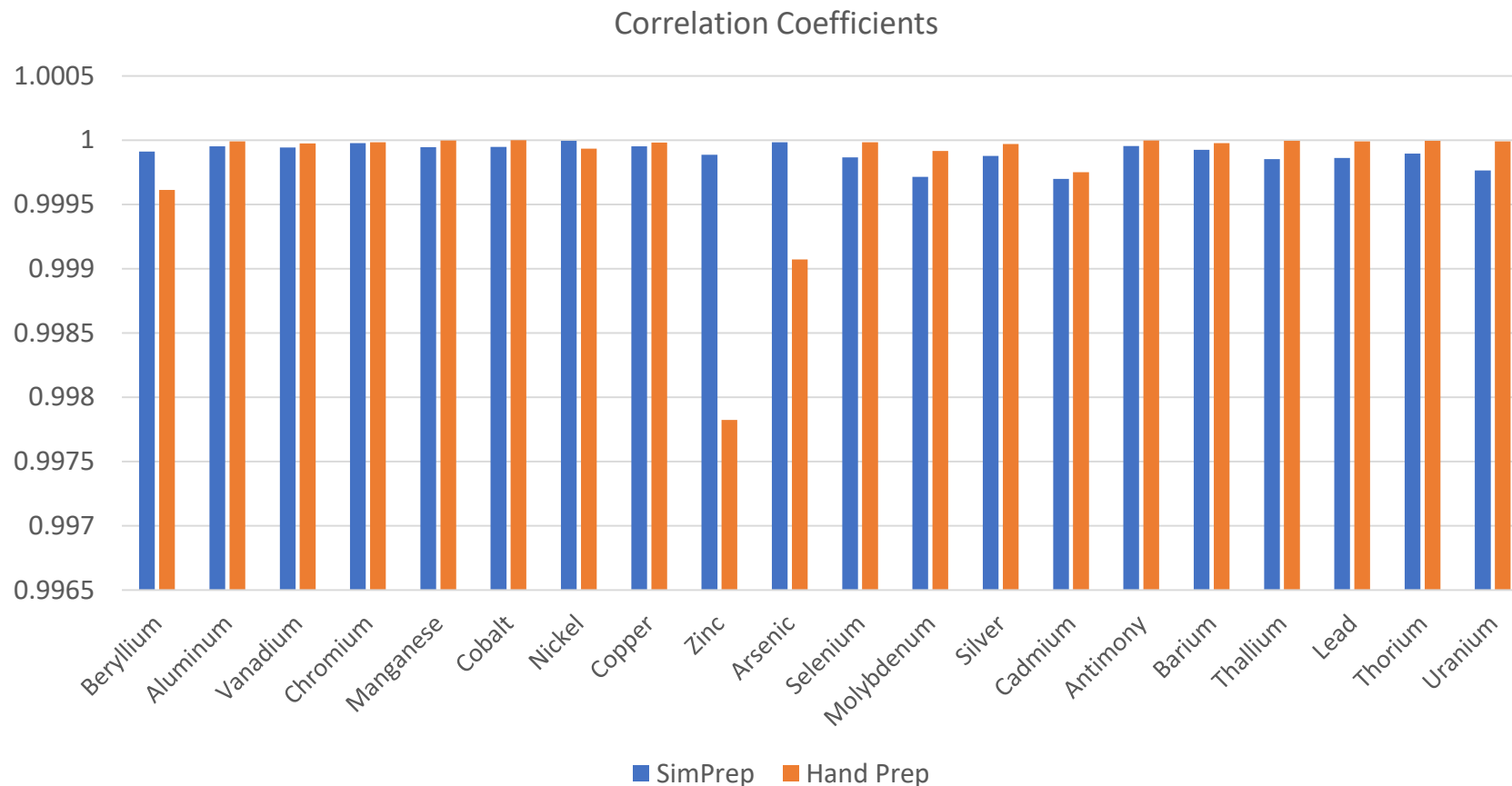
- Dispensing
- Dosing
- Serial Dilutions
- Split samples
- Spike samples
- Prepare Standards
- And More



Precision SimPrep vs Hand Prep



6 Point Calibration Curve



- Hand Prepped via serial dilution technique
- Diluted from 100ppb stock
- Both Hand prep and SimPrep produce good calibration data
- On the hand preparation the curve was contaminated for Zinc

One Autosampler Two Flow Paths

- Switch the Autosampler between ICP and SimPrep software on the same PC
- (SimPrep) Automated calibration standards preparation
- (SimPrep) Automated Sample Dilution
- (Autosampler) Automated Sample Introduction
- Requires USB Hub

System Configuration Options



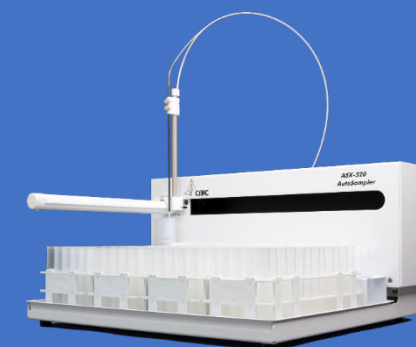
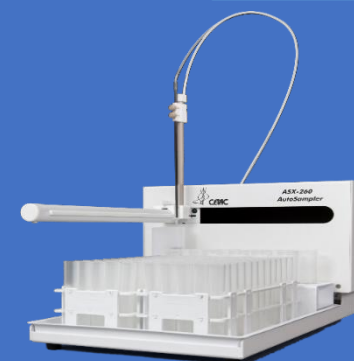
SimPrep - 560



SimPrep - 280



SimPrep Upgrade



Having trouble sourcing pipette tips? Just tired of paying for them?

- The SimPrep precision syringes remove the need for costly and possibly difficult to obtain pipette tips.
- Resulting in lower consumable costs and less plastic waste
- Automating the liquid transfer step removes an opportunity for error

Summary & Benefits of the SimPrep

- Automate tedious sample preparation steps
- Reduce consumable usage
- Free up staff for more critical tasks
- One autosampler for sample preparation and introduction
- Plug and play installation
- Intuitive software
- Unify and improve sample and standard preparation



Thank You!

For more information, please visit

[**https://www.teledynecetac.com/products/automation/simprep**](https://www.teledynecetac.com/products/automation/simprep)

