4100 Water/Soil Sample Processor

O·I·Analytical
a xylem brand

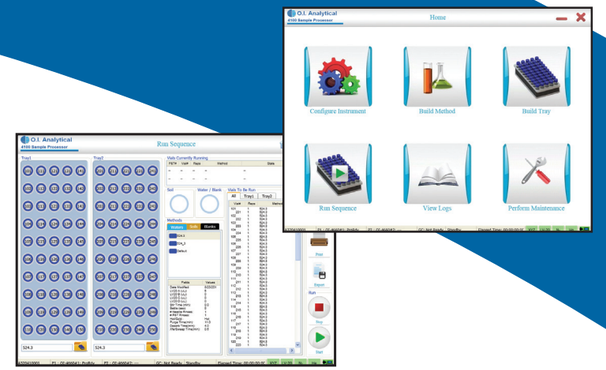
Advanced Sample Processing for VOC Analysis

4100 Sample Processor

The 4100 Water / Soil Sample Processor automates the handling and processing of samples in 40-mL VOA vials for purge-and-trap analysis of volatile organic compounds (VOCs) in accordance with U.S. EPA methods and International standards.

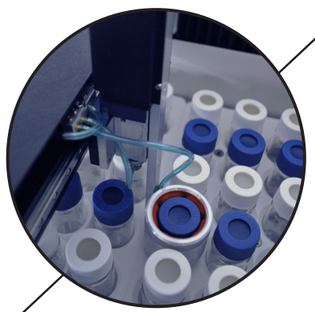
The 4100 is designed to efficiently process up to 100 drinking water, wastewater, or soil samples and operate with a single or dual Eclipse 4660 purge-and-trap sample concentrators.

Innovative technologies built into the 4100 improve sample processing reliability and analytical performance. A pneumatically-actuated vial gripper effectively handles vials with labels and eliminates dropped vials. High-speed injection valves improve the precision of standard addition, significantly reduce the volume of standards used, and decrease laboratory operating costs for expensive standards.



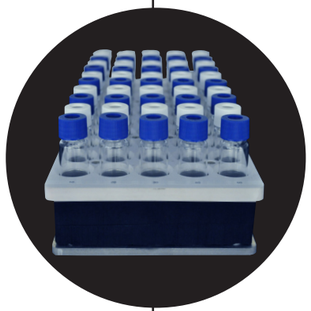
VOA View Software

VOA View software is a Windows®-based GUI that enables users to program methods, sequences, and internal standard addition. The VOA View run screen visually depicts water and soil samples, the progress of vials that have been processed, and provides details of the method being run.



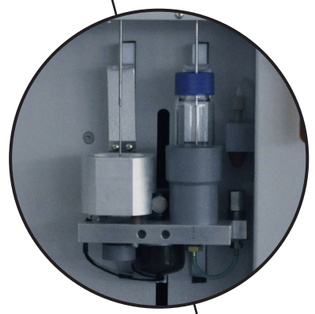
VOA Constrictor™ Vial Gripper

The 4100 is equipped with an innovative pneumatically-actuated cylindrical vial gripper. The VOA Constrictor™ mechanism grips, lifts and transports 40 mL VOA vials to and from the sampling station with exceptional reliability. A built-in sensor enables the gripper to detect and confirm the presence of a vial or signal if a vial is missing.



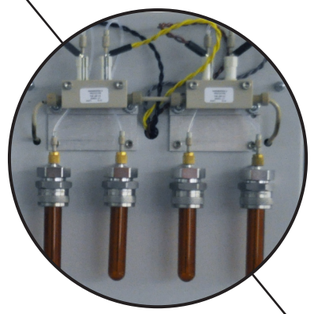
Vial Cooling *Option*

A vial cooling *option* is available to maintain sample vials at 10 °C or less prior to analysis for compliance with USEPA Method 524.3. Two 50-position insulated vial racks fit into a cooling base fitted with quick-disconnects for easy connection of tubing to a recirculating chiller.



Water / Soil Sampling Station

Vials containing water are lifted up to engage a sample probe, aspirate and fill a loop with sample for transfer to the P&T instrument. Vials containing soil samples are lifted to engage a probe that injects a programmed volume of clean or spiked water, heats and stirs the sample to purge VOCs from the matrix and deliver them to the trap in the P&T instrument.



Automated Standard Addition

Integrated into the tower of the 4100 are two 3-mL reservoirs and electronically controlled high-speed injection valves that automate addition of internal standards or surrogate matrix spike standards. An option allows expansion of standard reservoirs and injection valves from 2 to 4 separate channels to support operation with tandem purge-and-trap instruments.

4100 Specifications

Purge-and-Trap Compatibility	Operates with one or two Eclipse 4660 instruments
Sample Capacity	100 standard USEPA 40-mL VOA Vials
Sample Loop	5mL standard loop, 10 or 25 mL loops optional
Automated Standard Addition	(2) 3mL reservoirs standard, expansion to (4) optional
Sampling Mode – Water	Aspiration and transfer to purge-and-trap instrument sparge vessel
Sampling Mode – Soil	In-vial needle sparging and transfer to trap of purge-and-trap instrument
Sample Transfer Pathway – Water Samples	Silcosteel® 316L stainless steel and PEEK®
Sample Transfer Pathway – Soil Samples	Silcosteel® 316L stainless steel and PEEK®
Blank Water Transfer	PFA–Teflon®
Vial Trays	(2) 50-position VOA vial trays
Vial Gripper Mechanism	Pneumatically actuated cylindrical gripper with vial sensing
Vial Cooling Option	Cooling base for two 50-position vial trays with quick-disconnect fittings for recirculating chiller
X/Y-Axis Mechanism	Digitally controlled linear drive rails
Z-Axis Mechanism	Pneumatically actuated
Operating Software	VOA View Windows®-based GUI
Operating System	Windows® 7or Windows® 8 and 8.1
PC to 4100 Communications	USB port for each 4100 instrument connected to PC
Water Supply	Clean, VOC-free water for rinsing sample pathway
Gas Requirements - Sample Transfer	99.999% (UHP Grade) He or N_2
Gas Requirements - Gripper / Z-axis Actuator	Nitrogen
Power Requirements	110VAC / 60HZ or 230VAC / 50Hz
Dimensions	27 in. W x 24 in. D x 21.5 in. H 68.6 cm W x 61 cm D x 54.6 cm H
Weight	36 Kg (80 lbs) , typical depending on options
Certifications	CE Safety and EMC EN50082-1/EN55011 Group 1 Class A

O·I·Analytical
a xylem brand

151 Graham Road
PO Box 9010
College Station, Texas
77842-9010

(979) 690-1711
(800) 653-1711 USA/Canada
FAX (979) 690-0440

www.oico.com
E-mail: oimail@oico.com

Publication 39770114