

AVIDITY[®]
SCIENCE



Solo[™] **S**

A REVOLUTIONARY
NEW SUSTAINABLE
LABORATORY WATER
PURIFICATION SYSTEM





Solo™

The world's first laboratory water purification system with re-usable cartridges.

Laboratory Ultrapure water directly from tap water producing up to 10 litres per day of Type 1 water.

Unrivalled Sustainability

- Unique cartridge design enables reuse, eliminates customers' plastic cartridge waste disposal and delivers up to 90% reduction in carbon emissions.
- Treatment media can be recycled with an AvRecycle™ plan.
- Cartridge housing made from 100% recyclable material.

Green Credentials by Design

- Mercury-free bacteria control LED UV technology, eliminates the downstream challenge of dealing with mercury waste.
- Solo™ S is delivered in plastic-free packaging, certified to FSC, designed for sustainability.
- Revolutionary pump design and reverse osmosis membrane flow path, to maintain water quality with reduced energy and water consumption.
- Automatic switching to energy saving mode after a period of inactivity further reducing energy consumption.



Solo™ S is delivered in plastic-free packaging, designed for sustainability

Solo™ S – A New Level of Sustainability

AvRecycle™ - a reusable and recyclable water purification cartridge scheme, the first of its kind in laboratory water purification

- Revolutionary consumable cartridge design with no glue or welding allows for complete separation of the internal media from the outer housing.
- Annual consumables can be returned to Avidity Science for reprocessing - not thrown away.
- Recycling consumables is a comprehensive process of disassembly, emptying and cleaning the plastic cartridges before refilling and testing.
- Innovative non-carbon pre-treatment media for reverse osmosis membrane protection can be backwashed and re-used.
- All returned cartridges will be re-used and, in return, you will receive a rebate on your next Annual Consumable pack purchase.



How does AvRecycle™ work for Solo™ S?

- Every Annual Consumables pack supplied with Return Box to simplify packaging.
- Simple online Return Form completed via a QR Code will provide a unique tracking number.
- When ready, return the used consumables to your local Avidity Science Processing Centre. (Address provided with Return Box) Avidity does the rest!
- We reprocess the returned cartridges and rebate your next consumable purchase.

Unique cartridge design provides a water draining function when replacing consumables to prevent pressure and water leaks.

AvRecycle
with Avidity Science



Solo™ S Delivering Ultrapure Water With Ease and Intelligence

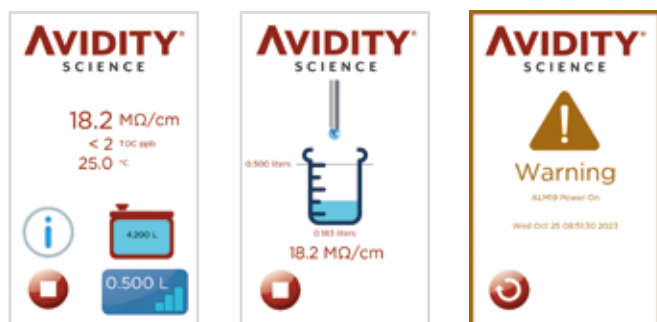


Smart Dispensing with full flexibility

- Ultrapure water delivered at up to 1.2 litres/minute minimises research delay.
- Volumetric dispensing from 100ml to 4 litres allows you to work while water is delivered.
- Configurable dispense button to provide full control when using manual and volumetric configuration.
- Configurable flow rate down to drop-by-drop dispensing assists precision filling in a single vessel.

Intuitive touch-screen display

- 5 inch TFT colour screen with simple icon navigation.
- Real time monitoring in multiple languages.
- Password protection for critical operating parameters.



Effortless Operation and Maintenance

- System alerts when cartridges require changing – access is easy.
- System status notification providing visual indication of the water purification status via a colour-coded dispense button.
- In-built leak detection provides system security.
- Semi-automatic sanitisation process is simple and safe.

Ingenious Data Tracking and Reporting

- Near Field Communication (NFC) enables consumable identification and secure data logging ensuring traceability.
- Paperless data management with SD card technology.
- Data acquisition meeting regulatory compliance with 21 CFR Part 11.



| Alert | Time | Volume |
|--------------|-------|-----------|
| Oct 25, 2023 | 10:25 | 4.500 ltr |
| Oct 25, 2023 | 10:20 | 0.422 ltr |
| Oct 19, 2023 | 09:15 | 2.028 ltr |
| Oct 19, 2023 | 09:05 | 0.500 ltr |



Single use plastics have surged in recent decades. Avidity Science's innovative design ensures cartridges can be re-used many times for the same purpose without compromising your research. With an AvRecycle™ plan, internal treatment media can be recycled preventing waste going to landfill.

Avidity Science has developed a revolutionary new sustainable water purification system that means you no longer need to send large volumes of plastic waste to landfill.



Avidity Science has incorporated fully re-usable cartridges in this, the first of its kind, laboratory water purification unit. Cartridges are returned to a designated Avidity Science facility for a visual inspection before reprocessing. Each component is thoroughly cleaned and validated before entering the AvRecycle™ plan.

Guaranteed Ultrapure Water Quality

Analysis was performed by an ISO/IEC 17025 accredited external service provider.

Table 1: Trace metal results - Solo™ S Water

| RESULT* | | | |
|---------|------|---------------|-------|
| ELEMENT | UNIT | SOLO™ S WATER | MDL** |
| Al | ppb | 0.022 | 0.001 |
| Sb | ppb | 0.001 | 0.001 |
| As | ppb | 0.001 | 0.001 |
| Ba | ppb | 0.001 | 0.001 |
| Be | ppb | 0.001 | 0.001 |
| Bi | ppb | 0.001 | 0.001 |
| Cr | ppb | 0.001 | 0.001 |
| Co | ppb | 0.001 | 0.001 |
| Cu | ppb | 0.004 | 0.001 |
| Ga | ppb | 0.001 | 0.001 |
| Ge | ppb | 0.001 | 0.001 |
| Au | ppb | 0.006 | 0.001 |
| Fe | ppb | 0.007 | 0.001 |
| Pb | ppb | 0.001 | 0.001 |
| Li | ppb | 0.001 | 0.001 |
| Mn | ppb | 0.007 | 0.002 |
| Mo | ppb | 0.001 | 0.001 |
| Ni | ppb | 0.005 | 0.003 |
| Nb | ppb | 0.001 | 0.001 |
| Pt | ppb | 0.001 | 0.001 |
| K | ppb | 0.017 | 0.001 |
| Ag | ppb | 0.001 | 0.001 |
| Na | ppb | 0.075 | 0.001 |
| Sr | ppb | 0.003 | 0.001 |
| Ta | ppb | 0.022 | 0.001 |
| Tl | ppb | 0.001 | 0.001 |
| Sn | ppb | 0.001 | 0.001 |
| Ti | ppb | 0.015 | 0.002 |
| W | ppb | 0.002 | 0.001 |
| V | ppb | 0.001 | 0.001 |
| Zn | ppb | 0.079 | 0.001 |
| Zr | ppb | 0.007 | 0.001 |
| P | ppb | 0.020 | 0.014 |

*Analysis was performed by ICP-MS technique

** MDL = Measurement detection limit

Table 2: Anion results - Solo™ S Water

| RESULT* | | | |
|-----------------|------|---------------|-------|
| ANION | UNIT | SOLO™ S WATER | MDL** |
| Br | ppb | 0.015 | 0.015 |
| F | ppb | 0.005 | 0.005 |
| PO ₄ | ppb | 0.423 | 0.010 |
| SO ₄ | ppb | 0.423 | 0.010 |

*Analysis was performed by IC technique

** QL=Quantification limit

Table 3: Cation results - Solo™ S Water

| RESULT* | | | |
|-----------------|------|---------------|-------|
| CATION | UNIT | SOLO™ S WATER | MDL** |
| NH ₄ | ppb | 0.144 | 0.015 |
| Li | ppb | 0.005 | 0.005 |
| Mg | ppb | 0.091 | 0.015 |
| K | ppb | 0.020 | 0.020 |
| Na | ppb | 0.075 | 0.010 |

*Analysis was performed by IC technique

** QL=Quantification limit

Table 4: Silica results - Solo™ S Water

| RESULT* | | | | |
|-------------------|------------------|------|---------------|-------|
| COMPOUND | | UNIT | SOLO™ S WATER | MDL** |
| Total Silica | SiO ₂ | ppb | 0.51 | 0.51 |
| Dissolved Silica | SiO ₂ | ppb | 0.51 | 0.51 |
| Colloidal Silica* | SiO ₂ | ppb | 0.00 | N.A |

*Total Silica analysis was performed by ICP-OES (evaporation) technique. Dissolved Silica analysis was performed by UV-VIS (evaporation) technique. Colloidal silica is calculated as the difference between Total Silica and Dissolved Silica.

** MDL = Measurement detection limit

APPLICATIONS

| ANALYTICAL | LIFE SCIENCE |
|------------|------------------------|
| IC | Electrophoresis |
| ICP-MS | PCR/RT-PCR |
| GC-MS | DNA Sequencing |
| HPLC | Immunocytochemistry |
| AA | Mammalian Cell Culture |
| ICP-OES | Endotoxin Analysis |

Technical Specifications

SYSTEM REQUIREMENTS

| FEED WATER | Solo™ S | |
|------------------------------|--------------|------------------|
| Pressure (Bar) | 1 to 6 - max | (14.5 to 87 psi) |
| pH | 6.5 - 8.5 | |
| Hardness as CaCO (ppm) | <1000 | |
| Temperature (°C) | 5 - 35 max | (45 to 90 F) |
| Conductivity*** (µS/cm) | <2000 | |
| Free Chlorine (ppm) | <5 | |
| Total Dissolved Solids (ppm) | 1400 | |

UNIT SPECIFICATIONS

| Solo™ S | |
|---------------------------------|------------------------------------|
| Dimensions (HxWxD)(mm/In) | 585 x 377 x 526 / 23 x 14.8 x 20.7 |
| Working Depth (mm/In) | 377 / 14.8 |
| Net Weight (kg/lbs) | 18 / 39.68 lbs |
| Operating Weight (kg/lbs) | 24 / 52.9 lbs |
| Internal tank capacity (Litres) | 4.2 |
| Power Supply - Unit | 24vdc |
| | 130W (max) |
| Power Supply | 100-230VAC ±10% |
| | 50/60 Hz |
| | 130W (max) |
| NFC (Near Field Communication) | 13.56Mhz |

SYSTEM CAPABILITIES

| SPECIFICATION | Solo™ S |
|--|-------------|
| Reverse Osmosis flowrate (L/hr) @ 20°C | 3 - 25 |
| Resistivity (Mohm/cm at 25°C) | 18.2 |
| Conductivity (µS/cm at 25°C) | 0.055 |
| Total Organic Carbon (TOC ppb) ** | <2 |
| Bacteria (CFU/100mL) *** | <0.01cfu/ml |
| Particles (at filter) *** | <0.2µm<1ml |
| Delivery flowrate (L/min) | up to 1.2 |
| RNASE * | <1 pg/ml |
| DNASE * | <5 pg/ml |
| PROTEASE * | <0.15 ug/ml |

With TOC Model**

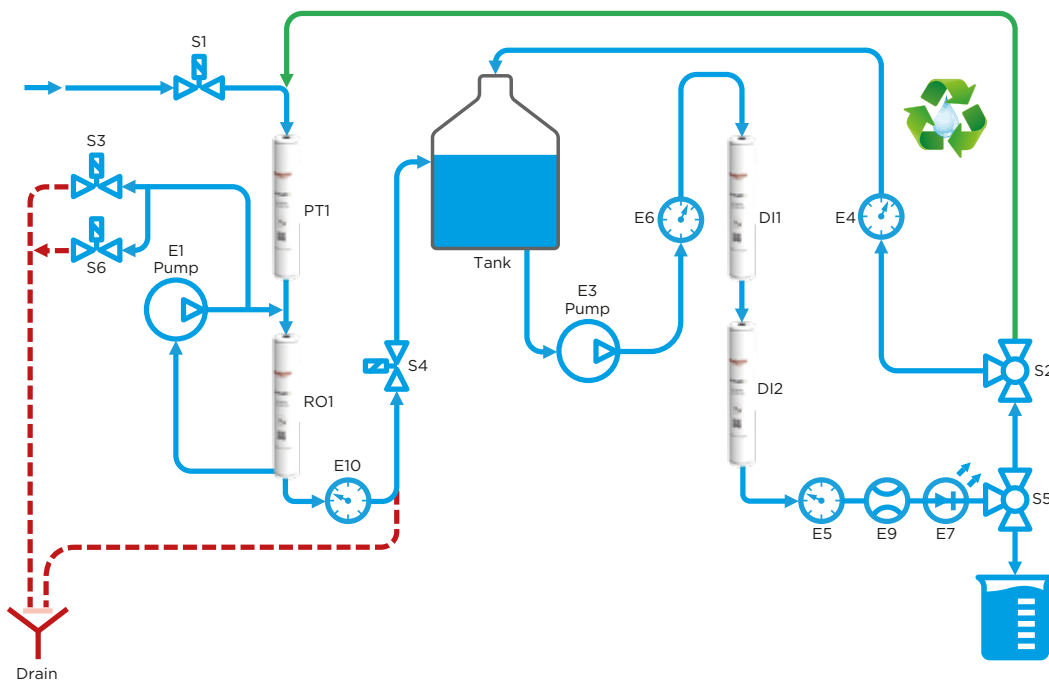
With AvPOU01 or AvPOU02***

With AvPOU01 or AvPOU02***

With AvPOU01*

With AvPOU01*

With AvPOU01*



| | | | | | | | | | |
|----|------------------------------|----|---------------------------------|-----|-----------------------|----|--------------------------|-----|---------------------------------|
| S1 | Inlet Solenoid Valve | S4 | Permeate Service Solenoid Valve | PT1 | AvProtect01 Cartridge | E1 | RO Water Cross Flow Pump | E6 | Temperature and Pressure Sensor |
| S2 | PW Loop Drain Solenoid Valve | S5 | Dispense Solenoid Valve | RO1 | AvRO01 Cartridge | E3 | Ultrapure Water Pump | E7 | AvLED01 or AvUV01 |
| S3 | RO Flush Solenoid Valve | S6 | RO Drain Solenoid Valve | DI1 | AvUltra01 Cartridge | E4 | Resistivity Cell | E9 | Flow Sensor |
| | | | | DI2 | AvUltra01 Cartridge | E5 | Loop Resistivity Cell | E10 | Permeate Conductivity Cell |

Avidity Science LLC

819 Bakke Avenue
Waterford, WI, 53185 US

+1 262 534 5181

US.Info@AvidityScience.com
www.AvidityScience.com

Avidity Science (Zhejiang), Co., Ltd

Bld F, No. 1332, WanGuo Road, EDZ,
Jiaxing, Zhejiang, China

+86 400 699 2100

CN.Info@AvidityScience.com
www.AvidityScience.com.cn

Avidity Science Ltd

Unit 1a, Drakes Park, Long Crendon Ind Est,
Long Crendon, Buckinghamshire,
HP18 9BA, UK

+44 (0)1844 201142

EMEA.Info@AvidityScience.com
www.AvidityScience.com

Avidity Science, K.K.

Izumi Akasaka Building 6th Floor, 2-22-24
Akasaka Minato-ku, Tokyo

+81 (0)3 6277 8440

JP.Info@AvidityScience.com
www.AvidityScience.co.jp

