

TECHNICAL DATA SHEET

RESINS

OvivUP[®] – M010

GENERAL INFORMATION

OvivUP – M010

PURPOSE

- Ultrapure grade mixed bed ion exchange resin. Strong acid cation and strong base anion resins designed for Polishing or Make-up mixed bed ion exchange applications in Ultrapure Water systems.
- OvivUP – M010 is especially conditioned and rinsed for producing semiconductor grade Ultrapure water with superior quality standards. It has been prepared from component resins which have been manufactured with the highest degree of purity and especially to provide a rapid rinse up to a resistivity $\geq 18.1 \text{ M}\Omega\cdot\text{cm}$. The superior quality of this resin is achieved by using very high grade Ultrapure Water (following IRDS guidelines) for the cleaning and rinsing of the resin during the manufacturing process.

TYPE

Mixed (cation exchange resin OvivUP – C010 and anion exchange resin OvivUP – A010)

MATRIX

Styrene-DVB copolymer, gel

PHYSICAL FORM

Translucent spherical beads

INSTALLATION

- The optimum performance from any mixed bed unit can only be achieved if the resin is loaded, commissioned and operated correctly.
- All equipment has to be thoroughly decontaminated using the highest quality ultrapure rinse water to avoid contamination of the resin by either foreign matter or different resin types.
- Ensure the resin level conforms to the plant design and always use Ultrapure water for the filling, commissioning and rinsing steps.
- We recommend using a hydraulic ejector or manual loading through the top manway or top filling flange.
- After filling, we recommend mixing the resin with nitrogen (N_2) to ensure homogeneous mix of cation and anion resins, which might slightly separate during filling process.
- Initiate flow and monitor TOC and resistivity rinse curves until the ultimate water quality has been achieved and stabilized.
- Resin is delivered from the factory in an ultrapure and clean condition therefore only small rinse water volume is necessary during the installation to rinse to quality. Once resin packaging is open and resin is exposed to ambient air conditions, ensure to limit the exposure time to avoid partial resin exhaustion with ambient carbon dioxide (CO_2).

The OVIVO logo consists of a dark blue triangle pointing to the right, with the word "OVIVO" in white, bold, sans-serif capital letters inside it.

| OvivUP – M010 (continued) | |
|---------------------------|--|
| OPERATION | <ul style="list-style-type: none"> One way resin, non-regenerable. OvivUP ion exchange resin can't be stored for a long time in a service vessel as bacterial growth could occur during standstill conditions. Thus the resin should at least (and permanently if possible) be kept rinsed. |
| PACKAGING | OvivUP – M010 resin is packed in a 3-layer gas barrier packaging (25 liters). |
| STORAGE | <ul style="list-style-type: none"> OvivUP – M010 resin is sensitive to temperature. Protect from frost and store away from direct sun light, in a cool and dry place. Keep product in its original closed packaging until use and away from incompatible materials such as strong oxidizing agents. Recommended maximal storage time is 1 year. |
| SHIPPING DENSITY | 710 g/l |

SPECIFICATIONS

| | | |
|---|-------------------|--|
| EFFECTIVE SIZE | mm in | ≥ 0.45 ≥ 0.0177 |
| UNIFORMITY COEFFICIENT | | ≤ 1.6 |
| BULK DENSITY | g/l lb/ft³ | ± 690 – 730 ± 43.1 – 45.6 |
| OUTLET RESISTIVITY (MIXED BED) ^{1) 2)} | MΩ·cm | ≥ 18.1 ³⁾ |
| ΔTOC (MIXED BED) ^{1) 2)} | ppb | ≤ 2 |
| METALS CONTENT ^{1) 2)} | ppb/g (dry resin) | ≤ 2'000 |
| METALS LEAKS IN UPW | ppb (dry resin) | < 2 each under normal operation conditions |

1) Typical values in service. Detailed reports of analysis for all batches of OvivUP – M010 resins are available for each delivery, thus to insure that the delivered product meet stringent UPW performance requirements and is of the highest quality.

2) Resistivity and TOC rinse performance measured after 12 hours at 30 BV/h with ≥ 17.5 MΩ·cm rinse water.

3) Guaranteed value is ≥ 18.

TYPICAL PROPERTIES

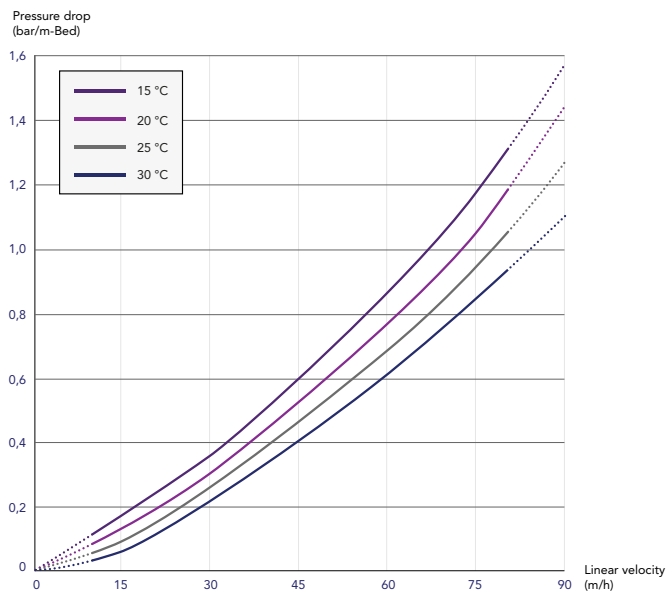
| | | EXCHANGE RESIN CATION – C010 | EXCHANGE RESIN ANION – A010 |
|---------------------------------|-------|---------------------------------|---|
| FUNCTIONAL GROUP | | Sulfonic acid | Quaternary Ammonium, Type I |
| COLOUR | | Dark amber | Light yellow |
| WATER CONTENT | % | 50 – 60 | 62 – 72 |
| ION EXCHANGE CAPACITY | eq/l | ≥ 1.7 | ≥ 0.9 |
| IONIC FORM | eq% | ≥ 99.9 H ⁺ | ≥ 95 OH ⁻ ≤ 1 Cl ⁻ |
| OUTLET RESISTIVITY (SINGLE BED) | MΩ·cm | ≥ 14 | ≥ 17 |
| ΔTOC (SINGLE BED) | ppb | ≤ 15 | ≤ 3 |

OPERATING PARAMETERS

| | | |
|-------------------------------|-------------|--------------------------------|
| MAXIMUM OPERATING TEMPERATURE | 60 °C | 140 °F |
| SERVICE FLOW RATE | 10 – 80 m/h | 4.1 – 32.7 gpm/ft ² |
| MINIMUM BED DEPTH | 800 mm | 31 ½ in |
| MAXIMUM PRESSURE DROP | 1.5 bar | 21 psig |

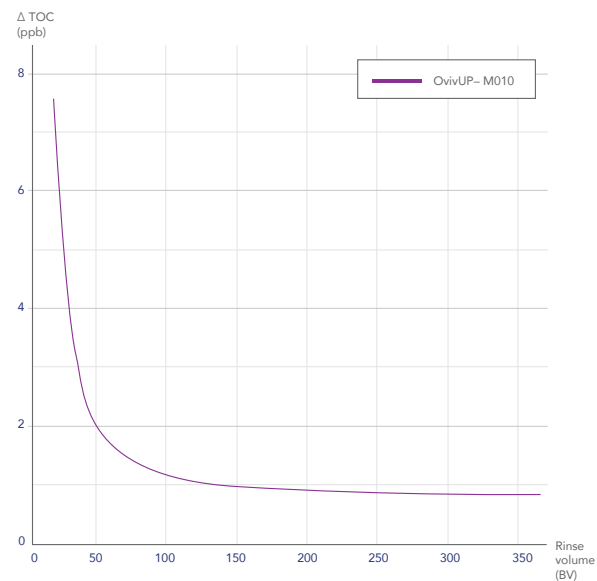
HYDRAULIC CHARACTERISTICS

PRESSURE DROP

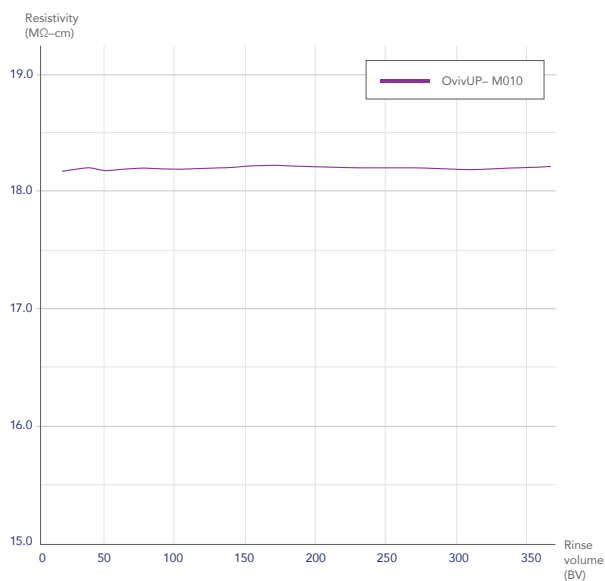


TYPICAL TOC RINSE AND RESISTIVITY PERFORMANCE

TOC RINSE DOWN CURVE



RESISTIVITY



QUALITY

ISO 9001:2015

- The production of the OvivUP – M010 is certified according to ISO 9001:2015.

ISO 14001:2015

- The manufacturing site of the OvivUP – M010 is certified according to ISO 14001:2015 for environmental management systems.

OTHER INFORMATION

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|-------------------------|---|
| | |
| DISPOSAL | Disposal must be in accordance with the appropriate local regulations. |
| SAFETY ADVICE | <ul style="list-style-type: none">• Eye contact can cause serious irritation.• High risk of slipping due to spillage of the product. |
| GLOBAL KNOWLEDGE CENTRE | Ovivo Switzerland AG Benkenstrasse 262 4108 Witterswil Switzerland |

