



MAINTENANCE OF OMNIS CYLINDER UNITS

Recommendations for regular maintenance of OMNIS cylinder units in titration

In general, the use of corrosive or crystallizing reagents may damage the glass cylinder or piston of the OMNIS cylinder units. Therefore, aside from regular inspection of the tubing and antidiffusion microvalves, the OMNIS cylinder unit requires regular maintenance as well. With this, the lifetime of the cylinder unit can be extended and further damage to the instrument can be avoided.

1. Daily maintenance recommendations when using corrosive or crystallizing reagents

- Check for any visible crystallization inside and outside of the glass cylinder
- Remove the cylinder unit from the titrator and check for any crystallization on the instrument
- Rinse burets with a suitable cleaning solution as recommended in section 3 "best practice"
- Always store the mounted cylinder unit in the exchange position

2. Maintenance of the valve disc of cylinder units

We recommend regular regreasing of the valve disc. Especially after a period of inactivity, there is the risk that the valve disc can become blocked due to crystallization. In such a case, do not try to unblock it by using any manual control commands (i.e., no initialization, no manual dosing, etc.). The recommended procedure is as follows:

- Remove all tubing from the cylinder unit and remove the cylinder unit from the dosing device
- Carefully dismantle the green housing
- Soak the remaining cylinder unit in warm water for about 30 minutes
- Carefully try to separate the valve disc from the distributor. If this is not possible, then repeat step c
- Rinse all parts with distilled water without removing the piston or separating the glass cylinder from the bottom plate
- Dry all parts completely (e.g., with a stream of nitrogen gas)
- Regrease the corresponding parts as described in the [Metrohm Knowledge Base](#)
- Assemble the cylinder unit and place it back on the titrator
- Initialize the cylinder unit via the manual control

3. General recommendations and fully automated rinsing procedure (“best practice”) as daily cylinder unit maintenance for all titrants

Our experience shows that a daily cleaning routine with six cleaning cycles has proven the cylinder unit lifetime. Instead of doing this manually every day, Metrohm's "best practice" procedure is a unique feature to do this fully automatically, thanks to the four available dosing ports of the OMNIS cylinder units. Simply connect an additional bottle with a suitable cleaning solution to the cylinder unit and schedule the execution according to your sample workflow. No manual interaction is required and the exposure to aggressive reagents is reduced.

- The “best practice” procedure is preferably performed as the final step every day, so the cylinder unit is stored in the cleaning solution (e.g., overnight) in the exchange position
- For shorter titration breaks we recommend refilling the glass cylinder with the cleaning solution
- We generally recommend performing the “best practice” with H₂O as cleaning solution for aqueous solutions
- For the following titrants, we recommend using the special cylinder unit (6.03004.210 or 6.03004.220) in combination with the corresponding cleaning solution

Titrant	Cleaning solution
Aqueous alkaline solutions	Deionized water
Titrant 5	Methanol
AgNO ₃ solutions	0.1 mol/L HNO ₃
Nonaqueous alkaline solutions	Deionized water
KMnO ₄ solutions	(NH ₄) ₂ Fe(SO ₄) ₂ ⁽¹⁾
EDTA solutions	Ethanol

(1) 44 g (NH₄)₂Fe(SO₄)₂ × 6 H₂O, 12 mL H₂SO₄ in 1 L H₂O

Rinsing procedure details and method templates can be found at [guide.metrohm.com](https://www.metrohm.com/guide)