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## **Instructions for Regeneration**

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## 2.8 Regeneration

### 2.8.1 General Information

⇒ **Attention: When noticing a decrease in performance, note the total running hours. The total hours minus 10 hours can be used as reference for scheduling regeneration.**

After running for a certain period of time, the purifier needs to be regenerated to recover its purifying performance.

It's recommended to regenerate the purifier periodically instead of waiting until a significant decrease in performance noticed. The regeneration interval depends on several factors such as glove box model, application, specific operation and its usage frequency.

### 2.8.2 Regeneration Gas

Regenerating Gas	<p>Depending on applications:</p> <p>When Nitrogen is the working gas, use Nitrogen/Hydrogen mixture (90-95% N<sub>2</sub>, 5-10% H<sub>2</sub>)</p> <p>When Argon is the working gas, use Argon/Hydrogen mixture (90-95% Ar, 5-10% H<sub>2</sub>)</p> <p>When Helium is the working gas, use Helium/Hydrogen mixture (90-95% He, 5-10% H<sub>2</sub>)</p> <p style="color: red;">When Clean Dry Air is the working gas, use Clean Dry Air (No hydrogen mixture required)</p>
Purity	99.999%
Quantity	During one regeneration process, one MK100 purifier needs approx. 3500-4250L [125 – 150 cu.ft.] of gas mixture (measured at standard atmospheric pressure)
Regulator	<p>Primary valve pressure range &gt;150bar (15MPa) [&gt;2,200 psi]</p> <p>Second valve pressure range 0~5bar (0-0.5MPa) [0 – 75 psi]</p>

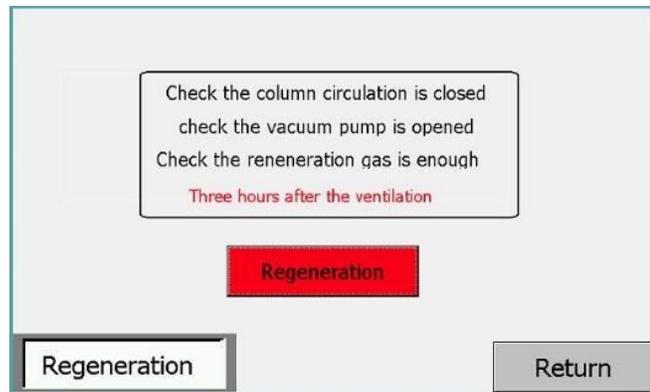
### 2.8.3 Activating Regeneration

⇒ **Attention:**

1.) The pressure range mentioned earlier is for reference only. The actual pressure setting depends on specific conditions. Gas pressure in a typical supply cylinder will drop 8-10 MPa [1200 – 1500 psi] between the 3<sup>rd</sup> and 6<sup>th</sup> hour of regeneration.

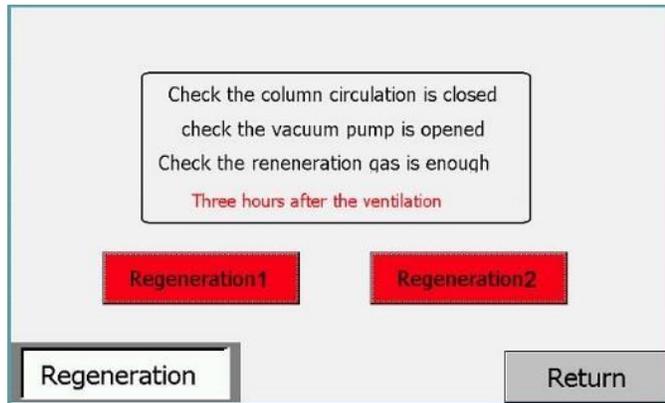
- 2.) When regeneration reaches the third hour, if no exhaust gas is discharging from the outlet, please check the system or contact our service technicians.
- 3.) Assure the circulation is off before activating regeneration.
- 4.) An adequate supply of working gas at the proper pressure (60-80 psi) must be supplied to the working gas outlet in addition to the regeneration gas supplied to the regeneration gas outlet. During regeneration, working gas is still needed to operate the pneumatic systems in the glove box.
- 4.) It takes 24 hours to complete a regeneration process which cannot be interrupted once activated. During the regeneration process, the vacuum pump must be kept "ON" and the gas supply must be sufficient to complete the process. If a power failure occurs during the process, regeneration should resume after power returns. In case the process is not resumed, do not activate regeneration again within 10 hours. The regeneration will be terminated completely if "Regeneration" button is pressed.
- 5.) **WARNING! HOT!** Do not touch the top of the purifier during regeneration to avoid being burned.

**A. Regeneration Menu for single purifier**



Regeneration interface will show on the screen. Touch "Regeneration"

**B. Regeneration menu for two purifiers**



Press “Regeneration 1” or “Regeneration 2” to activate regeneration for the chosen purifier.

- 1) The System will automatically heat the purifier for three hours.
- 2) Connect the regeneration gas (if using gas cylinder, its pressure must be >10MPa)[>1500 psi]) and adjust the regulator to keep input pressure at 0.03-0.07MPa [5-10 psi]. A continuous supply of mixed gas (working gas and H<sub>2</sub>) is required between the 3<sup>rd</sup> and 6<sup>th</sup> hour of regeneration.
- 3) During the 3 hour period when regeneration gas is being introduced to the purifier, check the output pressure of the regeneration gas often and readjust the regulator if the pressure moves outside of the recommended range (5-10 psi).
- 4) Regeneration will run automatically from the 6<sup>th</sup> hour to the end (24 hours in total). No manual operation is needed.