14 System Shutdowns

Please observe the following guidelines for different downtime conditions and durations.

NOTE
ATTENTION! Observe the following guidelines!

- Membranes/module(s) that have been used must be kept wet at all times.

- To avoid microbial growth during plant shutdowns or storage of decommissioned modules, wet membranes must be rinsed with a suitable disinfectant solution and properly preserved.

- Rinsing prior to a downtime of up to 24 hours. Before a downtime lasting less than 24 hours, a backwash of at least 60 seconds must be performed. No further action is required.

- Rinsing and disinfection for downtimes > 24 hours. For shutdowns >24h, a chlorinated backwash is required prior to shut down. To do so, hypochlorite must be dosed together with caustic soda during backwash to achieve a concentration of 2-3 ppm free chlorine, while operating the caustic soda pump to achieve a pH of 9.0 - 9.5.

- UF racks must be checked daily (feed bottom and filtrate sampling ports) to ensure a residual of a minimum of 0.1 ppm free chlorine. Otherwise the process must be repeated.

- Preserving modules for downtimes > 7 days. Membranes/module(s) must be properly preserved in the event of a system shutdown lasting longer than 7 days. Before taking steps to preserve the membranes/module(s), it is absolutely essential to perform chemical cleaning to remove any organic or inorganic contaminants (fouling, scaling) from the membranes. Please contact DuPont™ for instructions on the preservation method for the PES-UF Modules.

NOTE
ATTENTION! Observe the following guidelines!

- Whichever of the above situations applies, the membranes/module(s) should be kept hydraulically filled with liquid. The membranes must be kept free of any oxidizing agents during system shutdowns.

- If you wish to use any other disinfectants, please contact DuPont™ beforehand. It is essential to obtain prior written agreement and approval from DuPont™ regarding the chemicals and concentrations that are permitted for use.

- To put the system/module(s)/rack(s) back into operation, it is essential to follow the guidelines for system commissioning.