Constant Systems Limited
11 Low March, Daventry
Northants, NN11 4SD
UK
Tel: +44 (0) 1327 314146
Email: info@constantsystems.com
Web: www.constantsystems.com

CONSTANT SYSTEMS
CELL DISRUPTION MADE EASY

CLEANING AND STERILIZATION

Continuous Flow – Z, TS and CF models

Your Constant Systems Cell Disrupter has been designed and supplied with ease of cleaning in mind. There are several methods that can be followed for effectively cleaning your cell disrupter and these are described and detailed in this document.

Note: Appropriate Personal Protective Equipment (PPE) should be worn.

Note: All equipment should be used as per manufacturers operating instructions at all times.

Note: If when following this document, you do not have access to the Cell Disrupter Operators Manual or any of the tools detailed in the Cell Disrupter Operator's Manual you should contact Constant Systems for advice using the details above.

Note: Reference to cleaning media in this document refers to Constant Systems recommended cleaning media, and these are - Virkon detergent 1% solution, Ethanol 70% solution or 1M NaOH solution. Other industry standard cleaning media can be used, if so the effectiveness of the cleaning method may require optimizing and if in doubt of alternative cleaning media then contact Constant Systems for advice using the details above.

1. Standard Clean Method

A simple 3 stage clean can be utilised, comprising of an initial water rinse, then a cleaning pass followed by a final water rinse. For both the initial rinse and the cleaning pass it is recommended that maximum pressure is used on all but 5 cycles which should be performed at 10 kpsi. This method washes the internal surfaces of the product path and is the suggested starting point when optimizing in-house cleaning protocols.

Typically, a cleaning regime would comprise of:

Initial rinse – fill the inlet reservoir with water and replace the inlet reservoir lid. Set the equipment to 10kpsi pressure. Start the equipment and run for a minimum of 5 cycles then stop the process. Set the equipment to maximum pressure. Start the process and run the equipment until all the water has been processed and wipe the inlet reservoir with a clean wipe and discard the wipe.

Cleaning pass – fill the reservoir with your cleaning media and set the equipment to 10kpsi pressure. Start the equipment and run for a minimum of 5 cycles then stop the process. Set the equipment to maximum pressure. Start the process and run the equipment until all the cleaning media has been processed and wipe the inlet reservoir with a clean wipe and discard the wipe.

Final rinse - fill the inlet reservoir with water and set the equipment to maximum pressure. Start the equipment and process all the water through the equipment until all the water has been processed.

The effectiveness of all steps can be monitored by effluent pH.

Constant Systems Limited
11 Low March, Daventry
Northants, NN11 4SD
UK
Tel: +44 (0) 1327 314146
Email: info@constantsystems.com
Web: www.constantsystems.com

CONSTANT SYSTEMS
CELL DISRUPTION MADE EASY

2. Clean in Place (CIP) Soak Method

Additional cleaning may be achieved by applying a supply of cleaning fluid to the outlet utilizing a peristaltic pump. This method rinses the internal surfaces of the product path followed by a soak, wash, and final rinse. Clean in Place (CIP) is achieved by unseating the Internal Relief Valve and to do this, fluid is washed backwards through the equipment from the outlet port and collected via the inlet reservoir. To unseat the Internal Relief Valve a minimum pressure of 15 psi is required

Typically, a cleaning regime would comprise of: -

Initial rinse – fill the inlet reservoir with water and replace the inlet reservoir lid. Set the equipment to 10kpsi pressure. Start the equipment and run for a minimum of 5 cycles then stop the process. Set the equipment to maximum pressure. Start the equipment and run until all the water has been processed.

Soak – securely connect a peristaltic pump to the outlet port of the equipment and start to pump your cleaning media into the outlet port, continue until the cleaning media can be seen to enter the bottom of the inlet reservoir (this will require around 700mL of media) and stop the peristaltic pump when the inlet reservoir is full. Leave in soak for 10 minutes.

Cleaning pass – disconnect the peristaltic pump and be ready to collect the cleaning medium (around 700mL plus the volume of your reservoir). Set the equipment to 10kpsi pressure. Start the equipment and run for a minimum of 5 cycles then stop the process. Set the equipment to maximum pressure. Start the equipment and run until all the cleaning media has been processed.

Final rinse - fill the inlet reservoir with water and set the equipment to maximum pressure. Start the equipment and run until all the water has been processed and wipe the reservoir with a clean wipe

The effectiveness of all steps can be monitored by effluent pH.

Note: After performing CIP, the 'O'-ring in the Burp Valve Seat (DRG02873) may need re-housing.

3. Dismantle and Clean method

For a deep clean it is possible to dismantle the entire disruption head, inlet reservoir and outlet fittings for manual cleaning and/or soaking. Virkon detergent 1% solution can effectively be used for this method. This may be beneficial in the event of the equipment being left for long periods without cleaning, or perhaps before starting a new project. A 10-minute soak period is deemed suffice.

Should sterilisation be required then it is possible to autoclave the entire disruption head, inlet reservoir and outlet fittings.

once dismantled and cleaned.

Constant Systems Limited
11 Low March, Daventry
Northants, NN11 4SD
UK
Tel: +44 (0) 1327 314146
Email: info@constantsystems.com
Web: www.constantsystems.com

Important Notes:

- For disassembly and reassembly please refer to your Operator's Manual
- Care must be taken to ensure that both the disruption chamber and the cooling jacket are fully drained of all fluids before autoclaving.
- Repeated autoclaving of 'O'-rings may lead to loss of elasticity; it is recommended that these are removed prior to autoclaving and soaked in cleaning solution.
- It is recommended that the target is removed from the disruption head prior to autoclaving and is sterilised separately by soaking in Virkon detergent 1% solution.
-

4. External Surfaces

All external surfaces can easily be wiped down using cleaning media and a clean wipe. This is recommended following any accidental spillages and it is good practise to follow the cleaning methods above with a final external wipe down.