SARTORIUS

Best Practice Guide

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# Best Practice Guide: Octet® SF3 System Maintenance

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## Introduction

High-quality surface plasmon resonance (SPR) data cannot be generated on a poorly maintained system. In previous studies, it has been shown that ~50% of SPR systems could not be used to generate high-quality data to analyze binding interactions because they were contaminated with system artifacts and subsequent noise.
A poorly maintained system will show systematic drift and therefore, it is important to perform regular system maintenance.
Day to day usage of the Octet® SF3 can cause adsorption of material to the microfluidic tubing and potential microbial growth within the system. A maintenance kit containing 0.5% (w/v) sodium dodecyl sulfate (SDS), 50 mM glycine pH 9.5 and a designated maintenance sensor chip is available from Sartorius (Part Number: 19-0137) and it is recommended to use this kit to ensure optimum performance of the system. Performing the recommended weekly desorb and monthly desorb and decontaminate will ensure that the Octet® SF3 system will continue to produce high-quality data.

**Find out more:** www.sartorius.com

# Optimizing System Performance for Everyday Use

Preventing potential issues with your system before they develop into future problems is crucial to maximize run-time and longevity, maintain productivity and reduce overall costs.

The Octet® SF3 has a simple minimum maintenance schedule of a weekly desorb, which removes any adsorbed proteins or other materials from the system and a monthly desorb and decontaminate, which in addition to removing adsorbed material also prevents microbial growth in the system.

To help reduce potential salt build-up from physiological buffers it is recommended that, when idle, the system should only be left to hibernate in deionized water. It is best practice to switch to the water line at the end of a method, but where this is not possible, the Octet® SF3 system will automatically enter hibernation mode after 72 hours and will use the water line to hydrate the system. The waste container can hold up to 2 liters of fluid but it is important to check regularly whether the waste container requires emptying, and if required, emptying.

Attention should be paid to the maintenance schedule reminder, which is located at the bottom of the Octet® SPR Discovery software. The wrench symbol has the following meanings:

| Symbol | Meaning |
|---|---|
|  | Maintenance is up to date |
|  | Maintenance is due soon |
|  | Maintenance is overdue |

It is also recommended to perform at least one Preventative Maintenance (PM) service per year and that the user replaces the in-line buffer filters every 6 months to maintain optimal performance (Part Number: 19-0109). Contact Sartorius Technical Support (octetsupport@sartorius.com) to inquire about PM service and service contracts.

# Desorb

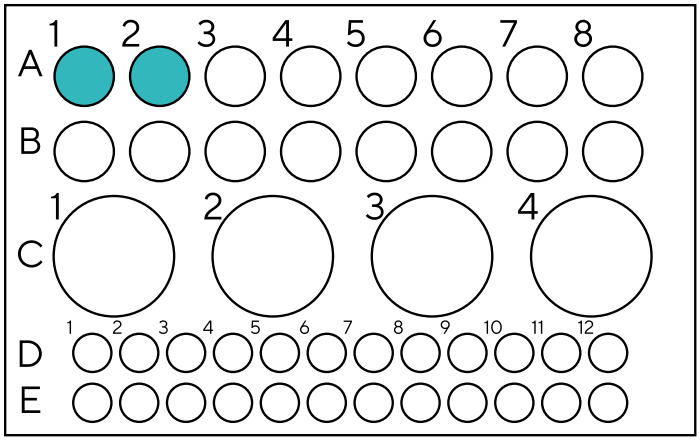
**It is recommended to run the desorb maintenance program at least once a week.**

Prior to performing desorb, ensure that the maintenance chip is docked following the instructions located under: **Instrument setup: Replace Sensor Chip**, and the rack and analysis temperature is set to 25 °C. This is due to the precipitation of Desorb Solution 1 at temperatures below 20 °C.

**Note: Octet® SPR Vial, 2 mL (Part Number: 19-0140) is required to perform the desorb maintenance program.**

The desorb method is located under
**Instrument Setup: Maintenance: Desorb**

Place the required solutions in a mixed format sample rack as shown below:




| Item | Description | Position | Volume (mL) |
|---|---|---|---|
| Desorb 1 | 0.5% (w/v) sodium dodecyl sulfate (SDS) | R1A1 | 1.8 |
| Desorb 2 | 50 mM glycine pH 9.5 | R1A2 | 1.8 |

Click 'Start' and walk away. After completing desorb, the system will automatically enter hibernate and the system is ready for use. Total Run time for desorb is ~30 mins.

# Desorb and Decontaminate

**It is recommended to run the desorb and decontaminate maintenance program at least once every 4 weeks and after the use of 'sticky molecules' such as serum or some small molecules.**

Prior to performing desorb and decontaminate, ensure that the maintenance chip is docked following the instructions located under: **Instrument setup: Replace Sensor Chip**, and the rack and analysis temperature is set to 25 °C. This is due to the precipitation of Desorb Solution 1 at temperatures below 20 °C.

**Note: Octet® SPR Vial, 2 mL (Part Number: 19-0140) is required to perform the desorb maintenance program. Sodium hypochlorite and DMSO are required to be supplied by the user.**

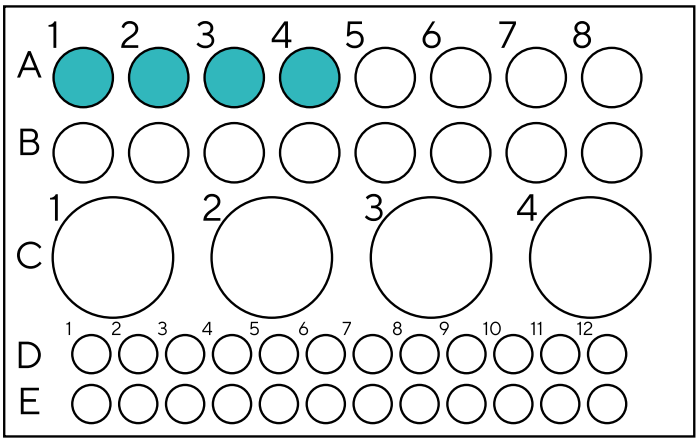
The desorb and decontaminate method is located under **Instrument Setup: Maintenance: Desorb and Decontaminate**

Just prior to use, prepare the following solutions:

| ~0.8% sodium hypochlorite | | 50% DMSO | |
|---|---|---|---|
| **Item** | **Volume (mL)** | **Item** | **Volume (mL)** |
| Sodium Hypochlorite (10 - 15% active chlorine) | 0.2 | >99% DMSO | 1.5 |
| Distilled and 0.2 µm filtered deionized water | 2.8 | Distilled and 0.2 µm filtered deionized water | 1.5 |

Place the required solutions in a mixed format sample rack as shown below:

| Item | Description | Position | Volume (mL) |
|---|---|---|---|
| Desorb 1 | 0.5% (w/v) sodium dodecyl sulfate (SDS) | R1A1 | 1.8 |
| Desorb 2 | 50 mM glycine pH 9.5 | R1A2 | 1.8 |
| ~0.8% sodium hypochlorite | NA | R1A3 | 1.8 |
| 50% DMSO | NA | R1A4 | 1.8 |




Click 'Start' and walk away. The system is automatically primed into the water line. After completing desorb and decontaminate, the system will automatically enter hibernate and the system is ready for use. Total Run time for desorb and decontaminate is ~60 mins.

## Shutdown

The system can remain idle (hibernating) in deionized water for up to two weeks and requires approximately 50 mL of deionized water per day. When hibernating, periodically check that the source bottle has plenty of liquid as the system will continue to prime. If the downtime is anticipated to exceed 2 weeks, it is recommended that all three buffer lines are placed into deionized water.

Where system shutdown is required, follow the instructions in the Octet® SPR Discovery software **Instrument Setup: Shutdown**.

## Notes

In addition to performing a weekly desorb it is recommended that the pump cover is removed, and all tubing is visually inspected for leaks and salt deposits. Any leaks at the tubing and fittings should be cleaned with deionized water.

IMPORTANT: In order to prevent potential poor sensor chip docking and leakage, the plastic support of Octet® Sensor Chips must be completely dry before docking. The plastic support should be dried by using oil-free compressed air or carefully blotting the surface of the sensor chip support.

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