Multi-Sipper Chip Storage and Troubleshooting Guide

Chip Storage Procedure and Recovery of Blocked, Delayed and Sticky Channels

Introduction

The purpose of this Technical Brief is to provide guidance for handling multi-sipper EZ chips. In addition procedures are provided to resolve multi-sipper chip performance issues such blocked, delayed and sticky channels.
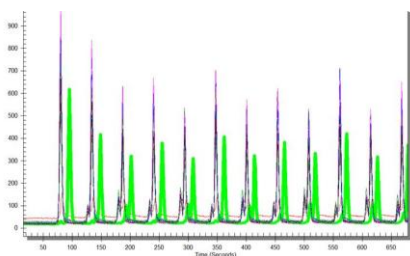
Chip Storage

After removal of the chip from the instrument, rinse the active wells 3X with Milli-Q™ water (or equivalent) and refill the wells with chip storage buffer (1 mM Di-sodium EDTA) from the chip storage jar. Store the chip in the chip container at 4°C.
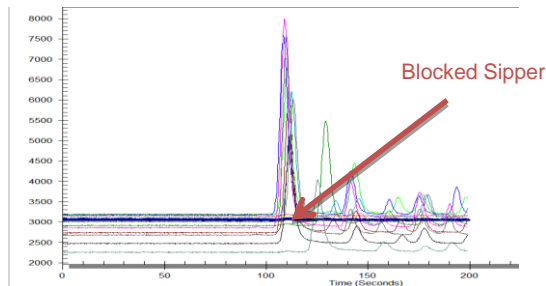
Chip Performance Issues
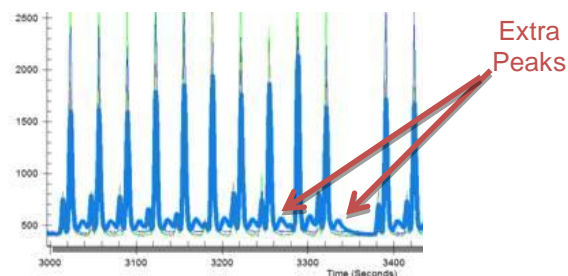
Examples of typical chip performance issues:

B. Delayed Sipper

A. Blocked Sipper

Blocked Sipper

C. Sticky Chip

Extra Peaks

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Recovery of Delayed, Blocked or Sticky Chips

- Recover all channels with extensive flushing by applying -4 psi for 1 hour. ProfilerPro™ Separation Buffer with CR8 should be circulating through the buffer trough.

- Perform a dye test at -4 psi and then at -1 psi to check for synchronization across sipper. 1 µM labeled-peptide can be used for this test.

Why Storage Buffer in the chip wells is important

- When the chip is on the instrument, a base pressure (-0.5psi) is applied to continually draw fresh separation buffer from the buffer trough and properly condition the surface of the channels.

- When the chip is stored, the waste well buffer very slowly drains through the channels and the capillary.

- A "clean" buffer (1mM EDTA) washes and conditions the channel surface during storage.

- A "dirty" waste well buffer may alter the channels' surface properties (hydrophobic or highly charged materials that accumulated during the screen in the waste wells can adsorb on the channel surface and cause blockages or interactions with substrates and products affecting migration).

FAQs

- **Why are some blocked/delayed channels harder to recover than others?**
  Clogs mays occur at different locations in the chip and be of various degrees of severity.

- **Do the waste wells need to be emptied after extensive flushing before starting a screen?**
  If the beginning volume in the waste/buffer well was 450 µL and the -4 psi was applied less than 2 hours, the screen can be started without refreshing the chip.

- **What are the differences between the EZ chips and the old design LC3000 TC372 chips?**
  1. The EZ chips allows the user to prepare the chip once and leave the chip on the instrument for up to one (1) week or 40 hours continuous run time without manipulation of the chip.

  2. Resolution has been improved with reduced peak tailing over long runs.

  3. The manufacturing processes are the same across all multi-sipper chips.