

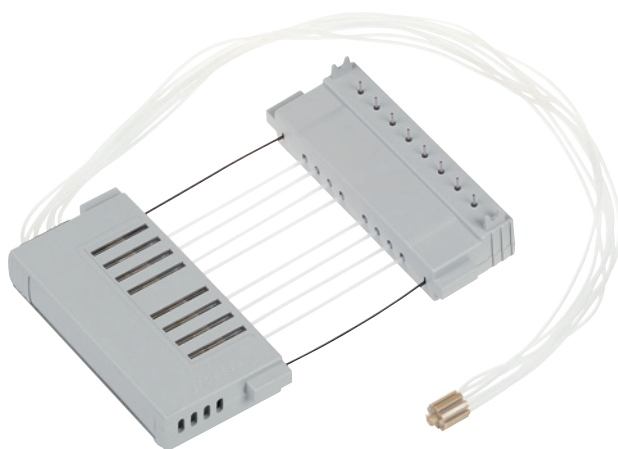
Best Practices for Thermo Scientific Multidrop Dispensing Cassettes

Thermo Scientific Multidrop Dispensing Cassettes

How should cassettes be stored? Do cassettes expire? What kind of shelf life or warranty is provided with purchase of cassettes? What is the life time of cassettes? How long do cassettes last before needing to be recalibrated or replaced? Answers to these common questions are addressed in this document.

Storage / Expiration

As a precaution, make sure the cassette is stored properly in non-extreme temperatures or conditions that would not cause damage to the cassette materials. There is no expiration date associated with cassettes, but if stored properly, cassettes will remain viable for longer periods of time. In general, cassettes are to be used within a year's time. After use, store the cassette in a plastic bag or in its own package. Do not store the cassette on the table or on a fiber cloth as this could potentially allow fibers or other impurities to enter the tubing and tips, and cause tips to clog.



Shelf Life

There is not a specific shelf life provided for the cassettes as they are not meant to be stored for long periods of time before use. In general, cassettes are to be used within a year's time. Also, being a consumable, cassettes



do not have any warranty. However, if defect due to manufacturing is the reason for malfunction, the cassette will be replaced free of charge.

Life Time of Cassettes

Cassettes are considered as consumables and do have an end of life (EOL) time. Life time expectancy is only a guideline; it is dependent of usage conditions of the cassette. However, this doesn't take into account clogging of the tips in the cassette. A routine cleaning procedure is required to maintain proper performance of the cassettes. General cleaning recommendations are included in the user manual. Factors that contribute to wearing of the cassette include frequency of use, solutions being dispensed, and how the cassette is maintained after each use, e.g., the cleaning protocol.

1) Frequency of Use

- HTS applications = high throughput
- General applications e.g. plate preparation = medium throughput
- Stand alone = low throughput

2) Dispensing Solutions

- a. Aqueous – water
- b. Viscous – plasma
- c. Volatile – acids
- d. Other – DMSO, cells
 - i. Refer to a chemical compatibility table for silicone tubing

3) Care and Maintenance

- a. Before Use
 - i. Do not use cassette without liquids
 - ii. Filter liquids before dispensing
 - iii. Use reagent filters as necessary
- b. During Use
 - i. Place cassette into the rest position on the unit
- c. After Use
 - i. Rinse and clean cassette; follow a standard cleaning procedure
 - ii. Store cassette either in its original packaging, or in a clean plastic bag

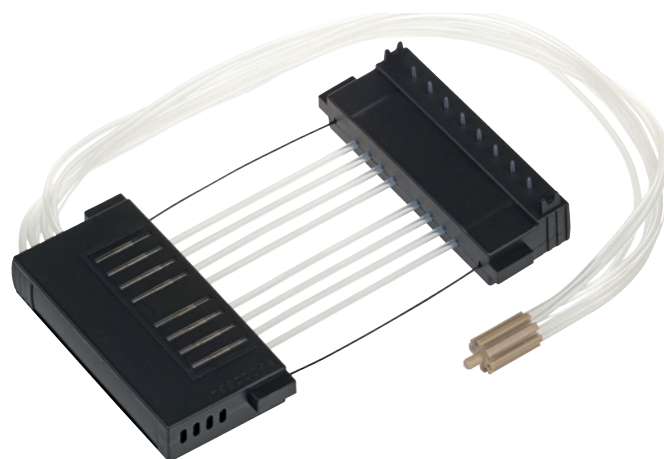
- After use it is recommended to store the cassette in a plastic bag or in its own package. Do not store the cassette on the table or on a fiber cloth as this could potentially allow fibers or other impurities to enter the tubing and tips, and cause tips to clog.
- Wipe up spills immediately and keep the instrument clean and free of dust.
- Refrain from dispensing chemicals that are incompatible with silicone such as strong acids or bases, or many organics. Use of these solutions will shorten the lifetime of the cassettes.
- Do not dry or sterilize the tubings with alcohol if dispensing anything with protein in it (media, cells, etc.) as this will precipitate protein and cause clogs.
- Minimize autoclaving; 1 bar pressure at 121°C for 20 minutes
- Batch-dispense the plates whenever possible or dedicate cassettes for specific applications.

Life time expectancy for the Multidrop cassettes is listed below with water type liquids. Performance of the cassette is guaranteed only when the cassette is being handled properly, maintained and cleaned after each use, and re-calibrated within life time guidelines.

Life Time Expectancy for the Multidrop Cassettes	
Description	Plates
96-well plates	
96-well plates processed with 200 µL dispense volume	1500
96-well plates processed with 100 µL dispense volume	3000
96-well plates processed with 50 µL dispense volume	6000
384-well plates	
384-well plates processed with 20 µL dispense volume	250
384-well plates processed with 10 µL dispense volume	500
384-well plates processed with 5 µL dispense volume	1000
1536-well plates	
1536-well plates processed with 20 µL dispense volume	60
1536-well plates processed with 10 µL dispense volume	125
1536-well plates processed with 5 µL dispense volume	250
1536-well plates processed with 1 µL dispense volume	1200

In order to extend lifetime and preserve cassette performance:

- Always rinse the tubings thoroughly with distilled water after use.
- Always leave the cassette in the rest position when not in use so that tubings aren't stretched around the peristaltic pump pins.





Recalibration

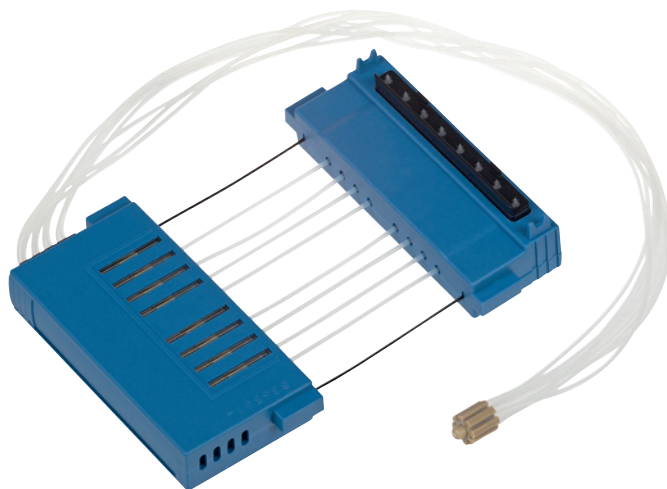
Each cassette is factory calibrated and includes an individual calibration report.

The dispensing cassette has been calibrated by the manufacturer with deionized distilled water at $22^{\circ}\text{C} \pm 2^{\circ}\text{C}$ using default speed.

The cassette is recommended to be re-calibrated periodically to maintain the specified dispensing performance during life time of the cassette. Calibration should also be checked when liquid types other than water are used. Also, it is recommended that re-calibration of the dispensing cassette is carried out if the cassette is forgotten in the Multidrop dispenser under tension around the rotor pins for prolonged periods; for example, over night, a weekend or longer.

Depending on the frequency of use and the liquids used, it is recommended to set up a standard operating procedure to verify and re-calibrate on routine basis, e.g. monthly, quarterly, yearly.

The user manual includes instructions to verify dispensing accuracy with a gravimetric test, as well as instructions for verifying dispensing precision using a photometric test.



End of Life (EOL)

Once a cassette is used to its lifetime expectancy, it should be replaced and discarded. Replace the complete standard cassette or have the tubing set replaced. However, in case of replacing the tubing set, re-calibration of the cassette has to be performed according to the instructions in the user manual.

Note: Replacement tubing sets are not available for the small tube cassettes. The small tube cassettes have to be completely discarded and replaced if the tubing wears out.



Long tubing set for standard cassette
24070297



Tubing set for standard tube dispensing cassette
24070290

