

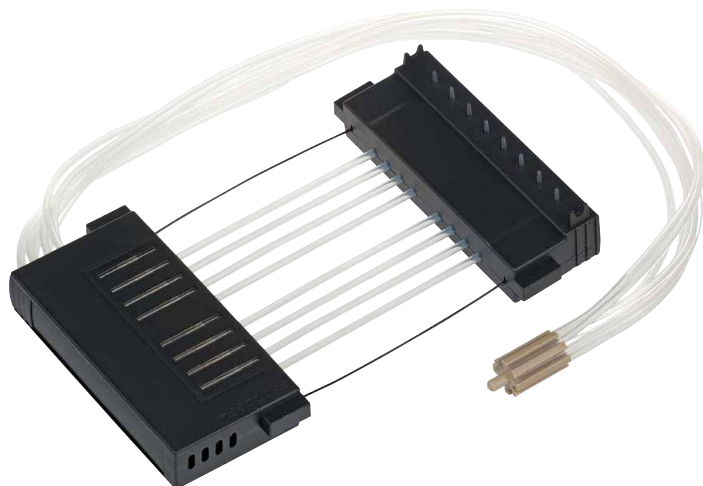
Best practices for Multidrop Dispensing Cassettes

Multidrop Dispensing Cassettes

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

Storage and expiration

As a precaution, make sure the Multidrop Dispensing Cassette is stored properly in non-extreme temperatures and non-damaging conditions. There is no expiration date associated with the cassettes, and if stored properly, these cassettes will remain viable for longer periods of time. In general, these cassettes are to be used within a year's time. After use, store the cassette in a plastic bag or in its own packaging. Do not store the cassette on a 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.



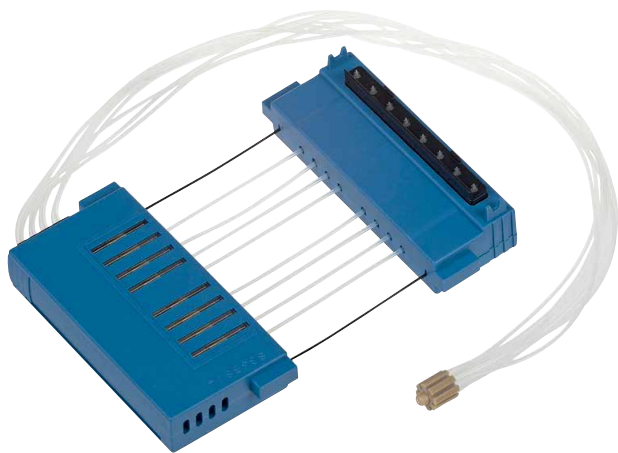
Shelf life

There is not a specific shelf life provided for the Multidrop Dispensing 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. Also, since they are 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.



Lifetime of Multidrop Dispensing Cassettes

In general, cassettes are considered to be consumables and do have an end of life (EOL) time. Lifetime expectancy of the cassettes serves only as a guideline; it is dependent on the usage conditions of the cassettes. For example, lifetime expectancy does not 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 (1) frequency of use, (2) solutions being dispensed, and (3) maintenance of the cassette after end date by following a cleaning protocol.



1. Frequency of use

- a. High-throughput screening—high usage
- b. General applications (e.g., plate preparation)—medium usage
- c. Stand-alone—low usage

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 a cassette without liquids
 - ii. Filter liquids before dispensing
 - iii. Use reagent filters as necessary
- b. During use
 - i. Place the cassette into the rest position on the unit
- c. After use
 - i. Rinse and clean the cassette; follow a standard cleaning procedure
 - ii. Store the cassette either in its original packaging or in a clean plastic bag

Lifetime expectancy for the Multidrop Dispensing Cassettes for use with aqueous liquids is listed in Table 1. Performance of the cassette is guaranteed only when the cassette is being handled properly, maintained and cleaned after each use, and recalibrated within lifetime guidelines.

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 are not stretched around the peristaltic pump pins.
- After use, it is recommended to store the cassette in a plastic bag or in its own package. Do not store the cassette on a 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, strong bases, and 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 (e.g., media, cells) as this will precipitate protein and cause clogs.
- Minimize autoclaving; 1 bar pressure at 121°C for 20 minutes is recommended.
- Batch-dispense the plates whenever possible, or dedicate cassettes for specific applications.

Table 1. Lifetime expectancy of the Multidrop Dispensing Cassettes.

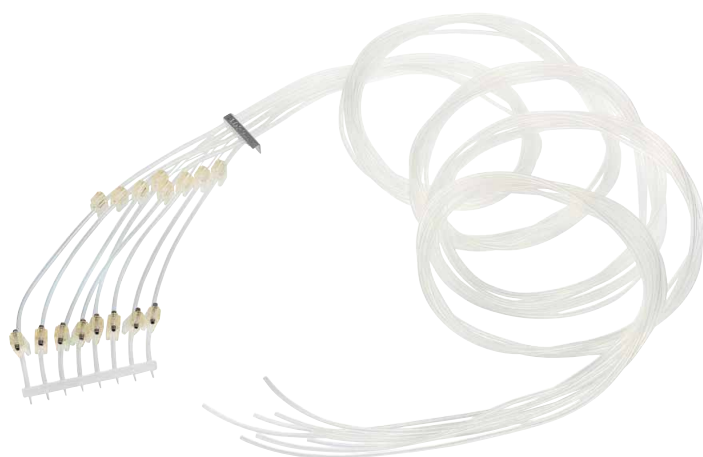
Description	No. of plates
96-well plates	
96-well plates processed with 200 µL dispense volume	1,500
96-well plates processed with 100 µL dispense volume	3,000
96-well plates processed with 50 µL dispense volume	6,000
384-well plates	
384-well plates processed with 20 µL dispense volume	250
384-well plates processed with 10 µL dispense volume	500
384-well plates processed with 5 µL dispense volume	1,000
1,536-well plates	
1,536-well plates processed with 20 µL dispense volume	60
1,536-well plates processed with 10 µL dispense volume	125
1,536-well plates processed with 5 µL dispense volume	250
1,536-well plates processed with 1 µL dispense volume	1,200

Recalibration

Each Multidrop Dispensing 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°C ± 2°C using default speed. Periodic recalibration is recommended to maintain the specified dispensing performance during the lifetime of the cassette. Calibration should also be checked when liquid types other than water are used. Additionally, recalibration of the dispensing cassette is recommended if the cassette is left in the Thermo Scientific™ Multidrop™ dispenser under tension around the rotor pins for prolonged periods, such as overnight, for a weekend, or longer.

Depending on the frequency of use and the liquids used, setting up a standard operating procedure to verify and recalibrate each cassette on a routine basis (monthly, quarterly, or yearly) is recommended.

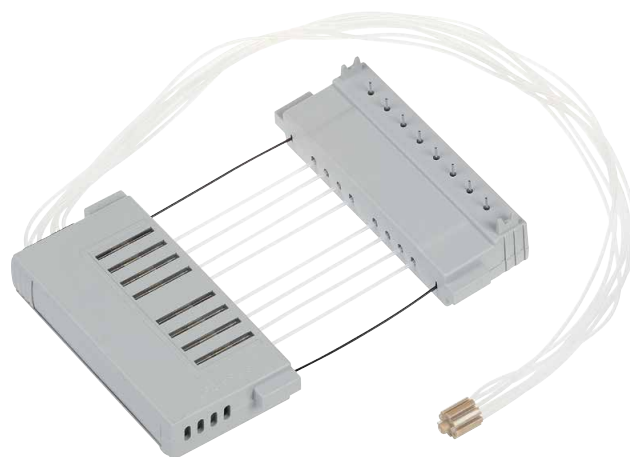
The user manual includes instructions for verifying dispensing accuracy with a gravimetric test in addition to instructions for verifying dispensing precision using a photometric test.



End of product life cycle

Once a cassette is used until its lifetime expectancy, it should be replaced and discarded. Replace the complete standard cassette or have the tubing set replaced. If the tubing set is replaced, recalibration of the cassette must 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 must be completely discarded and replaced if the tubing wears out.



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