



SuperMag Multitube Separator™ User Guide

!WARNING! – Ocean NanoTech’s SuperMag Multitube Separator™ has a strong magnetic field. This product should **not** be used near magnets, metal, credit cards, or memory storage devices. Failure to follow this warning could lead to serious injury and loss of valuable data.

SuperMag Multitube Separator™ Introduction

The SuperMag Multitube Separator™ is designed for the separation of magnetic nanocrystals in solution using small volumes in different containers. It is easy to use and portable having a weight of 1.23 kgs (3 lbs) and the dimensions 4.54 cm x 18 cm x 7.3 cm. The ten inserts located on the top of the separator are designed to hold 1 – 2 mL centrifuge tubes. All the openings can be used for simultaneous separation of multiple samples. The time required for separation increases with smaller diameter magnetic nanocrystals. This product is highly recommended for iron oxide with diameters of 20 nm and above.

During the purification process, pipet out the supernatant solution without removing the container from the magnet. It is recommended to wash the magnetic nanocrystals at least two times while the magnetic nanocrystals are attached on the wall. The SuperMag Multitube Separator™ is designed for the separation of magnetic nanocrystals from multiple samples. It has ten openings designed for two different solution containers for two different volumes to meet different needs in the laboratory.

SuperMag Multitube Separator™ Instructions

Materials:

- SuperMag Multitube Separator™
- 1 – 2 mL centrifuge tubes
- Magnetic crystals in solution to be separated

Procedure:

1. Fill the centrifuge tube with nanocrystals with a concentration of $\leq 5\text{mg/mL}$ to be separated.
2. Place the centrifuge tube into its respective insert.
3. It is important to limit the disturbance to the separation vessel once it has been put into its insert. Too much movement could weaken the separation.

4. Once the crystals have separated from the solution through magnetization resulting in attachment to the walls of the vessels used it is time to decant the supernatant and collect the crystals.
 - a. The most efficient way to decant is by using a micropipette with narrow tips.
 - b. Keep the centrifuge tube in its insert.
NOTE: If the centrifuge tube is taken out of the insert before decanting the supernatant the crystals will be dispersed into solution.
 - c. Place the pipette tip in the center of the separation vessel and draw out the supernatant. Repeat this step until all supernatant is removed and only the crystals attracted to the walls remain in the separation vessel.
 - d. Once all supernatant has been removed and only crystals remain, the centrifuge tube can be lifted from its insert and the crystals can be extracted.
 - e. During the purification process, pipet out the supernatant solution without removing the container from the magnet. It is recommended to wash the magnetic nanocrystals at least two times while the magnetic nanocrystals are attached on the wall. This will shorten the time needed for the purification process.
5. After the initial extraction of crystals is performed it may be necessary to wash the walls of the separation vessel to insure that all crystals have been collected.

SuperMag Extra Separator™ Technical Specifications

Dimensions (H x W x D): 4.54 cm x 18 cm x 7.3 cm

Weight: 3.8 kg

| | | | | |
|------------------------|-----------|-------|-------|------|
| Crystal Size | 20 nm | 30 nm | 40 nm | 50nm |
| Separation Time | Overnight | 8 h | 6 h | 4 h |

NOTE:* Separation times are estimates only. Actual separation times may vary depending on concentration and size of magnetic nanocrystals.*

DISCLAIMER: The SuperMag Separator™ is for research purposes only.

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