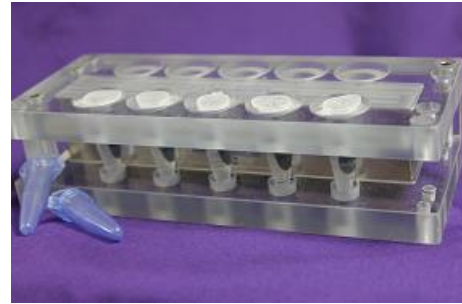


SuperMag Multitube Separator™ User Guide

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

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. 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.

SPECIFICATIONS

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

Weight: 3.8 kg

SEPARATION TIME

Please note that the separation times in the table below are estimates only. Actual separation times may vary.

Particle Size	20 nm	30 nm	40 nm	50 nm
Separation Time	~ 12 hrs	~ 8 hrs	~ 6 hrs	~ 4 hrs

USE OF THE SEPARATOR

Materials:

1. SuperMag Multitube Separator™
2. 1 – 2 mL centrifuge tubes
3. Magnetic particles 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 particles 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 particles.
 - 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 particles 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 particles attracted to the walls remain in the separation vessel.
 - d. Once all supernatant has been removed and only particles remain, the centrifuge tube can be lifted from its insert and the particles 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 nanoparticles at least two times while the magnetic nanoparticles are attached on the wall. This will shorten the time needed for the purification process.
5. After the initial extraction of particles is performed it may be necessary to wash the walls of the separation vessel to ensure that all particles have been collected.

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

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