



NEO-CAPTURE

For the capture and concentration of nanoparticles in aqueous media

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Storage and shelf life

To ensure product performance, strictly follow the storage conditions below:

- **Powder product (vial):** Store in a dry place, protected from light, at a constant temperature between +12 °C and +22 °C.
- **Shelf life:** The product is stable and must be used within 12 months of the manufacturing date.
- **Stability after reconstitution:** The product must be reconstituted immediately before use.

Intended use

This product is intended exclusively for nanoparticle analysis applications in aqueous media. Designed solely for professional laboratory use, it must be handled with the utmost care by personnel appropriately trained in laboratory techniques.

This product is strictly limited to the use described in these instructions. It is not intended for diagnostic, therapeutic, preventive, food, cosmetic or consumer use.

Any use outside this defined scope is the sole responsibility of the operator and must be validated by the user beforehand.

Safety information and good practices

Good laboratory practice

In accordance with good laboratory practice, appropriate personal protective equipment (suitable laboratory coat, disposable gloves and safety glasses) must be worn when handling chemical products.

All necessary precautions should be taken to prevent powder dispersion as well as inhalation, ingestion or unnecessary contact with the products.

In the event of a spill involving liquid containing these buffers, immediately clean the affected area using an appropriate laboratory detergent and water.

Waste must be managed in accordance with the laboratory's internal procedures and applicable local regulations. No product should be released into the environment without prior assessment where the laboratory applies specific reagent-management procedures.

Regulatory status (REACH / CLP)

This mixture, intended exclusively for professional use, is subject to the provisions of the REACH and CLP Regulations. Based on the available

assessment, this mixture is not classified as hazardous according to the criteria of the CLP Regulation.

As a downstream user within the meaning of the REACH Regulation, the laboratory uses substances purchased within the European Union from Sigma-Aldrich, for which the identified uses are covered by supplier or importer registrations.

Quality control

Each product batch is checked against predefined specifications to ensure consistent product quality.

For any additional information regarding the batch and its specifications, please contact Neonaya Biotechnologies.

Required materials to be provided by the user

- 100 or 250 mL glass Falcon tube
- Vortex mixer
- Orbital shaker

Conditions of use

Before starting, make sure your sample meets the following criteria to ensure optimal aggregation.

1. Aqueous medium specifications

To ensure effective aggregation, the medium must meet the following physicochemical requirements:

Parameter	Value / Limit
pH	5-9.2
Salinity	<35g/L

If the water contains macroscopic particles or shows visible turbidity, prefiltration is recommended, preferably using a glass-fiber filter with a 20 µm cut-off.

2. Nanoparticle specifications

Size range: The product is specifically calibrated for particles smaller than 1 μm .

Important note: *If the initial particle size exceeds 1 μm , aggregation kinetics may be less efficient, which may result in incomplete sedimentation.*

Instructions for use

This guide describes the procedure for capturing and concentrating nanoparticles in aqueous media. To ensure process performance, make sure that your experimental parameters comply with the specifications detailed in the 'Conditions of use' section. For further information or troubleshooting support, contact Neonaya Biotechnologies.

1. Preparation and dosing

The vial contains 125 mg of powder, corresponding to the optimal dose for nanoparticle capture in a 100 mL sample volume.

- **Adjustment: If your sample volume differs from 100 mL, adjust the amount of powder proportionally to the volume to be tested.**

2. Reconstitution of reagents

To use the full amount of powder contained in the vial:

1. Sampling: Take 10 mL of the aqueous medium to be tested (already filtered at 20 µm if necessary). Add these 10 mL directly to the vial containing the powder.
2. Dissolution: To ensure complete activation of the product, vortex for 2 minutes.

Note: Continue until fully dissolved. The solution must be completely homogeneous before proceeding to the next step.

3. Capture and aggregation protocol

Once the powder has dissolved, proceed with the capture step:

1. Pour the concentrate (10 mL) into the total volume of the medium to be tested, preferably in a 100 or 250 mL glass bottle.
2. Agitation: Place the solution under agitation for at least 30 minutes.
 - Recommended agitation: Orbital shaking at 270 rpm.
 - *Visual note: After agitation, flocs will appear in suspension. After 30 minutes of settling, the flocs will sediment at the bottom.*
 - *If no floc is visible after the specified time, extend agitation up to 240 minutes.*

4. Nanoparticle recovery methods

The flocs resulting from nanoparticle capture and aggregation can be recovered using two methods:

Method 1: Liquid recovery (centrifugation)

- Centrifuge the solution for 5 minutes at 3800 g and recover the concentrated nanoparticles in the pellet.
 - **Caution: This method is not recommended if no floc is visible to the naked eye after the agitation step. However, if liquid-phase recovery is required, recover the pellet while retaining at least 10% of the volume.**
- Keep the pellet refrigerated (between 0 °C and +4 °C) until use.
 - Preferably, use the pellet within one week after capture.

Method 2: Solid-phase recovery (filtration)

- Filter the solution through a solid support (not supplied).
 - Preferably, use a solid support with a pore size greater than 1 µm.
- Dry the solid support.
 - Store the solid support in a closed, dry place protected from light to avoid potential contamination.

5. Analyses

- **Post-capture analyses: Once recovered, the flocs can be analyzed using your usual internal protocols.**
- Floc analysis is compatible with DLS, microscopy and pyrolysis-GC/MS.
 - For pyrolysis-GC/MS, PVC nanoparticles cannot be analyzed.