

Nanoparticle Storage and Handling Procedures

DO NOT FREEZE¹

STORAGE TEMPERATURES

| | 2°C | 8°C | Ambient temperature | |
|---|---|-------------|---|--|
| In Solution | Gold (Spheres, Nanoshells, Rods, Polystyrene ²) | Recommended | Acceptable | |
| | Silica Shelled Gold ² | | | |
| | Platinum | | | |
| | Magnetite | | | |
| | Silver (Spheres, Plates, Cubes ²) | Recommended | Acceptable for brief periods & during use | |
| | Silica Shelled Silver ² | | | |
| Silica, Aminated Silica ² , Mesoporous Silica ² | Recommended | | | |
| All Dry Powders ¹ | Acceptable (in a dry place) | | Recommended (in a dry place) | |
| | 2°C | 15°C | Ambient temperature | |

EXPECTED SHELF LIFE⁴

| | | |
|-------------|----------------------------------|----------------------|
| In Solution | Silver (Spheres ³) | 2 months to > 1 year |
| | Silica Shelled Gold | 6 months to > 1 year |
| | Silica Shelled Silver | |
| | Silica, Aminated Silica | > 1 year |
| | Gold (Spheres, Nanoshells, Rods) | |
| | Silver (Plates, Cubes) | |
| | Magnetite | |
| | Platinum | |
| | All Dry Powders | > 2 years |

REDISPERSING DRIED NANOPARTICLES

| | Technique | Solvents |
|------------------------------|---|---|
| Gold PVP Spheres | Vortex or bath sonicate 30–60 seconds if needed | Please visit nanocomposix.com/solvent-pvp |
| Silver PVP Spheres | | |
| Magnetite | | |
| Gold Dodecanethiol Spheres | Bath sonicate 5–10 minutes | Please visit nanocomposix.com/solvent-alkanethiol |
| Silver Dodecanethiol Spheres | | |
| Silica | | Water or ethanol |
| Aminated Silica | | Low pH buffer or ethanol |

LIGHT EXPOSURE

| | |
|------------------------------|----------|
| All silver nanoparticles | Minimize |
| All non-silver nanoparticles | Okay |

1. For BioReady NHS Gold, please consult the included *Conjugation Protocol* for storage & handling conditions.
2. Provided in volatile solvents. If stored at ambient temperature, ensure bottle is tightly sealed to avoid evaporation.
3. Expected shelf life of silver spheres depends on size and surface. For more info on < 40 nm silver with PVP, please visit nanocomposix.com/small-pvp-silver.
4. Unless noted otherwise on CoA and when stored and handled appropriately.

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QUALITY CONTROL

When stored as recommended, most nanoparticles are stable for 6 months to > 1 year. **Be sure to visually inspect your materials before each use.** If there are any visible particulates floating in the solution, if the color of the solution has changed, or if the color intensity has decreased, the nanoparticles may have aggregated. These materials should be analyzed via UV-Visible spectroscopy, DLS, or TEM for quality verification. To learn about using UV-Vis for monitoring nanoparticle stability, please visit nanocomposix.com/uv-vis-tutorial.

Do not freeze. If nanomaterials in solution are frozen, the nanoparticles will irreversibly aggregate and the solution color may change.

Keep silver nanoparticles away from light. Light exposure for silver can contribute to instability and accelerated ion release.

Please visit nanocomposix.com/gold-aggregation or nanocomposix.com/silver-aggregation for more details about aggregation.

HANDLING NANOPARTICLE COLLOIDS

Shake each bottle prior to use. During storage, the nanoparticles may settle to the bottom of the vial (especially nanoparticles > 30 nm in diameter). Prior to aliquoting or use, resuspend the settled nanoparticles by vigorously shaking the bottle until the solution is homogenous. This will typically require ~30 seconds of mixing. Visually inspect the bottom of the container to ensure that there are no remaining settled particles. Visit nanocomposix.com/sh-supplement for more details.

HANDLING DRY NANOPOWDERS

Storage away from excess moisture and humidity is recommended until the materials are ready for use or redispersion. Certain nanopowders are sealed under vacuum to limit exposure to air and moisture before use. Visit nanocomposix.com/sh-supplement for more details on handling and redispersing nanopowders.

For a list of appropriate solvents in which to redisperse dry powders, visit nanocomposix.com/solvent-pvp for PVP powders or nanocomposix.com/solvent-alkanethiol for dodecanethiol/organic dried materials.

QUESTIONS?

Please visit our Knowledge Base at nanocomposix.com/knowledge-base for more information, including Frequently Asked Questions and detailed storage, handling, and quality control procedures. If you have any questions, please don't hesitate to contact us by email at info@nanocomposix.com, or by phone at (858) 565-4227.

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