

Storage and Handling Procedures

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Questions?

Please visit our Knowledge Base at nanocomposix.com/support for more information, including Frequently Asked Questions and detailed storage, handling, and quality control procedures. You may also contact us by email at support@nanocomposix.com, or by phone at (858) 565-4227 x2.

Gold and Silver Nanoparticle Storage and Handling Procedures

Store at 2-8°C, away from light. DO NOT FREEZE.

Storage:

STORE PRODUCTS AWAY FROM LIGHT AT 2-8 °C. Short periods at room temperature are acceptable; however, lower temperature storage prolongs the shelf life of the product. Short periods in ambient light conditions are acceptable; however prolonged exposure to light may change the material size or shape

DO NOT FREEZE. If frozen, the nanoparticles will irreversibly aggregate and the solution color will change. When stored at 2-8 °C and away from light, the silver nanoparticles are stable for at least 1 year.

Handling:

SHAKE EACH BOTTLE PRIOR TO USE. During storage the nanoparticles may settle to the bottom of the vial. Prior to aliquoting or otherwise using the nanoparticles, resuspend the settled nanoparticles by vigorously shaking the bottle until a homogenous solution is obtained. Typically this will require approximately 30 seconds of mixing. Visually inspect the bottom of the container to ensure that there are no remaining settled particles.

SONICATE BOTTLES THAT EXHIBIT PLATING PRIOR TO USE. During storage a small amount of metal plating may develop on the sides or bottom of bottles. If plating is observed, place the bottle in a bath sonicator for no more than 30 seconds. Remove and shake the bottle. If plating is still visible, wait 30 seconds before sonicating again for <30 seconds (to limit excessive heating of the particles). Repeat as necessary until plating is no longer visible.

Quality Control:

After redispersion if there are any dark colored particulates visible floating in the solution, if the intensity of the color of the solution has decreased, or if there is a shift in the color of the solution then the nanoparticles may have aggregated. These materials should be analyzed via UV-Visible spectroscopy, DLS, or TEM for quality verification.

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Dried Nanopowder Storage and Handling Procedures

Nanopowder Storage and Redispersion:

STORE AWAY FROM LIGHT AT 2-25 °C IN A DRY PLACE. Storage of dried nanopowders at room temperature is acceptable; however, lower temperature storage prolongs the shelf life of the product. Short periods in ambient light conditions are acceptable; however prolonged exposure to light may change the material size or shape. The nanopowders are sealed under vacuum to limit exposure to air and moisture, but storage away from excess moisture and humidity is recommended.

ADD SOLVENT AND BATH SONICATE TO REDISPERSE. The dried powder may be redispersed by adding water or other appropriate solvent directly to the storage vial, or small amounts of the powder may be transferred to other containers and redispersed as needed. Use caution when handling nanopowders as they pose inhalation hazards and can be difficult to quantitatively transfer due to static effects. We recommend adding at least 1 mL of solvent per each 1 mg of nanoparticles (not including excess PVP) to be redispersed, and bath sonicating for 30-60 seconds or until the powder has completely redissolved.

Dispersion Storage:

STORE PRODUCTS AWAY FROM LIGHT AT 2-8 °C. Short periods at room temperature are acceptable; however, lower temperature storage prolongs the shelf life of the product. Short periods in ambient light conditions are acceptable; however prolonged exposure to light may change the material size or shape.

DO NOT FREEZE. If the dispersion is frozen, the nanoparticles will irreversibly aggregate and the solution color will change. When stored at 2-8 °C and away from light, the silver nanoparticles are stable for at least 1 year.

SHAKE EACH BOTTLE PRIOR TO USE. During storage the nanoparticles may settle to the bottom of the vial. Prior to aliquoting or otherwise using the nanoparticles, resuspend the settled nanoparticles by vigorously shaking the bottle until a homogenous solution is obtained. Typically this will require approximately 30 seconds of mixing. Visually inspect the bottom of the container to ensure that there are no remaining settled particles.

SONICATE BOTTLES THAT EXHIBIT PLATING PRIOR TO USE. During storage a small amount of metal plating may develop on the sides or bottom of bottles. If plating is observed, place the bottle in a bath sonicator for no more than 30 seconds. Remove and shake the bottle. If plating is still visible, wait 30 seconds before sonicating again for <30 seconds (to limit excessive heating of the particles). Repeat as necessary until plating is no longer visible.

Quality Control:

After redispersion if there are any dark colored particulates visible floating in the solution, if the intensity of the color of the solution has decreased, or if there is a shift in the color of the solution then the nanoparticles may have aggregated. These materials should be analyzed via UV-Visible spectroscopy, DLS, or TEM for quality verification.

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Organic-Solvent Compatible Nanoparticle Storage and Handling Procedures

Dried Film Storage and Redispersion:

STORE AWAY FROM LIGHT AT 2-25 °C IN A DRY PLACE. Storage of dried nanopowders at room temperature is acceptable; however, lower temperature storage prolongs the shelf life of the product. Short periods in ambient light conditions are acceptable; however prolonged exposure to light may change the material size or shape. The nanopowders are sealed under vacuum to limit exposure to air and moisture, but storage away from excess moisture and humidity is recommended.

ADD SOLVENT AND BATH SONICATE TO REDISPERSE. The dried nanoparticle films may be redispersed by adding an appropriate solvent directly to the storage vial and vortexing or bath sonicating for 30-60 seconds, or until the film has completely redissolved.

Dispersion Storage:

STORE PRODUCTS AWAY FROM LIGHT AT 2-8 °C. Short periods at room temperature are acceptable; however, lower temperature storage prolongs the shelf life of the product. Short periods in ambient light conditions are acceptable; however prolonged exposure to light may change the material size or shape.

DO NOT FREEZE. If the dispersion is frozen, the nanoparticles will irreversibly aggregate and the solution color will change.

SHAKE EACH BOTTLE PRIOR TO USE. During storage the nanoparticles may settle to the bottom of the vial. Prior to aliquoting or otherwise using the nanoparticles, resuspend the settled nanoparticles by vigorously shaking the bottle until a homogenous solution is obtained. Typically this will require approximately 30 seconds of mixing. Visually inspect the bottom of the container to ensure that there are no remaining settled particles.

SONICATE BOTTLES THAT EXHIBIT PLATING PRIOR TO USE. During storage a small amount of metal plating may develop on the sides or bottom of bottles. If plating is observed, place the bottle in a bath sonicator for no more than 30 seconds. Remove and shake the bottle. If plating is still visible, wait 30 seconds before sonicating again for <30 seconds (to limit excessive heating of the particles). Repeat as necessary until plating is no longer visible.

Quality Control:

After redispersion if there are any dark colored particulates visible floating in the solution, if the intensity of the color of the solution has decreased, or if there is a shift in the color of the solution then the nanoparticles may have aggregated. These materials should be analyzed via UV-Visible spectroscopy, DLS, or TEM for quality verification.

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