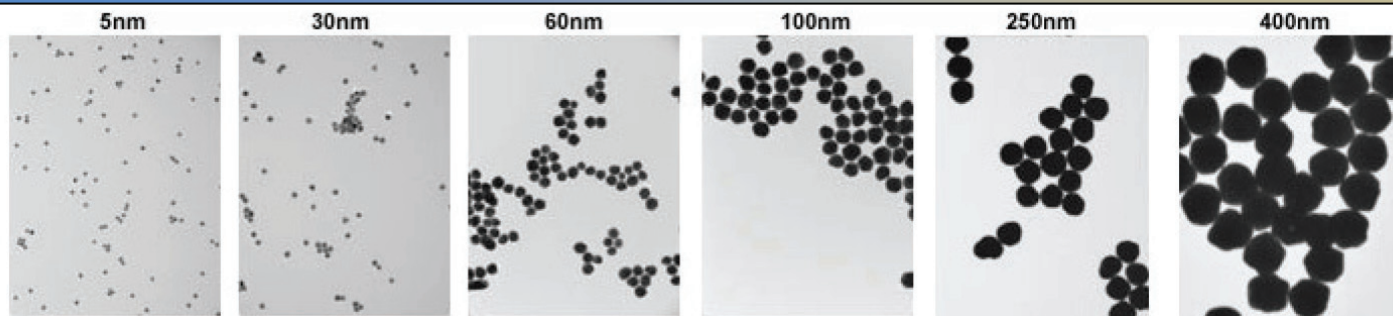




# Reactant-Free and Stabilized Gold Nanoparticles

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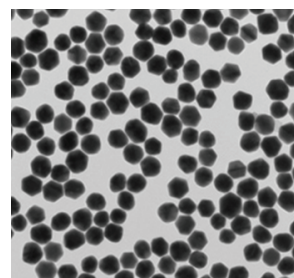
## **Cat No. 96-1545 Gold Nanoparticles Kit, Reactant-Free (5nm-40nm diameter, 1 OD, suspension in phosphate-buffered saline, 515-530nm abs. max.)**

Components available for individual sale – 25ml, 100ml. \*Contains 25 ml of each of the following:

- 79-0180\* (5 nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline, 515-520 nm abs. max.) reactant free
- 79-0184\* (10nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline, 520nm abs. max.) reactant free
- 79-0186\* (15nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline, 520nm abs. max.) reactant free
- 79-0188\* (20nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline, 524nm abs. max.) reactant free
- 79-0190\* (30nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline, 526nm abs. max.) reactant free
- 79-0192\* (40nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline, 530nm abs. max.) reactant free

Additional sizes available:

- 79-0194 (50nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline, 535nm abs. max.) reactant free
- 79-0196 (60nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline, 540nm abs. max.) reactant free
- 79-0198 (70nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline, 548nm abs. max.) reactant free
- 79-0202 (80nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline, 553nm abs. max.) reactant free
- 79-0204 (90nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline, 564nm abs. max.) reactant free
- 79-0206 (100nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline, 572nm abs. max.) reactant free
- 79-0208 (150nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline) reactant free
- 79-0220 (200nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline) reactant free
- 79-0222 (250nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline) reactant free
- 79-0224 (300nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline) reactant free
- 79-0228 (400nm diameter, 1 OD, stabilized suspension in phosphate-buffered saline) reactant free



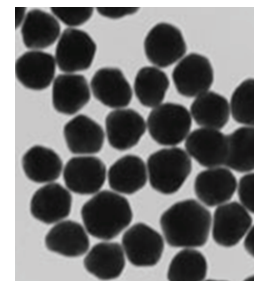
## **Cat No. 96-1547 Gold Nanoparticles Kit (5nm-40nm, 1 OD, supplied in 0.1mM stabilizing surfactant, 515-530nm abs. max.)**

Components available for individual sale – 25ml, 100ml. \*Contains 25 ml of each of the following:

- 79-0182\* (5nm, 1 OD, supplied in 0.1mM stabilizing surfactant, 515-520nm abs. max.)
- 79-0210\* (10nm, 1 OD, supplied in 0.1mM stabilizing surfactant, 515-520nm abs. max.)
- 79-0212\* (15nm, 1 OD, supplied in 0.1mM stabilizing surfactant, 520nm abs. max.)
- 79-0214\* (20nm, 1 OD, supplied in 0.1mM stabilizing surfactant, 524nm abs. max.)
- 79-0216\* (30nm, 1 OD, supplied in 0.1mM stabilizing surfactant, 526nm abs. max.)
- 79-0218\* (40nm, 1 OD, supplied in 0.1mM stabilizing surfactant, 530nm abs. max.)

Additional sizes available:

- 79-0260 (50nm, 1 OD, supplied in 0.1mM stabilizing surfactant, 535nm abs. max.)
- 79-0262 (60nm, 1 OD, supplied in 0.1mM stabilizing surfactant, 540nm abs. max.)
- 79-0264 (70nm, 1 OD, supplied in 0.1mM stabilizing surfactant, 548nm abs. max.)
- 79-0266 (80nm, 1 OD, supplied in 0.1mM stabilizing surfactant, 553nm abs. max.)
- 79-0268 (90nm, 1 OD, supplied in 0.1mM stabilizing surfactant, 564nm abs. max.)
- 79-0270 (100nm, 1 OD, supplied in 0.1mM stabilizing surfactant, 572nm abs. max.)
- 79-0272 (150nm, 1 OD, supplied in 0.1mM stabilizing surfactant)
- 79-0274 (200nm, 1 OD, supplied in 0.1mM stabilizing surfactant)
- 79-0276 (250nm, 1 OD, supplied in 0.1mM stabilizing surfactant)
- 79-0278 (300nm, 1 OD, supplied in 0.1mM stabilizing surfactant)
- 79-0280 (400nm, 1 OD, supplied in 0.1mM stabilizing surfactant)



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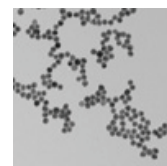
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### Reactant-Free Gold Nanoparticles

The reactant-free colloidal gold nanoparticles offered in *Kit Cat No. 96-1545* are >99% free of residual reactants and offer high protein binding efficiencies. Supplied in 0.1 mM phosphate buffered saline (PBS) with an optical density (OD) = 1, they are designed for use in sensitive applications, such as conjugate development by passive adsorption of proteins and other ligands, cellular studies, immunostaining, immunochromatography, lateral flow assays, biological sensor development, electron microscopy, and Surface Enhanced Raman Spectroscopy (SERS).

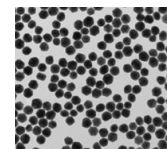


### Surfactant-Stabilized Gold Nanoparticles

The surfactant-stabilized colloidal gold nanoparticles offered in *Kit Cat No. 96-1547* are provided at an optical density (OD) = 1 in a solution that is stabilized with proprietary stabilizer that imparts increased overall stability, a higher salt tolerance (up to 2M NaCl) and improved temperature stability. They are ideally suited for binding with thiolated ligands such as oligonucleotides and polyethylene glycols for use in blotting and lateral flow assays, and also find use in physical and optical applications where harsher conditions are required. Note that these gold nanoparticles are not appropriate for protein adsorption.

### Superior Size Distribution and Shape

The reactant-free and surfactant-stabilized gold nanoparticles offered as part of these kits are made using a proprietary production process that affords excellent control over the size distribution and shape of the nanoparticles. The narrow size distribution (CV of less than 15%) gives these gold nanoparticles enhanced stability.



In addition, the particles are greater than 95% spherical with an excellent aspect ratio (length/width) and a high level of monodispersity, which minimizes variation in product performance and provides greater control over the available surface area. Low batch-to-batch variability (+/- 2nm) also ensures consistent quality and higher performance.

### Storage Instructions for Reactant-Free and Surfactant-Stabilized Gold Nanoparticles

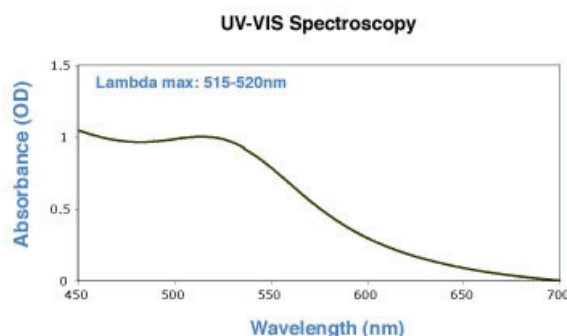
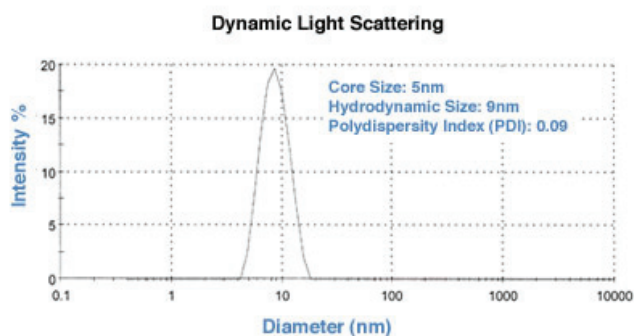
Gold nanoparticles should be stored away from direct sunlight at 4-25°C, preferably at a lower temperature, which will prolong the shelf life. However, do NOT allow the nanoparticle solutions to freeze. Freezing causes irreversible aggregation. When stored as specified, the gold nanoparticle solutions are stable for at least six months.

## Typical Characteristics of Reactant-Free and Surfactant-Stabilized Gold Nanoparticles

Diameter	Peak SPR Wave-length (nm)	NPs/ml*	Wt. Conc. (mg/ml)*	Molar Ext (M <sup>-1</sup> cm <sup>-1</sup> )	Size Dispersity (+/-nm)	Particle Volume (nm <sup>3</sup> )	Surface Area (nm <sup>2</sup> )	Surface/Volume Ratio	Particle Mass (g)	Molar Mass (g/mol)	Molar Concentration*
5	515-520	5.47E+13	6.94E-02	1.10E+07	<15%	6.54E+01	7.85E+01	1.2	1.27E-18	7.64E+05	9.08E-08
10	520	5.98E+12	6.07E-02	1.01E+08	<15%	5.24E+02	3.14E+02	0.6	1.02E-17	6.11E+06	9.93E-09
15	520	1.64E+12	5.61E-02	3.67E+08	<12%	1.77E+03	7.07E+02	0.4	3.43E-17	2.06E+07	2.72E-09
20	524	6.54E+11	5.31E-02	9.21E+08	<12%	4.19E+03	1.26E+03	0.3	8.12E-17	4.89E+07	1.09E-09
30	526	1.79E+11	4.91E-02	3.36E+09	<12%	1.41E+04	2.83E+03	0.2	2.74E-16	1.65E+08	2.98E-10
40	530	7.15E+10	4.65E-02	8.42E+09	<12%	3.35E+04	5.03E+03	0.15	6.50E-16	3.91E+08	1.19E-10

\*All concentrations as indicated at an optical density of 1 (OD=1)

### Gold Nanoparticles, 5 nm Diameter



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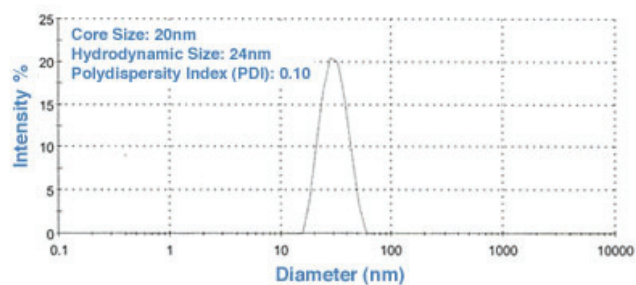
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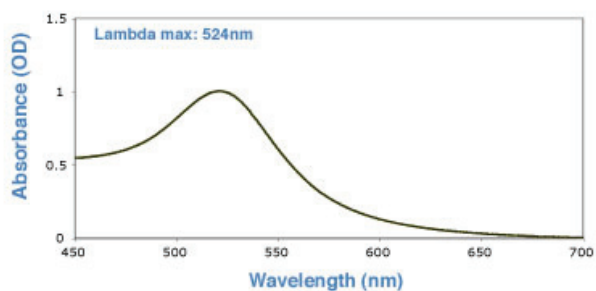
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## Gold Nanoparticles, 20 nm Diameter

Dynamic Light Scattering

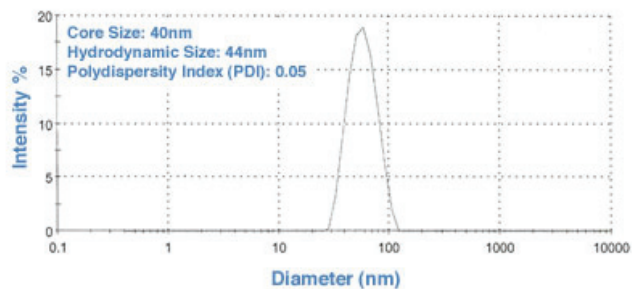


UV-VIS Spectroscopy

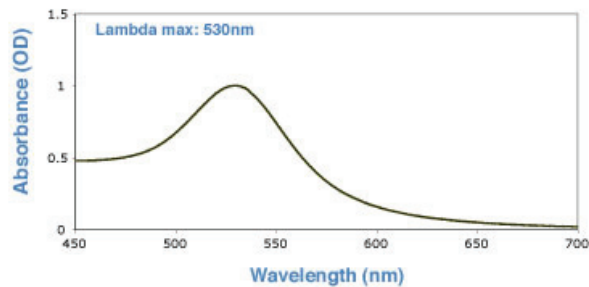


## Gold Nanoparticles, 40 nm Diameter

Dynamic Light Scattering



UV-VIS Spectroscopy



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