



Particular
customized material



2011

**PARTICULAR®
PRODUCT CATALOGUE
AND PRICE LIST**

September 15, 2011

Replacing former catalogues and price lists

- **customized colloids**
- **highest purity**
- **aqueous and organic solvents**
- **biomolecule conjugates**

Particular's nanoparticles from metals and ceramics (including alloys as well as nitrides and carbides) are ideal for high-tech applications in biotech, nano-energy, catalysis, or various R&D screenings. They excel by extraordinary **purity and surface activity** and are **hydrodynamically monodisperse**.

Our unique laser technology allows the conversion of almost any solid or powder material into a colloid, leading to the largest possible nanomaterial variety for screening studies and individual applications. You can order your nanoparticles in water and organic solvents with different stabilizers - including even no stabilizer at all. Please contact us to discuss your individual requirements.

Customized colloids (e.g. Pt in acetone, Ti in 2-propanol, zirconia in water)

Size *	Concentration **	Volume	Order No.	Price
< 70 nm	medium	1 liter	B-01	890 EUR
		0.1 liter	B-02	290 EUR
	low	1 liter	B-03	590 EUR
< 15 nm	medium	1 liter	B-04	1340 EUR
		0.1 liter	B-05	440 EUR
	low	1 liter	B-06	890 EUR

SPECIAL: Highly concentrated platinum or palladium in water

Size *	Concentration **	Volume	Order No.	Price
< 70 nm	high (1000 mg/l)	1 liter	B-07	1790 EUR
		0.1 liter	B-08	590 EUR
< 15 nm	high (500 mg/l)	1 liter	B-09	2690 EUR
		0.1 liter	B-10	890 EUR

Please contact us for **individual concentrations and lot sizes**.

* Peak of particle diameter distribution. Colloids are hydrodynamically monodisperse (acc. to ISO 13321). DLS characterization is provided with every colloid, additional SEM analysis is available on request.

** Concentrations: high: 500 mg/l • medium: 100 mg/l • low: 10 mg/l



Particular's silver- and copper-based nanoparticles show extraordinary purity and activity. Metal combinations can unfold faster ion release (please contact us for application notes). To integrate our material into your products, including polymer embedding, you can order different liquid **dispersion media** and different stabilizers. Please contact us to discuss your individual requirements.

Silver in water				
Size *	Concentration **	Volume	Order No.	Price
< 70 nm	high	1 liter	A-01	1190 EUR
		0.1 liter	A-02	390 EUR
	medium	1 liter	A-03	590 EUR
		0.1 liter	A-04	190 EUR
	low	1 liter	A-05	390 EUR
< 15 nm	medium	1 liter	A-06	890 EUR
		0.1 liter	A-07	290 EUR
	low	1 liter	A-08	590 EUR
Silver or copper in acetone				
Size *	Concentration **	Volume	Order No.	Price
< 70 nm	medium	1 liter	A-09	890 EUR
		0.1 liter	A-10	290 EUR
	low	1 liter	A-11	590 EUR
< 15 nm	medium	1 liter	A-12	1340 EUR
		0.1 liter	A-13	440 EUR
	low	1 liter	A-14	890 EUR
Ag/Cu-based mixtures in acetone or water: Ag/Mg, Ag/Au, Cu/Mg				
Size *	Concentration **	Volume	Order No.	Price
< 70 nm	medium	1 liter	A-15	1340 EUR
		0.1 liter	A-16	440 EUR
	low	1 liter	A-17	890 EUR
< 15 nm	medium	1 liter	A-18	2010 EUR
		0.1 liter	A-19	660 EUR
	low	1 liter	A-20	1340 EUR

Please contact us for **individual concentrations and lot sizes**.

* Peak of particle diameter distribution. Colloids are hydrodynamically monodisperse (acc. to ISO 13321). DLS characterization is provided with every colloid, additional SEM analysis is available on request.

** Concentrations: high: 500 mg/l • medium: 100 mg/l • low: 10 mg/l

Particular’s laser-generated gold nanoparticles exhibit high purity, high surface potential and strong activity, making them the perfect binding partner for **proteins and oligonucleotides** for biomedical, immunoassay, and toxicology studies (please contact us for application notes).

Since they are **ligand-free** before conjugation, Particular® gold conjugates are free of citrate or other particle-associated residual chemicals, so that bio-response studies can focus on **pure conjugate functionality**. Our method ensures superior conjugation efficiency (yield) and surface coverage (functionality) on the nanoparticles.

Particular offers gold conjugates in three groups at low, transparent prices. In addition, we offer a **buffer transfer** and fractionation/filtration (see below).

OLIGOS: Pure nano-gold (primary particle diameter ca. 5 to 10 nm) conjugated to **customized DNA** at different conjugation efficiencies and surface coverage rates. Oligos comprise customer-requested sequences of DNA with up to 40 bases.

Other oligonucleotides like **RNA, LNA**, customer-defined **aptamers**, as well as oligos with individual **fluorophor labelings** are available on request.

Group I: Oligonucleotides					
Coverage *	OD	Gold **	Volume	Order No.	Price
> 50 %	> 1	high	10 ml	C-01	2990 EUR
			2 ml	C-02	1490 EUR
	> 0.1	low	10 ml	C-03	1490 EUR
			2 ml	C-04	740 EUR
> 10 %	> 1	high	10 ml	C-05	1990 EUR
			2 ml	C-06	990 EUR
	> 0.1	low	10 ml	C-07	990 EUR
			2 ml	C-08	490 EUR

* Coverage rate refers to biomolecule saturation of gold particle surface. Lower gold coverage leads to a lower amount of unbound oligos in the dispersion. You may order a fractionation from unbound molecules (see section “additional services”, S-02), especially for high-coverage gold conjugates.

** Gold concentration: high: > 90 µg/ml, ca. 10¹³ particles/ml • low: > 10 µg/ml, ca. 10¹² particles/ml

PEPTIDES: Pure nano-gold (primary particle diameter ca. 5 to 10 nm) conjugated to **cationic peptides** at a coverage in the range of 50 ligands per particle, as well as conjugates to standard peptides like **BSA**. Cationic peptides comprise the cell-penetrating peptides Penetratin, Decaarginine, and HIV-1-trans-activating protein (Tat). Please choose the peptide and gold concentration for your application.

Group II: Peptides					
Peptide	OD	Gold ***	Volume	Order No.	Price
BSA	> 1	high	10 ml	C-09	1590 EUR
			2 ml	C-10	790 EUR
	> 0.1	low	10 ml	C-11	790 EUR
			2 ml	C-12	390 EUR
Cationic*	> 1	high	10 ml	C-13	1990 EUR
			2 ml	C-14	990 EUR
	> 0.1	low	10 ml	C-15	990 EUR
			2 ml	C-16	490 EUR
Custom**	> 1	high	10 ml	C-17	2390 EUR
			2 ml	C-18	1190 EUR
	> 0.1	low	10 ml	C-19	1190 EUR
			2 ml	C-20	590 EUR

* Please choose from: 1) Penetratin, 2) Decaarginine, 3) Tat protein.

** Please define your custom (non-cationic) peptide. For optimal binding, peptides shall bear cysteine group, preferably at terminus. Prices are subject to availability and costs of custom peptides.

*** Gold concentration: high: > 90 µg/ml, ca. 10^{13} particles/ml • low: > 10 µg/ml, ca. 10^{12} particles/ml



ANTIBODIES: Pure nano-gold (primary particle diameter ca. 5 to 10 nm) conjugated to **secondary antibodies (anti-IgG)** from mouse, rabbit, goat, donkey, and chicken hosts, at tunable gold concentrations. Please specify your requirements (anti-IgG host, desired gold concentration/OD). Gold conjugation to primary or monoclonal secondary antibodies is available on request.

Group III: Secondary Antibodies

OD	Gold *	Volume	Order No.	Price
> 1	high	10 ml	C-21	2390 EUR
		2 ml	C-22	1190 EUR
> 0.1	low	10 ml	C-23	1190 EUR
		2 ml	C-24	590 EUR

* Gold concentration: high: > 90 µg/ml, ca. 10¹³ particles/ml • low: > 10 µg/ml, ca. 10¹² particles/ml

ADDITIONAL SERVICES: For each gold conjugate sample, we offer additional treatments to adapt the quality and usability to your requirements. We offer an immediate, safe transfer from pure water to **stabilizing buffer** solutions and cell culture media (like TRIS or DMEM), a **fractionation** of the conjugates from unbound molecules in the solution by means of centrifugation, and a sterilization using a 0.22 µm Millex-GV filter unit.

Additional Services

Service (prices per ordered sample)	Order No.	Price
Transfer to buffer solution – please choose from: DMEM, FBS, TRIS, HEPES, RPMI, PBS+Albumin	S-01	300 EUR
Fractionation from unbound molecules	S-02	200 EUR
0.2 µm filtration (protein sterilization)	S-03	100 EUR



YOUR ADVANTAGES

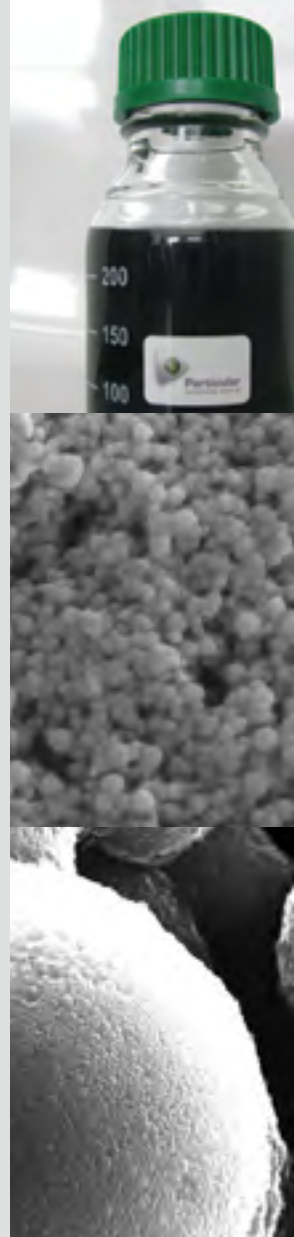
Due to its physical approach, laser ablation in liquids is generally different from chemical syntheses. Avoiding chemical precursors is useful for nanotechnology, as high purity is often required – for example in biological or medical applications or when a polymer is to be filled with nanoparticles without impurifying the matrix.

Nanoparticles from Particular offer the following advantages:

- **high purity** without precursor rests or toxic preserving agents,
- **organic solvents** as dispersants without medium transfer,
- **extraordinary surface activity** enhancing many nano-effects.

Examples of unique applications:

- **gold conjugation** to biomolecules with high efficiency for long-lasting, biocompatible nanomarkers (instead of bleaching or toxic dyes),
- **embedding** of antibacterial nanoparticle combinations in polymers (with ion release capacities up to several years),
- **catalyst particles** of high surface activity dispersed upon support carriers (see picture on the right),
- **coating of implants** from metal alloys with nanoparticles of the same stoichiometry,
- **screening studies** of nanomaterial variations (for applications in nano-energy, catalysis, biomedicine, or toxicology).



INFORMATION AND CONTACT

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