Reinste

Nano Ventures

Designed to deliver the purest….






- Carbon Nanotubes
- Nanodiamonds
- Nanoceramics
- Quantum Dots
- Nanometals
- Fullerenes
- Nanowires
- PEG Derivatives
- Tectomers
- Nano - and Micro - Salts
- Phosphonic Acid Derivatives

Nanomaterials

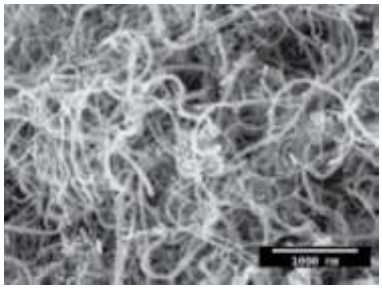
& Related products

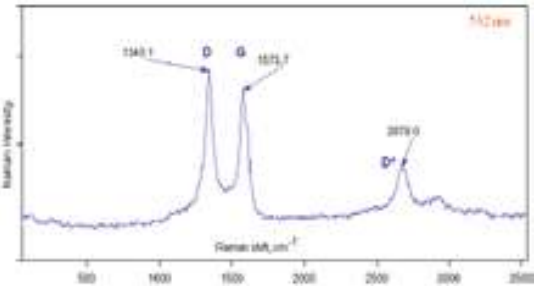
Catalogue 2011-2012

Content

Carbon Nanotubes, multiwalled

Carbon purity: min. 95 %
Number of walls: 3-15
Outer diameter: 5-20 nm; Inner diameter: 2-6 nm; Length: 1-10 µm
Apparent density: 0.15-0.35 g/cm^3
Loose agglomerate size: 0.1-3 mm





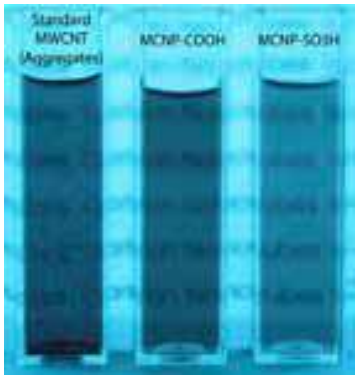
RN-MCNP-1g	1 g
RN-MCNP-10g	10g
RN-MCNP-50g	50g
RN-MCNP-100g	100g

Carbon Nanotubes, multiwalled, charged, water soluble

Carbon nanotubes (CNTs) type RN-MCNP, additionally modified by -COOH or -SO_3H groups. Soluble in water forming dark, transparent suspensions stable for many months.*Images:Top: aq. suspensions of unstable unmodified (left) and stable modified CNTs.*

COOH- modified:

RN-MCNP-COOH-100mg	100 mg
RN-MCNP-COOH-500mg	500 mg
RN-MCNP-COOH-1g	1 g



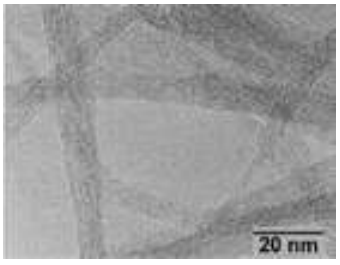
SO_3H- modified:

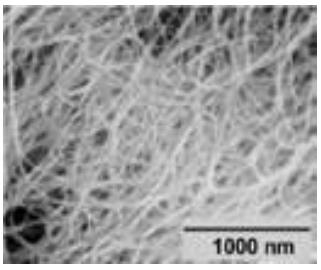
RN-MCNP-SO3H-100mg	100 mg
RN-MCNP-SO3H-500mg	500 mg
RN-MCNP-SO3H-1g	1 g

Carbon Nanotubes, single-walled

Produced by arc discharge method. SWCNTs assembled in bundles
Carbon purity: > 90 %; Diameter: ca. 1.4 nm; Length: > 10 µm

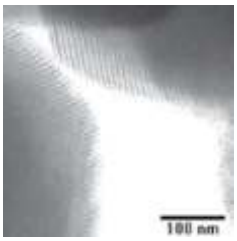
RN-SCNP-100mg	100 mg
RN-SCNP-500mg	500 mg





Carbon mesoporous, highly ordered

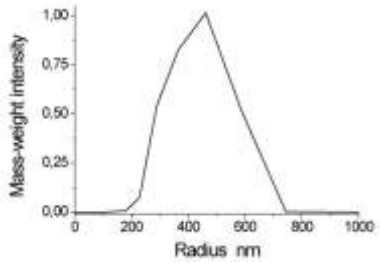
APS: ca. 1-2 µm; SSA: ca. 600 m²/g;
Pore radius: ca. 1.8 nm; Mesopores volume: ca. 0.6 cm³/g
Distance between pores: ca. 9 nm;



RN-COM-1g	1 g

Nanographite powder

Produced by chemical desintegration of graphite.
Average particle radius 400-450 nm



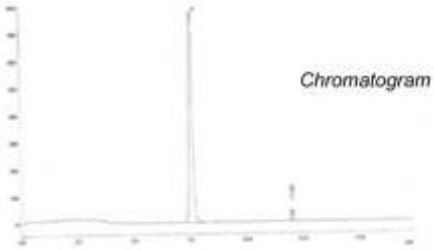
RN-Gr4-5g	5g
RN-Gr4-25g	25g

Carbon Black nanopowder

The finest analog of industrially used filler for polymer composites
Average particle size: ca. 13 nm; Specific surfce: ca. 550 m²/g
Ash content: < 0.02 %; Bulk density: ca. 120 g/L

RN-CB13-5g	5 g
RN-CB13-50g	50 g
RN-CB13-200g	200 g

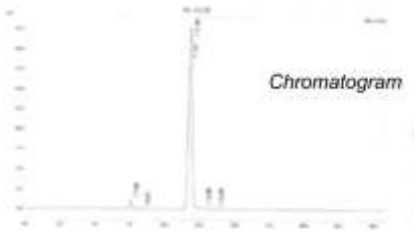
Fullerene C60, 99+%



Time	*Name*	*Volume, %*
7.557	*C60*	*99.956*
11.873	*C70*	*0.044*
-	*Others*	*0.000*

RN-1C60-250mg	250 mg
RN-1C60-500mg	500 mg
RN-1C60-1g	1 g

Fullerene C70, 99+%



Time	*Name*	*Volume, %*
7.60	*C60*	*0.07*
11.85	*C70*	*99.91*
	Others	*0.002*

RN-1C70-10mg	10 mg
RN-1C70-50mg	50 mg
RN-1C70-200mg	200 mg

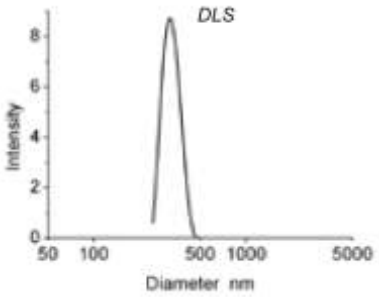
NanoDiamonds

All types of nanodiamonds and nanographite / nanodiamonds mixtures are produced by controlled dry detonation synthesis followed by purification procedures. We are ready to change product quality in case of special requirements.

Graphite / Diamond Nano-Mixture,
the most native, raw, just after detonation synthesis

Average diamond primary particle size: 4 nm
Diamond content: min. 20%
Ash content: < 6%

RN-GD-5g	5 g
RN-GD-25g	25 g
RN-GD-100g	100 g



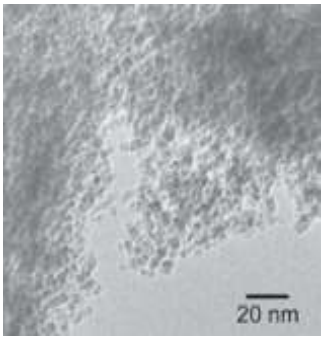
Graphite / Diamond Nano-Mixture,
purified from metallic and organic impurities

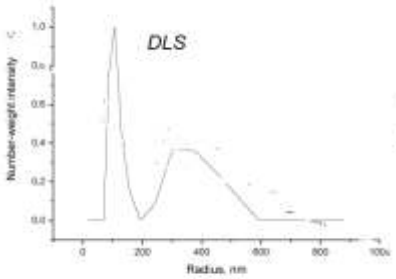
Average diamond primary particle size: 4 nm
Diamond content: min. 20%
Ash content: < 0.3%

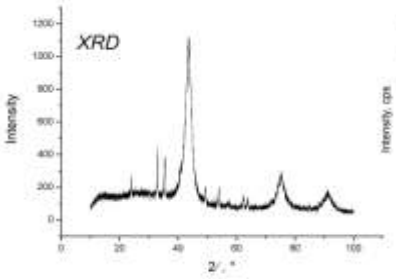
RN-GD-MOF-5g	5 g
RN-GD-MOF-25g	25 g
RN-GD-MOF-100g	100 g

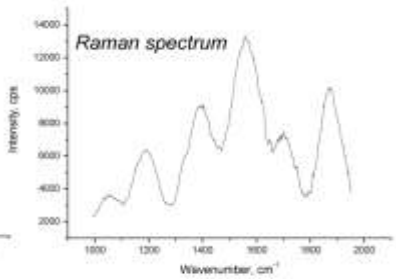
NanoDiamonds, purified, grade G

Enhanced suspension stability in water
Specific surface (BET): min. 290-360 m^2/g
Diamond phase content: min. 87%
Non-diamond carbon content: max. 6%
Impurities, %: Fe < 1.2; Ca+Zn+Cr+Ni+Cu+Mn: < 2
Losses at tempering: < 3%
Ash content: < 6%
Average cluster size: ca. 4 nm









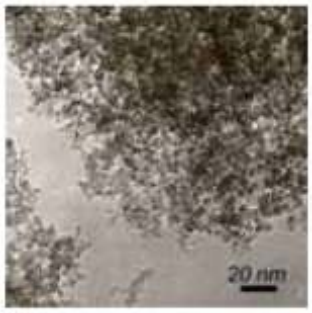
pK1	Amount mmol/g	pK2	Amount mmol/g	pK3	Amount mmol/g	pK4	Amount mmol/g	Sum amount groups, mmol/g
3.7	0.04	5.2	0.17	8.5	0.12	10.4	0.14	0.47

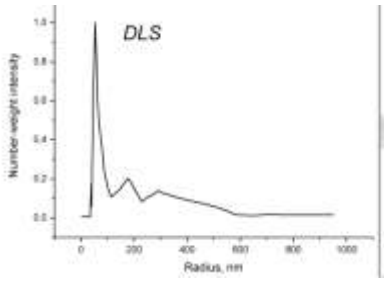
RN-D-G-1g	1 g
RN-D-G-5g	5 g
RN-D-G-25g	25 g
RN-D-G-100g	100 g

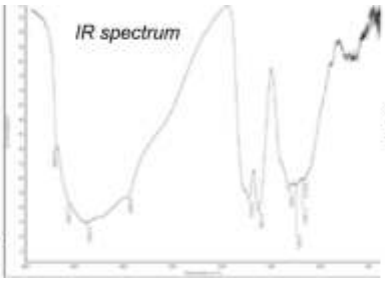
NanoPure-G, nanodiamonds aqueous suspension, grade G
Most native 4 wt.% aqueous suspension of nanodiamonds, type RN-D-G.
The nanodiamonds are preserved in the most dispersed form.

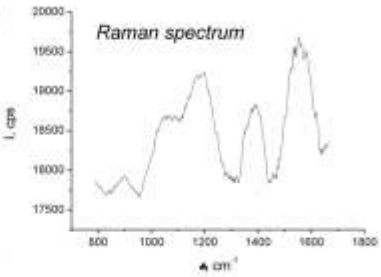
RN-Nanopure-G-10m	10 mL
RN-Nanopure-G-50m	50 mL
RN-Nanopure-G-100m	100 mL

NanoDiamonds, purified, grade G01
Enhanced suspension stability in water
Bulk density: 0.69 g/cm^3
Average cluster size: ca. 4 nm
Specific surface (BET): min. 350 m^2/g
Non-diamond carbon content: traces
Controlled admixtures, %: Fe < 0.3; Cu < 0.01;
Zn < 0.01; Mn < 0.01; Si+Cr+Ca+Ti < 0.01
Losses at tempering: max. 2.4%
Ash content: <1.4%; Picnometric density: 3.18 g/cm^3
Zeta potential: -50 ± 5 mV









pK1	Amount mmol/g	pK2	Amount mmol/g	pK3	Amount mmol/g	pK4	Amount mmol/g	pK5	Amount mmol/g	Sum amount groups, mmol/g
3.7	0.09	4.5	0.19	6.6	0.1	8.5	0.14	9.9	0.1	0.62

RN-D-G01-1g	1 g
RN-D-G01-5g	5 g
RN-D-G01-25g	25 g
RN-D-G01-100g	100 g

NanoPure-G01, nanodiamonds aqueous suspension, grade G01
Most native 4 wt.% aqueous suspension of nanodiamonds, type RN-D-G01.
The nanodiamonds are preserved in the most dispersed form.

RN-Nanopure-G01-10m	10 mL
RN-Nanopure-G01-50m	50 mL
RN-Nanopure-G01-100m	100 mL

Nanodiamonds, positively charged, aq. suspension

Aqueous suspension with 10 % of modified G01 nanodiamonds

Nanodiamonds with the surface modified by polyelectrolyte electrostatic adsorption.

Zeta potential: +50 ± 5 mV

RN-D-G01P-10m	10 mL
RN-D-G01P-50m	50 mL

NanoDiamonds, extra-pure

Purity: >99%. Ash content: < 0.1%

RN-D-G02-1g	1 g
RN-D-G02-10g	10 g

Single-Digit NanoDiamonds (SDND)

Forms transparent stable colloidal solution of nanodiamonds in water and many polar organic solvents. Free of additives and milling impurities.

Produced by chemical desintegration. Aqueous 5% solution.

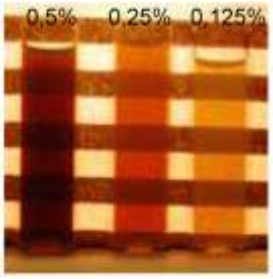
Diamond crystallite size: 3.5-5.2 nm

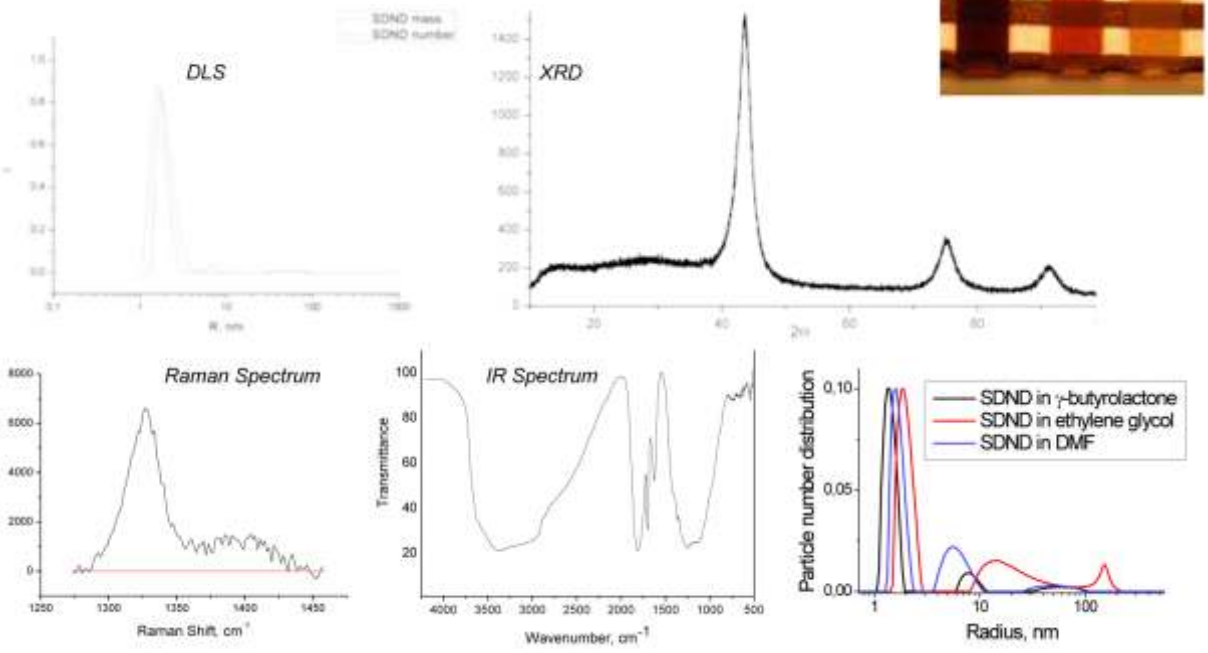
Specific surface: 320-350 m^2/g

Particle size (DLS): 5-15 nm

Ash content: <0.4%

Can also be supplied in DMF, GBL, EG. Ask for quotation.





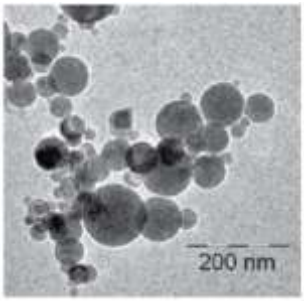
pk1	mmol/g	pk2	mmol/g	pk3	mmol/g	Sum amount groups, mmol/g
3.4	0.08	6.6	0.32	9.9	0.19	0.59

RN-SDND-5p-1g	20 mL
RN-SDND-5p-10g	200 mL
RN-SDND-5p-50g	1000 mL

Oxide NanoCeramics

Along with the listed NanoCeramics many other ceramics were produced as trial batches, e.g. NanoCeramics from Rare Earth Oxides, HfO_2, MgO+C, TiO_2, TiC, TiN, BN, Y_2O_3
Basic technology permits to produce nearly any ceramic in nanosized form, thus we are expecting here the concrete wishes from our customers.

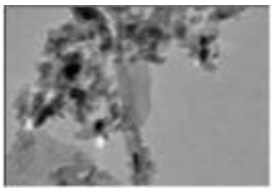
Aluminium oxide



Al_2O_3 - Nanopowder, alpha
Particle shape: spherical
Average particle size: ca. 40 nm
Particle size full range: 5 - 150 nm
Specific surface: > 10 m^2/g
Purity: > 99.8 %
X-Ray analysis: a-Al_2O_3

RN-A-AlO-10g	10 g
RN-A-AlO-50g	50 g
RN-A-AlO-100g	100 g

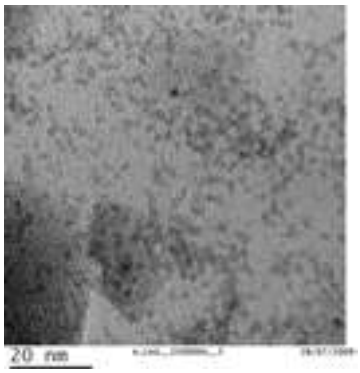
Aluminium oxide



Al_2O_3 - Nanopowder, gamma
Particle shape: spherical, elongated
Average particle size: ca. 40 nm; Specific surface: > 40m2/g
Purity: > 99.9 %; X-Ray analysis: ?-Al_2O_3

RN-G-AlO-10g	10 g
RN-G-AlO-50g	50 g
RN-G-AlO-100g	100 g

Cerium oxide



CeO_2 - Nanoparticles aqueous 5 wt.% suspension
Produced by chemical synthesis
Average particle size: ca. 4 nm

RN-CeO-10g	200 mL
RN-CeO-50g	1000 mL

Copper oxide

CuO - Nanoparticles powder
Purity: >99%
Particle shape: spherical
Average particle size: ca. 40 nm
Specific surface: > 10 m^2/g
Bulk density: ca. 0.8 g/cm^3

RN-D-G02-1g	1 g
RN-D-G02-10g	10 g

Indium oxide

In_2O_3 - Nanopowder

Produced by chemical synthesis

Average particle size: ca. 4 nm

RN-InO-10g	10 g
RN-InO-50g	50 g
RN-InO-100g	100 g

Iron (II,III) oxide

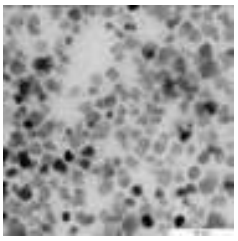
Fe_3O_4 - Nanoparticles aqueous suspension, magnetic fluid

ca. 300 Gauss, aqueous suspension

Contains ca. 3% of stabilizer (oleic acid)

Average particle size: 8 nm

Concentration: ca. 7 wt.%



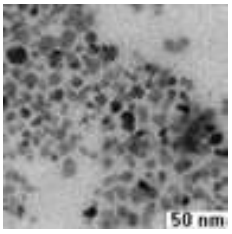
RN-M-Fe3O4-10m	10 mL

Fe_3O_4 - Nanoparticles aqueous suspension, magnetic fluid,

Without organic stabilizers

Excellent for L-b-L, LB coatings and for experiments where absence of organic stabilizer is desirable.

Average particle size: 8±3 nm. Concentration: ca. 3%



RN-A-Fe3O4-10m	10 mL

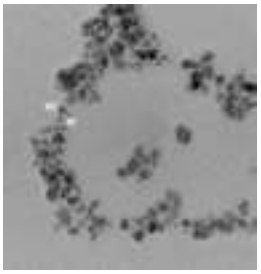
Iron (III) oxide

Fe_2O_3 - Nanoparticles aqueous suspension

Produced by chemical synthesis

Average particle size: 6±2 nm

Supplied as 5% aqueous suspension

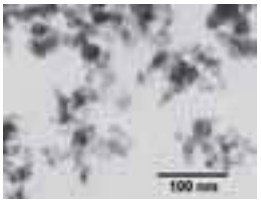


RN-FeO-10g	200 mL
RN-FeO-50g	1000 mL

Magnesium Oxide

MgO - nanopowder

Primary particle average size: ca.20 nm; Specific surface: ca. 50 m^2/g Purity: > 99%



RN-MgO-25g	25 g

Silicon dioxide

SiO_2 - Fumed silica, nanopowder, hydrophilic

Primary particle average size: 7-14 nm

Specific surface: > 200 m^2/g

Bulk Density: ca. 0.048 g/cm^3

Purity: > 99.8% (excl. ca. 2% moisture)

RN-SiOF-25g	25 g

SiO_2 - Fumed silica, nanopowder, hydrophobic

Primary particle average size: ca. 14 nm
Specific surface: ca. 100 m^2/g
Bulk Density: ca. 0.05 g/cm^3; Purity: > 99.8% (excl. stabilizer)
Modified by polydimethylsiloxane (PDMS)

RN-SiOF-PDMS-25g	25 g

SiO_2 - Fumed silica, nanopowder, hydrophobic

Primary particle average size: 7-14 nm
Specific surface: ca. 150 m^2/g
Bulk Density: ca. 0.05 g/cm^3; Purity: > 99.8% (excl. stabilizer)
Modified by octylsilane

RN-SiOF-OS-25g	25 g

SiO_2 - Nanoparticles, 10 nm, 30% aqueous suspension

Primary particle average size: ca.10 nm
Specific surface: ca. 320 m^2/g
Density: ca. 1.2 g/cm^3;
Purity of solid component: > 99.5%
Admixtures: Na ca. 0.45%

RN-SiO10-30p-100m	100 mL

SiO_2 - Nanoparticles, 20 nm, 50% aqueous suspension

Primary particle average size: ca.20 nm
Specific surface: ca. 140 m^2/g
Density: ca. 1.4 g/cm^3;
Purity of solid component: > 99.5%
Admixtures: Na ca. 0.25%

RN-SiO20-50p-100m	100 mL

Strontium oxide

SrO - Nanopowder

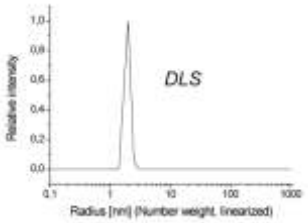
Produced by chemical synthesis
Average particle size: 200±50 nm

RN-SrO-1g	1 g
RN-SrO-10g	10 g

Tin oxide

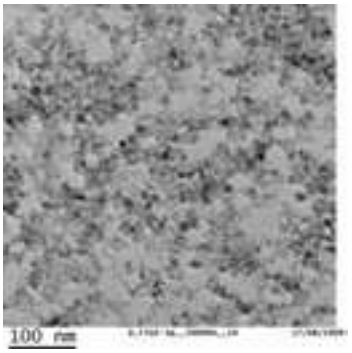
SnO_2 - Nanoparticles suspension, 5%

Produced by chemical synthesis
Average particles size 4-8 nm
Purity of dry component: min. 99.5%



RN-SnO-10g	200 mL
RN-SnO-50g	1000 mL

Titanium oxide



TiO_2 - Nanoparticles, dry powder anatase phase

Produced by chemical synthesis

Average particle size: 4-8 nm

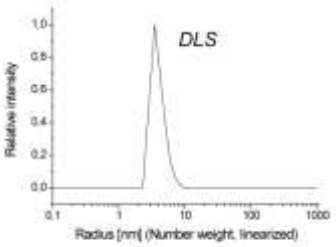
Dry nanopowder, free of organic stabilizers.

Easily forms collidal solutions in water.

Can be used to produce coatings.

RN-TiO-NO-10g	10 g
RN-TiO-NO-50g	50 g

TiO_2 - Nanoparticles aqueous suspension,

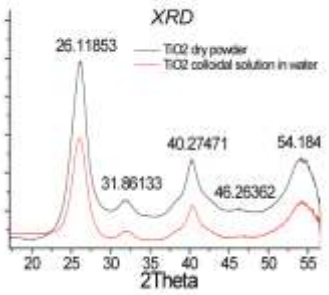


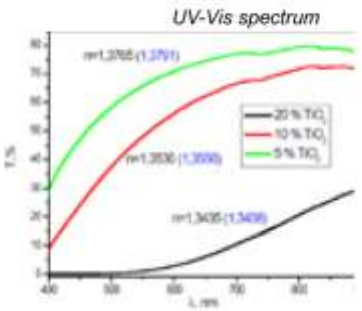
anatase phase

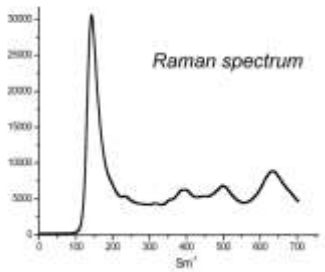
Produced by chemical synthesis

Average particle size: 4-8 nm.

Aqueous colloidal solutions: 5, 10 or 20 wt.%







Aqueous colloidal solution, 5 wt.%

RN-TiO-5p-10g	200 mL
RN-TiO-5p-50g	1000 mL

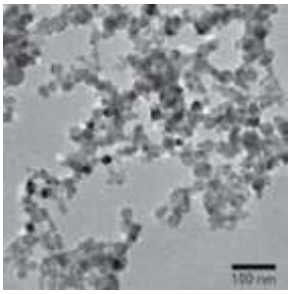
Aqueous colloidal solution, 10 wt.%

RN-TiO-10p-10g	100 mL
RN-TiO-10p-50g	500 mL

Aqueous colloidal solution, 20 wt.%

RN-TiO-20p-10g	50 mL
RN-TiO-20p-50g	250 mL

TiO_2 - Nanoparticles, type P25



Photocatalytic standard P25.

Dry Nanopowder. Mixed rutile / anatase phase

Average primary particle size: 21±5 nm.

Specific surface: 50±10 m^2/g; Purity after ignition: >99.5%

Ignition loss: < 2%; Moisture: < 1.5%

Al_2O_3 < 0.3 wt.%; SiO_2 < 0.2 wt.%

Tapped density: ca. 130 g/L

RN-TiO-P25-10g	10 g
RN-TiO-P25-50g	50 g

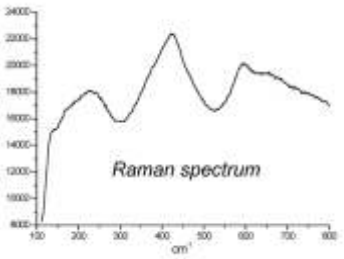
TiO_2 - Nanoparticles aqueous suspension, brookite/anatase

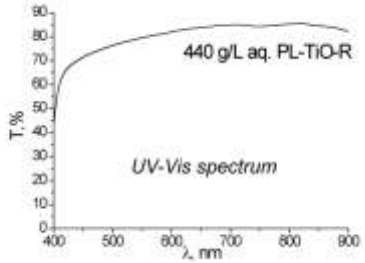
Average particle size: 2-5 nm.
Mixed brookite / anatase phase.
Stabilized by tetraethylamine.
Aqueous colloidal solution, 20 wt.%

RN-TiO-N-20p-15g	75 mL
RN-TiO-N-20p-50g	250 mL

TiO_2 - Nanoparticles, rutile

Average particle size: 1-3 nm. Dry nanopowder.
Readily forms aqueous colloidal solutions in water (**up to 900g/L**) and methanol

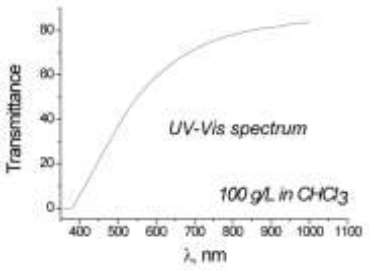




RN-TiO-R-5g	5 g
RN-TiO-R-25g	25 g

TiO_2 - Nanoparticles, anatase, hydrophobic

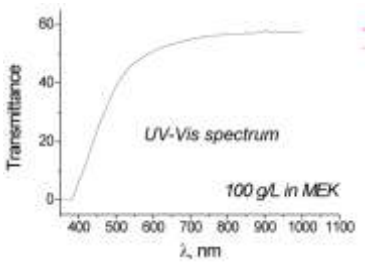
Average particle size: 4-8 nm. Anatase phase.
Stabilized by dodecylphosphonic acid and hexylamine.
Forms transparent colloidal solutions in chloroform.
Supplied as a powder



RN-TiO-HPBC-1g	1 g
RN-TiO-HPBC-10g	10 g

TiO_2 - Nanoparticles, anatase, hydrophobic

Average particle size: 4-8 nm. Anatase phase.
Stabilized by benzoic acid.
Forms transparent colloidal solutions in MEK (methylethylketone) and many epoxides.
Supplied as a 100 g/L solution in MEK.

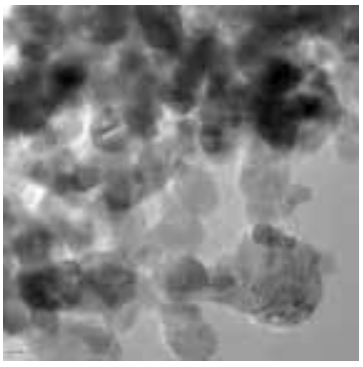


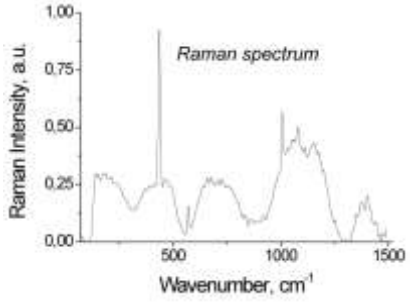
RN-TiO-HPBM-10p-1g	10 mL
RN-TiO-HPBM-10p-10g	100 mL

Zinc oxide

ZnO - Nanopowder, ca. 14 nm

Average particle size: ca. 14 nm; Specific surface area: 30±5 m^2/g Purity: > 99%



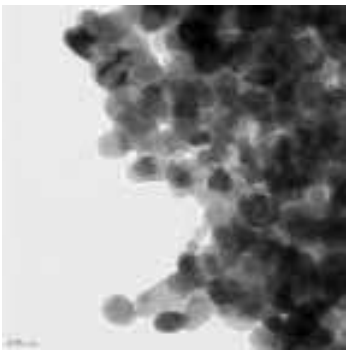


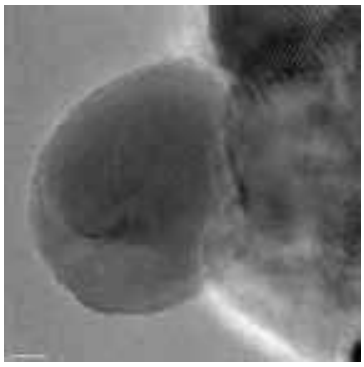
RN-ZnO14-5g	5 g
RN-ZnO14-25g	25 g
RN-ZnO14-100g	100 g

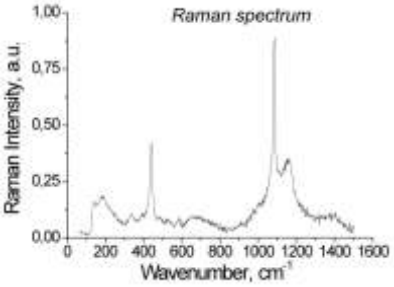
Zinc oxide

ZnO - Nanopowder, ca. 25 nm

Average particle size: ca. 25 nm; Specific surface area: 19±5 m^2/g Purity: > 99%







RN-ZnO25-5g	5 g
RN-ZnO25-25g	25 g
RN-ZnO25-100g	100 g

Zirconium oxide

ZrO_2 - Nanopowder, tetragonal

Stabilized with 3 mol% Y_2O_3.

Average particle size: 10-30 nm; Specific surface area: 45±10 m^2/g

Purity: > 92.7%

Controlled admixtures, %: Y_2O_3 ca. 5.2; Al_2O_3 <0.07; SiO_2<0.09; HfO_2<1.87

RN-D-T-ZrO-5g	5 g
RN-D-T-ZrO-25g	25 g
RN-D-T-ZrO-100g	100 g

ZrO_2 - Nanopowder, monoclinic

Average particle size: 5-25 nm; Specific surface area: 130±20 m^2/g
Purity: > 97.2%
Controlled admixtures, %: Y_2O_3<0.018; Al_2O_3<0.24; SiO_2<0.15; HfO_2<1.91; TiO_2<0.42; Fe_2O_3<0.021

RN-M-ZrO-5g	5 g
RN-M-ZrO-25g	25 g
RN-M-ZrO-100g	100 g

ZrO_2 - Nanopowder, cubic

Stabilized with 6 mol% Y_2O_3
Average particle size: 20-50 nm; Shape: spherical.
Particles are bound by necks forming aggregates.
Cubic structure is due to the stabilizer (6 % of Y_2O_3) and to the small particle size (size effect).

RN-D-C-ZrO-5g	5 g
RN-D-C-ZrO-25g	25 g
RN-D-C-ZrO-100g	100 g

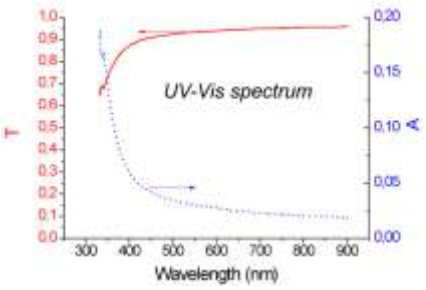
ZrO_2 - Nanopowder, tetragonal

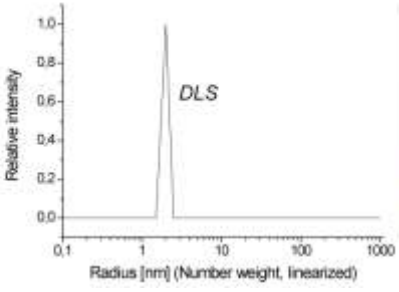
Stabilized with 6 mol% Y_2O_3
Average particle size: 100-200 nm

RN-T-ZrO-5g	5 g
RN-T-ZrO-25g	25 g
RN-T-ZrO-100g	100 g

ZrO_2 - Nanopowder, hydrophobic

Nanopowder, stabilized by benzoic acid.
Average particle size: ca. 3 nm
Forms stable colloidal solutions in MEK and epoxides.





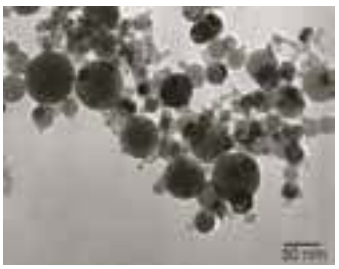
RN-ZrO-HPB-1g	1 g
RN-ZrO-HPB-5g	5 g

Non-oxide NanoCeramics

Along with the listed NanoCeramics many other ceramics were produced as trial batches. Basic technology permits to produce nearly any ceramic in nanosized form, thus we are expecting here the concrete wishes from our customers.

Aluminium Nitride

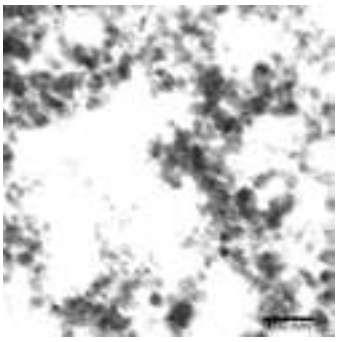
AlN - Nanopowder



Particle shape: spherical, hexagonal, polyhedronal, fragmental
Particle size full range: 5 - 200 nm
Average particle size: 25 - 50 nm
Specific surface: > 18 m^2/g
Bulk Density: 0.16 - 0.28 g/cm^3
Purity: > 95.0 %
Controlled admixtures, %: Mg < 0.03; Na < 0.03; Fe < 0.1; Cu < 0.4; W < 0.2; Al_{free} < 2.4
X-Ray analysis: 96 % of hexagonal, lattice parameters: a = 3.114Å, c = 4.986Å

RN-PJ-AlN-5g	5 g
RN-PJ-AlN-25g	25 g
RN-PJ-AlN-100g	100 g

AlN - Nanopowder

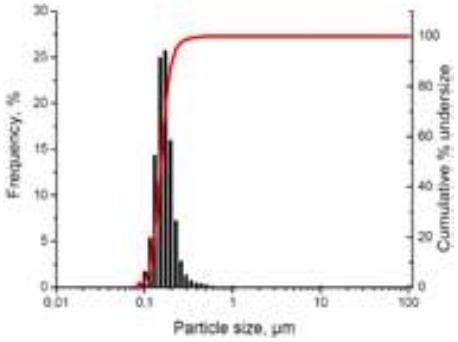


Purity: > 99%
Average particle size: ca. 20 nm
Specific surface: 80±7 m^2/g
Controlled admixtures, %:
C<0.1; O<0.8; Fe<0.02; Si<0.01

RN-HK-AlN-5g	5 g
RN-HK-AlN-25g	25 g
RN-HK-AlN-100g	100 g

Boron Nitride, cubic

BN - Nanopowder



Particle size full range: 80-450 nm
Average particle size: 165±15 nm
Specific surface: > 11 m^2/g
Content of cubic phase: > 99.0%
Controlled admixtures, %: Mg < 0.35; Si < 0.14; Fe < 0.04; Ca < 0.03; Cr < 0.03

RN-IS-CBN-5g	5 g
RN-IS-CBN-25g	25 g
RN-IS-CBN-100g	100 g

Boron Carbide

B_4C - Nanopowder

Average particle size: 30-60 nm

Specific surface: > 70 m^2/g

Content of cubic phase: > 97.0%

Controlled admixtures, %: O < 1

RN-HK-BC-5g	5 g
RN-HK-BC-25g	25 g
RN-HK-BC-100g	100 g

Gallium Antimonide, hydrophobic

GaSb - Nanopowder

Average particle size 4 nm

Forms clear colloidal solutions in ethanol and non-polar solvents. GaSb has highest known refractive index among non-metallic compounds. It can be used as a component of photoresists and other composites where high refractive index is desirable.

RN-GaSb-10mg	10 mg
RN-GaSb-50mg	50 mg

Gallium Arsenide, hydrophobic

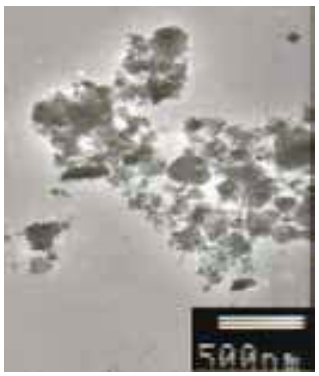
GaAs - Nanopowder

Average particle size 4 nm

Forms clear colloidal solutions in non-polar solvents.

RN-GaSb-10mg	10 mg
RN-GaSb-50mg	50 mg

Silicon Carbide



SiC - Nanopowder

Shape: cubic, hexagonal, fragmental, single fibers

Particle size full range: 5 - 250 nm

Average particle size: 25 - 50 nm

Specific surface: > 18 m^2/g

Bulk density: 0.23 - 0.35 g/cm^3

Purity: > 98.6%

Controlled admixtures, %: Al < 0.03; Mg < 0.03; Na < 0.03; Fe < 0.1; Cu < 0.4; W < 0.2

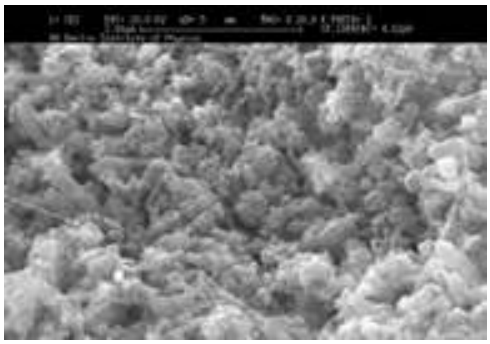
X-Ray: SiC hexagonal, 98%, lattice: a = 3.082 Å, b = 3.082 Å, c = 15.1006 Å

SiC hexagonal, 2%, lattice: a = 3.082 Å, b = 3.082 Å, c = 37.70 Å

RN-PJ-SiC-5g	5 g
RN-PJ-SiC-25g	25 g
RN-PJ-SiC-10g	100 g

SiC - Nanopowder

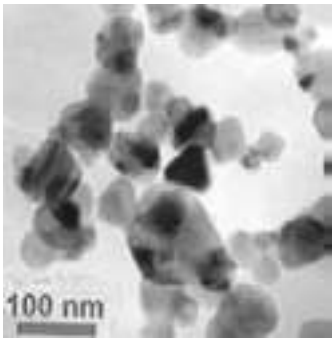
Average particle size: 150-200 nm
Specific surface: 9.8 ± 0.8 m^2/g
Purity: > 99.5%
Controlled admixtures, %:
free C < 0.05; free Si < 0.05; SiO_2 < 0.1
X-ray analysis: cubic phase >99%.
Zeta-potential: -26 mV



RN-CT-SiC-5g	5 g
RN-CT-SiC-25g	25 g
RN-CT-SiC-100g	100 g

SiC - Nanopowder

Average particle size: 20±7 nm. Cubic phase.
Specific surface: 80 ± 7 m^2/g
Controlled admixtures, %: C_{free}<0.75; Si_{free}<0.25; O<1.25; Cl<0.25
Purity: > 98.0%



RN-HK-SiC-5g	5 g
RN-HK-SiC-25g	25 g
RN-HK-SiC-100g	100 g

Silicon nitride

Si_3N_4 - Nanopowder, amorphous

Average particle size: 20±5 nm.
Specific surface area: 110±5 m^2/g
Purity: > 98%
Controlled admixtures, %: Si_{free} < 1; Cl < 0.25; O < 1

RN-HK-AMO-SiN-5g	5 g
RN-HK-AMO-SiN-25g	25 g
RN-HK-AMO-SiN-100g	100 g

Si_3N_4 - Nanopowder, alpha

Average particle size: 20±5 nm. Specific surface area: 80±10 m^2/g
Purity: > 98%
Controlled admixtures, %: Si_{free} < 0.25; C_{free} < 0.75; Cl < 0.25; O < 1.25

RN-HK-ALP-SiN-5g	5 g
RN-HK-ALP-SiN-25g	25 g
RN-HK-ALP-SiN-100g	100 g

Si_3N_4 - Nanopowder

Average particle size: 25±5 nm

Specific surface area: 75±5 m^2/g

Controlled admixtures, %: Fe < 0.05; Ca < 0.05; Al < 0.1

RN-N-SiN-5g	5 g
RN-N-SiN-25g	25 g
RN-N-SiN-100g	100 g

Titanium Boride

TiB_2 - Nanopowder

Purity: > 98.5%

Particle size: D90 < 1µm

Controlled admixtures, %: B_2O_3 < 0.1; C < 0.3; Fe < 0.1; Si < 0.2

RN-A-TiB-5g	5 g
RN-A-TiB-25g	25 g
RN-A-TiB-100g	100 g

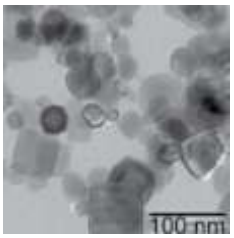
Titanium Carbide

TiC - Nanopowder

Purity: > 98.0%

Average particle size: 20-40 nm. Specific surface area: 50±7 m^2/g

Controlled admixtures, %: Si < 0.01; free C < 0.75; O < 1.25



RN-HK-TiC-5g	5 g
RN-HK-TiC-25g	25 g
RN-HK-TiC-100g	100 g

Titanium Carbonitride

$TiC_{0.5}N_{0.5}$ - Nanopowder

Average particle size: 40±5 nm

Specific surface area: 30±5 m^2/g

Controlled admixtures, %: Fe < 0.1; Si < 0.05; Ni < 0.1

RN-N-TiCN-5g	5 g
RN-N-TiCN-25g	25 g
RN-N-TiCN-100g	100 g

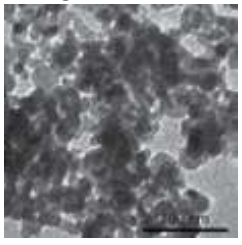
Titanium Nitride

TiN - Nanopowder

Average particle size: 50±5 nm; Specific surface area: 22±5 m^2 /g

Controlled admixtures, %: Fe < 0.1; Si < 0.05; Ni < 0.1

X-ray analysis: cubic phase > 99%



RN-N-TiN-5g	5 g
RN-N-TiN-25g	25 g
RN-N-TiN-100g	100 g

TiN - Nanopowder
Average particle size: 20±5 nm; Specific surface area: 80±5 m^2/g
Controlled admixtures, %: O < 1; C < 0.1; Fe < 0.02; Si < 0.01
X-ray analysis: cubic phase > 97%
Forms dark transparent stable colloidal suspensions in water (see photo)

RN-HK-TiN-5g	5 g
RN-HK-TiN-25g	25 g
RN-HK-TiN-100g	100 g

Zirconium Carbide
ZrC Nanopowder
Average particle size: 50±10nm; Specific surface area: 70±10 m^2/g
X-ray analysis: cubic phase; Purity > 97%
Controlled admixtures, %: O < 1; C < 0.1; Fe < 0.02; Si < 0.01

RN-HK-ZrC-10g	5 g
RN-HK-ZrC-25g	25 g
RN-HK-ZrC-100g	100 g

Non-oxide NanoCeramics Blends
Composite ceramics based on this mixture have the highest armour properties, the powder can be used in other composites for their wear resistance increase.

Titanium Boride - Boron Carbide
TiB_2 / B_4C (20 / 80)- Nanopowder mixture
Composition: TiB_2 > 19.7%; B_4C > 77%
Controlled admixtures, %: B_2O_3 < 0.18; C < 2.46; Fe < 0.02; Si < 0.04

RN-A-BCTB-5g	5 g
RN-A-BCTB-25g	25 g
RN-A-BCTB-100g	100 g

Titanium Boride - Boron Carbide - Tungsten Boride
TiB_2 / B_4C / W_2B_5 (30 / 10 / 60)- Nanopowder mixture
Composition: W_2B_5 > 59.4 %; TiB_2 > 29.5 %; B_4C > 9.6 %
Controlled admixtures, %: B_2O_3 < 0.11; C < 0.45; Fe < 0.1; Si < 0.15

RN-A-WTB-5g	5 g
RN-A-WTB-25g	25 g
RN-A-WTB-100g	100 g

NanoMetals

Along with listed NanoMetals, many other metals were produced as trial batches in nanosized form, e.g. Stainless steel, Sn, Mn, Rare Earth Metals, W, Mo, V, Ag, Pt, Ir, Au. The same as in case of NanoCeramics, we are ready to produce almost any nanometal, also from material of customers.

Copper, Cu-nanopowder suspension in oil

Average particle size: 40±5 nm

Specific surface area: 15±5 m^2/g

Controlled admixtures, %: metal impurities < 0.1 including Fe < 0.02

Oil: 20 wt.%, Oleic acid (stabilizer): 3 wt.%

RN-Cu-O-5g	5 g
RN-Cu-O-25g	25 g
RN-Cu-O-100g	100 g

Copper, Cu-nanopowder suspension in ethanol

Average particle size: 40±5 nm

Specific surface area: 15±5 m^2/g

Controlled admixtures, %: metal impurities < 0.1 including Fe < 0.02

Ethanol: 30% by total weight, Oleic acid (stabilizer): 3 wt.%

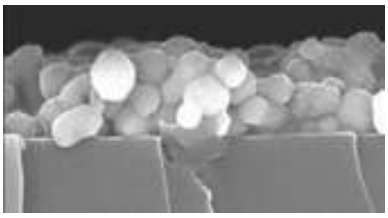
RN-Cu-E-5g	5 g
RN-Cu-E-25g	25 g
RN-Cu-E-100g	100 g

Copper, nanopowder, dry

Average particle size: 40±5 nm

Oleic acid (stabilizer): 3 wt.%

Same as above, but as a dry powder



RN-Cu-P40-5g	5 g
RN-Cu-P40-25g	25 g
RN-Cu-P40-100g	100 g

Copper-Tin alloy (90:10)

Purity: > 97.0 %

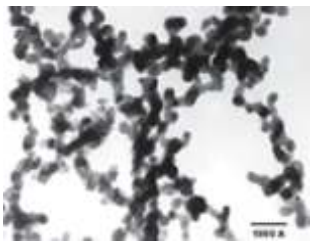
Particle shape: spheric

Average particle size: 70 - 80 nm. Particle size full range: 5 - 250 nm

Specific surface area: > 10 m^2/g

Bulk density: > 0.8 g/cm^3

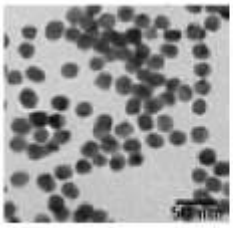
Controlled admixtures, %: Fe < 0.1; W < 0.2

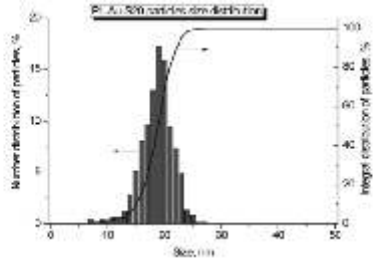


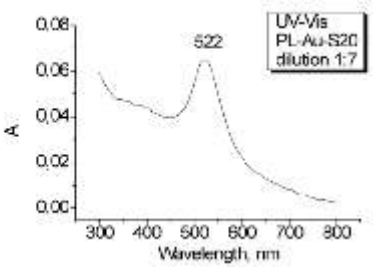
RN-CuSn-5g	5 g
RN-CuSn-25g	25 g

Gold Nanoparticles

Colloidal solution in water, 0.05 mg/mL
Average particle size: 20±3 nm
pH ca. 8.0







RN-Au-S20-05mg	10 mL
RN-Au-S20-5mg	100 mL

Au - dry nanopowder, hydrophobic

Forms colloidal solutions in non-polar solvents.
Monodisperse nanoparticles, can be used for 2-D and 3-D structures build-up.
Average particle size: ca. 2 nm.

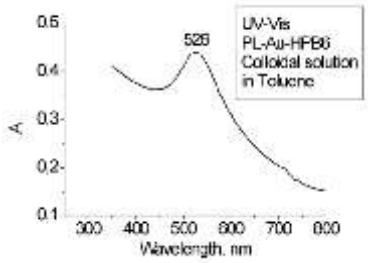
RN-Au-HPB2-10mg	10 mg
RN-Au-HPB2-50mg	50 mg

Average particle size: ca. 4 nm.

RN-Au-HPB4-10mg	10 mg
RN-Au-HPB4-50mg	50 mg

Average particle size: 6-7 nm.

RN-Au-HPB6-10mg	10 mg
RN-Au-HPB6-50mg	50 mg



Gold Nanoparticles, stabilized with tannic acid

Au concentration: 0.05 mg/mL (corresponds to 0.01% $HAuCl_4$), aq. solution Admixtures, %: tannic acid < 0.01; sodium citrate < 0.04

RN-Au-TAN4-25m	Average Particle size 3-4 nm	25 mL
RN-Au-TAN7-25m	Average Particle size 7-8 nm	25 mL
RN-Au-TAN14-25m	Average Particle size 13-15 nm	25 mL

Gold Nanoparticles, 50 nm, 500 ppm in water

Au concentration: 5 mg/mL, aq. solution
Admixtures: citrate, cell-culture bovine gelatine

RN-Au50-05p-1m	1 mL
RN-Au50-05p-10m	10 mL

Iron

Fe - Nanopowder with hydrophilic carbon shell

Purity: > 97.0 %
Particle shape: spherical
Average particle size: 30 - 60 nm. Particle size full range: 5 - 200 nm
Fe-state: ferromagnetic
Specific surface area: > 12 m^2/g
Bulk density: > 0.5 g/cm^3
Functionality on C-shell: -COOH, -OH
C-content: 25 - 30 %. Controlled admixtures, %: Cu < 0.4; W < 0.2

RN-HPL-Fe-5g	5 g
RN-HPL-Fe-25g	25 g

Fe - Nanopowder with hydrophobic carbon shell

Purity: > 97.0%
Particle shape: spherical
Average particle size: 30 - 60 nm. Particle size full range: 5 - 200 nm
Fe-state: ferromagnetic
Specific surface area: > 12 m^2/g
Bulk density: > 0.5 g/cm^3
C-content: 11-14 %. Controlled admixtures, %: Cu < 0.4; W < 0.2

RN-HPB-Fe-5g	5 g
RN-HPB-Fe-25g	25 g

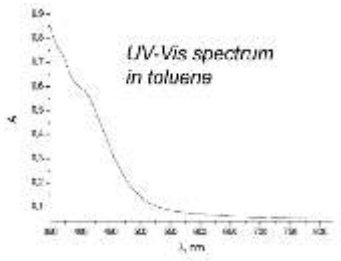
Palladium Nanoparticles, hydrophobic

Average particle size: ca. 2 nm. Form colloidal solutions in non-polar solvents.
Monodisperse nanoparticles, can be used for 2-D and 3-D structures build-up.

RN-Pd-HPB2-10mg	10 mg
RN-Pd-HPB2-50mg	50 mg

Palladium Nanoparticles, hydrophobic

Average particle size: ca. 6-7 nm.
Form colloidal solutions in non-polar solvents.
Monodisperse nanoparticles, can be used for 2-D and 3-D structures build-up.



RN-Pd-HPB6-10mg	10 mg
RN-Pd-HPB6-50mg	50 mg

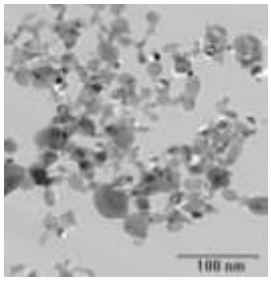
Platinum Nanoparticles, hydrophilic

Average particle size: ca. 3-4 nm
Form aqueous colloidal solutions.

RN-Pt-3-10mg	10 mg
RN-Pt-3-50mg	50 mg
RN-Pt-3-100mg	100 mg

Silicon Nanoparticles

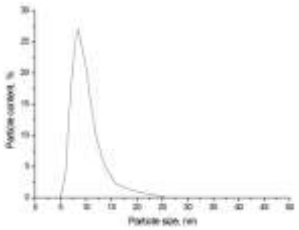
Average particle size: ca. 50 nm. *Purity: > 99%.*
SSA: > 80m²/g.
Cubic phase.
Bulk density: ca. 0.08 g/cm³



RN-Si50-1g	1 g
RN-Si50-10g	10 g

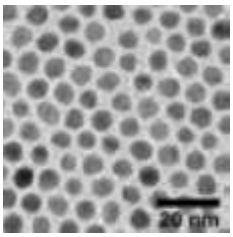
Silver Nanoparticles

Ag nanoparticles, colloidal solution in water
Average particle size: ca. 10 nm
Concentration: 0.1 mg/mL



RN-Ag-S10-1mg	10 mL
RN-Ag-S10-10mg	100 mL
RN-Ag-S10-50mg	500 mL

Ag - dry nanopowder, hydrophobic
Average particle size: ca. 6-7 nm. *Forms colloidal solutions in non-polar solvents. Monodisperse nanoparticles, can be used for 2-D and 3-D structures build-up. Absorption maximum ca. 445 nm*



RN-Ag-HPB7-10mg	10 mg
RN-Ag-HPB7-50mg	50 mg
RN-Ag-HPB7-200mg	200 mg

Ag - dry nanopowder, hydrophilic
Average particle size: ca. 100-150 nm

RN-Ag150-10mg	10 mg
RN-Ag150-50mg	50 mg
RN-Ag150-100mg	100 mg

NanoWires

Metallic nanowires of different elements have been synthesized. Besides of those present in this catalogue, Reinste Nano Venture can perform custom synthesis of other nanowires like Au, Ni-Co and Ni-Fe of various compositions etc.

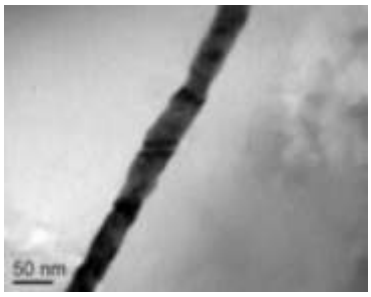
Cobalt Nanowires

Average diameter: 200-300 nm
Length: up to 200 µm

RN-CoW200-10mg	10 mg
RN-CoW200-100mg	100 mg
RN-CoW200-1g	1 g

Copper Nanowires

Average diameter: 40-50 nm
Length: up to 50 µm



RN-CuW50-10mg	10 mg
RN-CuW50-50mg	50 mg
RN-CuW50-200mg	200 mg

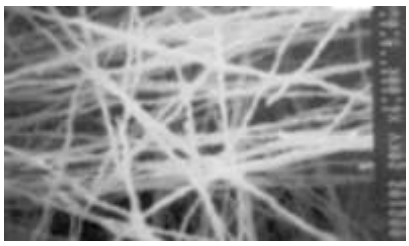
Lead Nanowires

Average diameter: 80±20 nm
Length: up to several millimetres. Superconductor at 4K

RN-PbW100-10mg	10 mg
RN-PbW100-50mg	50 mg
RN-PbW100-200mg	200 mg

Nickel Nanowires

Average diameter: 200-300 nm
Length: up to 200 µm



RN-NiW200-10mg	10 mg
RN-NiW200-100mg	100 mg
RN-NiW200-1g	1 g

Silver Nanowires

Average diameter: 40-50 nm; Length: up to 50 µm

RN-AgW50-10mg	10 mg
RN-AgW50-50mg	50 mg

Average diameter: 100±20 nm; Length: up to 50 µm

RN-AgW100-10mg	10 mg
RN-AgW100-50mg	50 mg

Average diameter: 200±40 nm; Length: up to 50 µm

RN-AgW200-10mg	10 mg
RN-AgW200-50mg	50 mg

Nano- and Micro-Salts

Inorganic carbonate microparticles soluble at low pH values or in complexing agents such as EDTA. Among various applications, they are used for production of polyelectrolyte multilayer capsules finding various applications from drug carriers to microreactors.

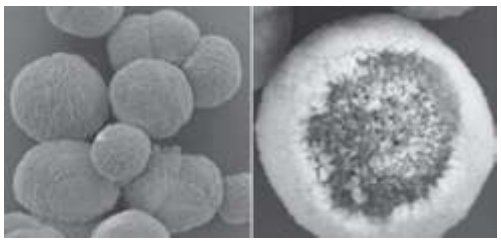
Calcium Carbonate nanoparticles

Calcium carbonate, nanopowder
Particle shape: cubic
Primary particle average size: 90±15 nm
Specific surface: ca. 20 m^2/g
Bulk Density: ca. 0.4 g/cm^3

RN-CACOU-25g	25 g
RN-CACOU-100g	100 g

Calcium Carbonate microparticles

Absorbs polyelectrolytes and proteins in mesopores strongly.
Purity: > 99.0%
Particles shape: mesoporous, spherical
Surface morphology: rough
Average particle size: ca. 6 µm
Specific surface: > 18 m^2/g



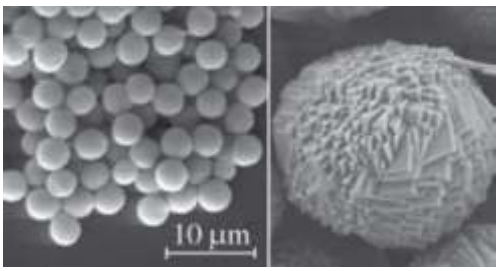
RN-CA6-1g	1 g
RN-CA6-5g	5 g
RN-CA6-10g	10 g

Average particle size: ca. 3 µm

RN-CA3-1g	1 g
RN-CA3-5g	5 g
RN-CA3-10g	10 g

Manganese Carbonate microparticles

Purity: > 99.0%
Particles shape: spherical
Surface morphology: rough
Particle size full range: 4 - 5 µm

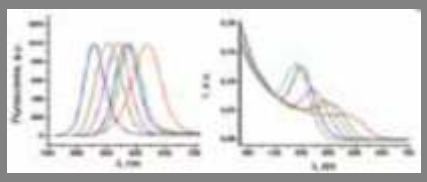


RN-MN4-1g	1 g
RN-MN4-5g	5 g
RN-MN4-10g	10 g

Average particle size: ca. 2-3 µm

RN-MN3-1g	1 g
RN-MN3-5g	5 g
RN-MN3-10g	10 g

Quantum Dots
Luminescent inorganic nanocrystals (Q-dots). The emission wavelength is a function of the crystal size - crystals of the same chemistry can have the emission maxima in a wide range.
CdTe hydrophilic Q-dots are coated with -COOH groups and can be easily used for labeling purposes for chemical and biological applications.
CdSe/ZnS and ZnCdSe/ZnS (core/shell type) Q-dots are hydrophobic and are soluble in most non-polar organic solvents.



CdTe Quantum Dots, powder, hydrophilic

Easily forms colloidal solutions in water. Terminated with -COOH group. Ideal for labeling purposes. Coupling with -NH2 groups can be achieved through EDC-mediated esterefication.

General labeling procedure for proteins
(adopted from Wang et al. Nanoletters 2002, vol. 2, No. 8, 817-822):
Reaction mixture containing 0.1 µM/mL CdTe quantum dots, 2 mg/mL protein, 1 mg/mL sulfo-NHS (CAS# 106627-54-7), 10 mg/mL EDC (CAS# 25952-53-8) in pH 7.0 PBS buffer is prepared and stored for 2-4 h at room temperature and then stored at 4°C overnight.
The precipitate (unconjugated Q-dots) if any is removed by centrifugation. The stock of ready-to-use product should be stored at 4°C. Optionally it can be dialyzed on a membrane with MWCO of 12000-14000 against pH 7.0 PBS buffer and stored at 4°C. Emission wavelength may slightly shift after labeling procedure.

510 ± 5 nm ? emission maximum. Particles molar weight ca. 3200 g/mol

RN-QDN-510-5mg	5 mg
RN-QDN-510-10mg	10 mg
RN-QDN-510-25mg	25 mg
RN-QDN-510-50mg	50 mg

520 ± 5 nm ? emission maximum. Particles molar weight ca. 16000 g/mol

RN-QDN-520-5mg	5 mg
RN-QDN-520-10mg	10 mg
RN-QDN-520-25mg	25 mg
RN-QDN-520-50mg	50 mg

530 ± 5 nm ? emission maximum. Particles molar weight ca. 20000 g/mol

RN-QDN-530-5mg	5 mg
RN-QDN-530-10mg	10 mg
RN-QDN-530-25mg	25 mg
RN-QDN-530-50mg	50 mg

540 ± 5 nm ? emission maximum. Particles molar weight ca. 25000 g/mol

RN-QDN-540-5mg	5 mg
RN-QDN-540-10mg	10 mg
RN-QDN-540-25mg	25 mg
RN-QDN-540-50mg	50 mg

550 ± 5 nm ? emission maximum. Particles molar weight ca. 32000 g/mol

RN-QDN-550-5mg	5 mg
RN-QDN-550-10mg	10 mg
RN-QDN-550-25mg	25 mg
RN-QDN-550-50mg	50 mg

560 ± 5 nm ? emission maximum. Particles molar weight ca. 55000 g/mol

RN-QDN-560-5mg	5 mg
RN-QDN-560-10mg	10 mg
RN-QDN-560-25mg	25 mg
RN-QDN-560-50mg	50 mg

570 ± 5 nm ? emission maximum. Particles molar weight ca. 59000 g/mol

RN-QDN-570-5mg	5 mg
RN-QDN-570-10mg	10 mg
RN-QDN-570-25mg	25 mg
RN-QDN-570-50mg	50 mg

580 ± 5 nm ? emission maximum. Particles molar weight ca. 67000 g/mol

RN-QDN-580-5mg	5 mg
RN-QDN-580-10mg	10 mg
RN-QDN-580-25mg	25 mg
RN-QDN-580-50mg	50 mg

590 ± 5 nm ? emission maximum. Particles molar weight ca. 71000 g/mol

RN-QDN-590-5mg	5 mg
RN-QDN-590-10mg	10 mg
RN-QDN-590-25mg	25 mg
RN-QDN-590-50mg	50 mg

600 ± 5 nm ? emission maximum. Particles molar weight ca. 76000 g/mol

RN-QDN-600-5mg	5 mg
RN-QDN-600-10mg	10 mg
RN-QDN-600-25mg	25 mg
RN-QDN-600-50mg	50 mg

610 ± 5 nm ? emission maximum. Particles molar weight ca. 81000 g/mol

RN-QDN-610-5mg	5 mg
RN-QDN-610-10mg	10 mg
RN-QDN-610-25mg	25 mg
RN-QDN-610-50mg	50 mg

620 ± 5 nm ? emission maximum. Particles molar weight ca. 88000 g/mol

RN-QDN-620-5mg	5 mg
RN-QDN-620-10mg	10 mg
RN-QDN-620-25mg	25 mg
RN-QDN-620-50mg	50 mg

630 ± 5 nm ? emission maximum. Particles molar weight ca. 89000 g/mol

RN-QDN-630-5mg	5 mg
RN-QDN-630-10mg	10 mg
RN-QDN-630-25mg	25 mg
RN-QDN-630-50mg	50 mg

640 ± 5 nm ? emission maximum. Particles molar weight ca. 90000 g/mol

RN-QDN-640-5mg	5 mg
RN-QDN-640-10mg	10 mg
RN-QDN-640-25mg	25 mg
RN-QDN-640-50mg	50 mg

650 ± 5 nm ? emission maximum. Particles molar weight ca. 103000 g/mol

RN-QDN-650-5mg	5 mg
RN-QDN-650-10mg	10 mg
RN-QDN-650-25mg	25 mg
RN-QDN-650-50mg	50 mg

660 ± 5 nm ? emission maximum. Particles molar weight ca. 111000 g/mol

RN-QDN-660-5mg	5 mg
RN-QDN-660-10mg	10 mg
RN-QDN-660-25mg	25 mg
RN-QDN-660-50mg	50 mg

670 ± 5 nm ? emission maximum. Particles molar weight ca. 124000 g/mol

RN-QDN-670-5mg	5 mg
RN-QDN-670-10mg	10 mg
RN-QDN-670-25mg	25 mg
RN-QDN-670-50mg	50 mg

680 ± 5 nm ? emission maximum. Particles molar weight ca. 146000 g/mol

RN-QDN-680-5mg	5 mg
RN-QDN-680-10mg	10 mg
RN-QDN-680-25mg	25 mg
RN-QDN-680-50mg	50 mg

690 ± 5 nm ? emission maximum. Particles molar weight ca. 160000 g/mol

RN-QDN-690-5mg	5 mg
RN-QDN-690-10mg	10 mg
RN-QDN-690-25mg	25 mg
RN-QDN-690-50mg	50 mg

700 ± 5 nm ? emission maximum. Particles molar weight ca. 177000 g/mol

RN-QDN-700-5mg	5 mg
RN-QDN-700-10mg	10 mg
RN-QDN-700-25mg	25 mg
RN-QDN-700-50mg	50 mg

710 ± 5 nm ? emission maximum. Particles molar weight ca. 200000 g/mol

RN-QDN-710-5mg	5 mg
RN-QDN-710-10mg	10 mg
RN-QDN-710-25mg	25 mg
RN-QDN-710-50mg	50 mg

720 ± 5 nm ? emission maximum. Particles molar weight ca. 230000 g/mol

RN-QDN-720-5mg	5 mg
RN-QDN-720-10mg	10 mg
RN-QDN-720-25mg	25 mg
RN-QDN-720-50mg	50 mg

770 ± 5 nm ? emission maximum. Particles molar weight ca. 900000 g/mol

RN-QDN-770-5mg	5 mg
RN-QDN-770-10mg	10 mg
RN-QDN-770-25mg	25 mg
RN-QDN-770-50mg	50 mg

780 ± 5 nm ? emission maximum. Particles molar weight ca. 1000000 g/mol

RN-QDN-780-5mg	5 mg
RN-QDN-780-10mg	10 mg
RN-QDN-780-25mg	25 mg
RN-QDN-780-50mg	50 mg

CdSe/ZnS (core/shell) Quantum Dots, powder, hydrophobic

Highly luminescent semiconductor nanocrystals coated with hydrophobic organic molecules. Readily soluble in hexane, heptane, toluene, chloroform, tetrahydrofuran, pyridine. Not soluble in water, alcohols, ethers.

530 ± 5 nm ? emission maximum.

RN-QD-O-530-5mg	5 mg
RN-QD-O-530-10mg	10 mg
RN-QD-O-530-25mg	25 mg

540 ± 5 nm ? emission maximum.

RN-QD-O-540-5mg	5 mg
RN-QD-O-540-10mg	10 mg
RN-QD-O-540-25mg	25 mg

550 ± 5 nm ? emission maximum.

RN-QD-O-550-5mg	5 mg
RN-QD-O-550-10mg	10 mg
RN-QD-O-550-25mg	25 mg

560 ± 5 nm ? emission maximum.

RN-QD-O-560-5mg	5 mg
RN-QD-O-560-10mg	10 mg
RN-QD-O-560-25mg	25 mg

570 ± 5 nm ? emission maximum.

RN-QD-O-570-5mg	5 mg
RN-QD-O-570-10mg	10 mg
RN-QD-O-570-25mg	25 mg

580 ± 5 nm ? emission maximum.

RN-QD-O-580-5mg	5 mg
RN-QD-O-580-10mg	10 mg
RN-QD-O-580-25mg	25 mg

590 ± 5 nm ? emission maximum.

RN-QD-O-590-5mg	5 mg
RN-QD-O-590-10mg	10 mg
RN-QD-O-590-25mg	25 mg

600 ± 5 nm ? emission maximum.

RN-QD-O-600-5mg	5 mg
RN-QD-O-600-10mg	10 mg
RN-QD-O-600-25mg	25 mg

610 ± 5 nm ? emission maximum.

RN-QD-O-610-5mg	5 mg
RN-QD-O-610-10mg	10 mg
RN-QD-O-610-25mg	25 mg

620 ± 5 nm ? emission maximum.

RN-QD-O-620-5mg	5 mg
RN-QD-O-620-10mg	10 mg
RN-QD-O-620-25mg	25 mg

630 ± 5 nm ? emission maximum.

RN-QD-O-630-5mg	5 mg
RN-QD-O-630-10mg	10 mg
RN-QD-O-630-25mg	25 mg

640 ± 5 nm ? emission maximum.

RN-QD-O-640-5mg	5 mg
RN-QD-O-640-10mg	10 mg
RN-QD-O-640-25mg	25 mg

650 ± 5 nm ? emission maximum.

RN-QD-O-650-5mg	5 mg
RN-QD-O-650-10mg	10 mg
RN-QD-O-650-25mg	25 mg

ZnCdSe/ZnS (core/shell)Quantum Dots, powder, hydrophobic

Highly luminescent semiconductor nanocrystals coated with hydrophobic organic molecules. Readily soluble in hexane, heptane, toluene, chloroform, tetrahydrofuran, pyridine. Not soluble in water, alcohols, ethers.

440 ± 5 nm ? emission maximum.

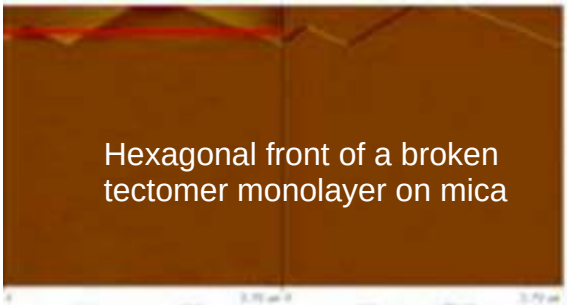
RN-QD-O-440-5mg	5 mg
RN-QD-O-440-10mg	10 mg
RN-QD-O-440-25mg	25 mg

480 ± 5 nm ? emission maximum.

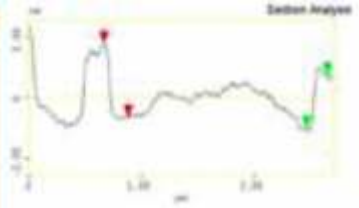
RN-QD-O-480-5mg	5 mg
RN-QD-O-480-10mg	10 mg
RN-QD-O-480-25mg	25 mg

Tectomers

Tectomers are a novel type of self-assembling molecules. The structure of a tectomer represents several oligoglycine units linked to one common center. The pH dependent formation of strong hydrogen bonds between molecules leads to their selfassembly into extra-regular 2-D or 3-D layers of monomolecular thickness.10 mg of any tectomer is enough for coating of more than 2 m^2 of surface.



Hexagonal front of a broken tectomer monolayer on mica



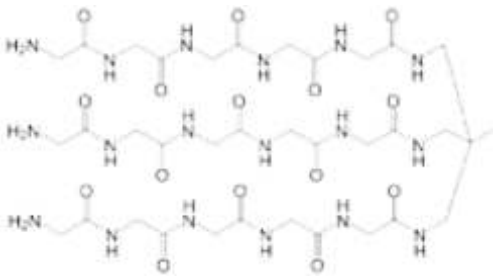
Tectomer 2-tailed, $C_7H_{12}(-CH_2-NH-Gly_5)_2$ * TFA

Purity: > 95%

RN-TEC-2-10mg	10 mg
RN-TEC-2-25mg	25 mg

Tectomer 3-tailed, $CH_3C(-CH_2-NH-Gly_5)_3$ * TFA

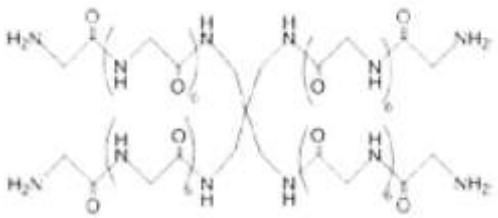
Purity: > 95%



RN-TEC-3-10mg	10 mg
RN-TEC-3-25mg	25 mg

Tectomer 4-tailed, $C(-CH_2-NH-Gly_7)_4$ * 4 Hcl

Purity: > 95%



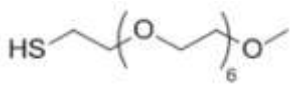
RN-TEC-4-10mg	10 mg
RN-TEC-4-25mg	25 mg

PEG Derivatives

PEG oligomers are processed into a variety of derivatives. A high purity for intermediates and products is maintained, and our catalogue items have an overall purity exceeding 95%. In comparison to PEG products obtained from polydisperse material, the use of our compounds is therefore more consistent.

mPEG Thiol

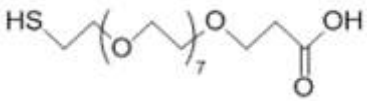
Purity: > 95%
Colorless liquid



RN-PEG-T-250mg	250 mg
RN-PEG-T-500mg	500 mg

mPEG Thiol Acid

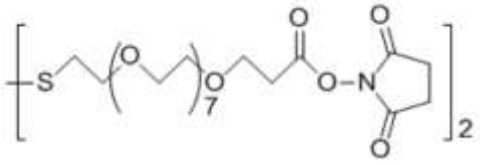
Purity: > 95%
Oily liquid



RN-PEG-TA-250mg	250 mg
RN-PEG-TA-500mg	500 mg

PEG NHS Ester Disulfide

Purity: > 95%
Oily liquid



RN-PEG-NHS-250mg	250 mg
RN-PEG-NHS-500mg	500 mg

Biotin PEG Disulfide

Purity: > 95%
Powder

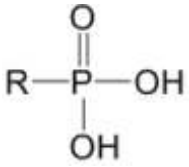
RN-PEG-BDS-10mg	10mg
RN-PEG-BDS-50mg	50 mg

Phosphonic Acids Derivatives

Alkylphosphonic acids are widely used for production of nanoparticles such as quantum dots, nano-metals, nano-ceramics. By varying the carbohydral chain length one can change the particles' shape and size. Besides, they can be used for coating of many materials (including nanoparticles) by condensed hydrophobic monolayers.

n-Alkylphosphonic acids kit

One kit of all seven n-Alkylphosphonic acids, 5 g. each:
1 x RN-HPA-5g
1 x RN-OPA-5g
1 x RN-DPA-5g
1 x RN-DDPA-5g
1 x RN-TDPA-5g
1 x RN-HDPA-5g
1 x RN-ODPA-5g



RN-PA-Kit	1 kit

n-Hexylphosphonic acid, tech.

$C_6H_{13}P(O)(OH)_2$

Purity: > 97% MP 105-106°C

White to off-white powder

RN-HPA-1g	1 g
RN-HPA-5g	5 g
RN-HPA-10g	10 g
RN-HPA-50g	50 g

n-Octylphosphonic acid, tech.

$C_8H_{17}P(O)(OH)_2$

Purity: >97% MP 102-103°C

White to off-white powder

RN-OPA-1g	1 g
RN-OPA-5g	5 g
RN-OPA-10g	10 g
RN-OPA-50g	50 g

n-Decylphosphonic acid, tech.

$C_{10}H_{21}P(O)(OH)_2$

Purity: > 97% MP 103-104°C

White to off-white powder

RN-DPA-1g	1 g
RN-DPA-5g	5 g
RN-DPA-10g	10 g
RN-DPA-50g	50 g

n-Dodecylphosphonic acid,tech.

$C_{12}H_{25}P(O)(OH)_2$

Purity: > 97% MP 96-98°C

White to off-white powder

RN-DDPA-1g	1 g
RN-DDPA-5g	5 g
RN-DDPA-10g	10 g
RN-DDPA-50g	50 g

n-Tetradecylphosphonic acid,tech.

$C_{14}H_{29}P(O)(OH)_2$

Purity: > 97% MP 96-98°C

White to off-white powder

RN-TDPA-1g	1 g
RN-TDPA-5g	5 g
RN-TDPA-10g	10 g
RN-TDPA-50g	50 g

n-Hexadecylphosphonic acid,tech.

$C_{16}H_{33}P(O)(OH)_2$

Purity: > 97% MP 96-99°C

White to off-white powder

RN-HDPA-1g	1 g
RN-HDPA-5g	5 g
RN-HDPA-10g	10 g
RN-HDPA-50g	50 g

n-Octadecylphosphonic acid, tech.

$C_{18}H_{37}P(O)(OH)_2$

Purity: > 97% MP 100-101°C

White to off-white powder

RN-ODPA-1g	1 g
RN-ODPA-5g	5 g
RN-ODPA-10g	10 g
RN-ODPA-50g	50 g

Benzylphosphonic acid, tech.

C_6H_5-CH_2-$P(O)(OH)_2$

Purity: > 97%

White to off-white powder

RN-BZPA-1g	1 g
RN-BZPA-5g	5 g
RN-BZPA-10g	10 g
RN-BZPA-50g	50 g

Benzhydrylphosphonic acid, tech.

$(C_6H_5)_2CH$-$P(O)(OH)_2$

Purity: > 97%

White to off-white powder

RN-BHPA-1g	1 g
RN-BHPA-5g	5 g
RN-BHPA-10g	10 g
RN-BHPA-50g	50 g

Graphenes on the transparent mica and other substrates

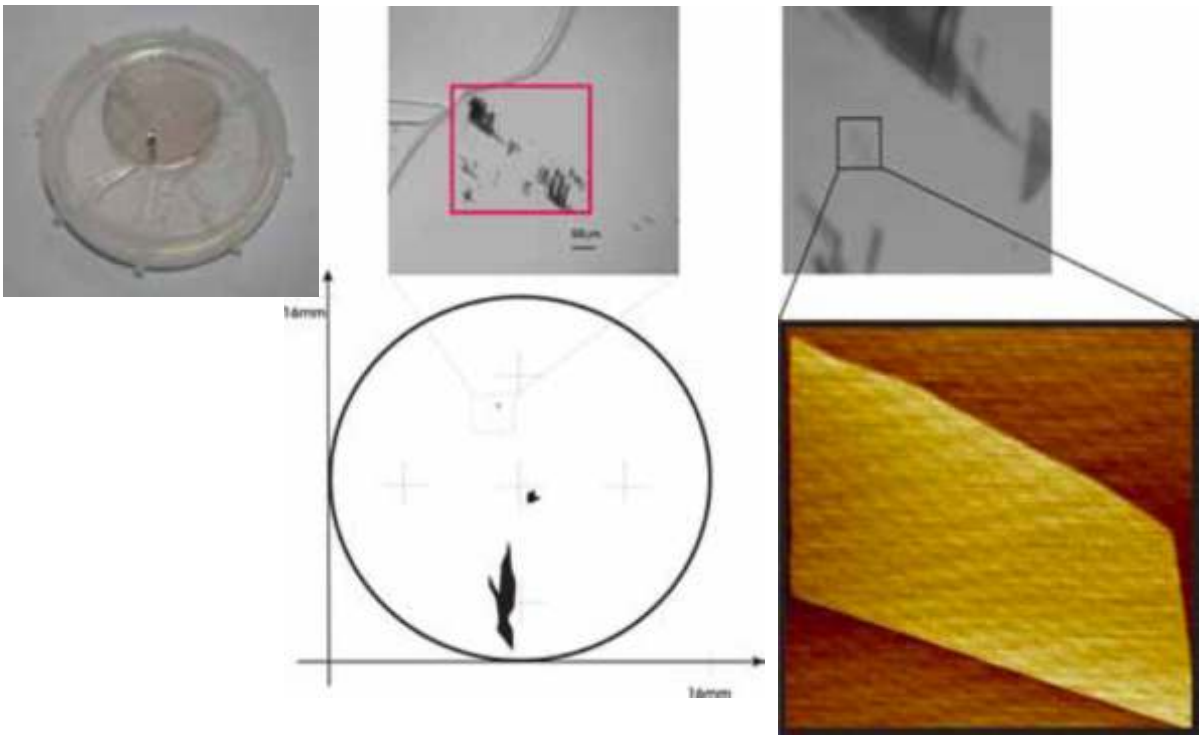
Graphene is an allotrope of carbon, whose structure is a one-atom-thick planar sheet of sp2-bonded carbon atoms that are densely packed in a honeycomb crystal lattice. The C-C bond length in graphene is about 0.142. Graphene differs from most conventional three-dimensional materials. Intrinsic graphene is a semi-metal or zero-gap semiconductor. Experimental results from transport measurements show that graphene has a remarkably high electron mobility at room temperature, with reported values in excess of 15,000 cm2V- 1s- 1. Graphene‘s unique electronic properties lead to an unexpectedly high opacity for an atomic monolayer: it absorbs p a ˜ 2.3% of white light (where a is the fine-structure constant).

Graphenes on atomically flat substrates (e.g. on mica) can be accurately characterized and employed for various promissing experiments.

Reinste Nano Ventures offers graphenes on different substrates like mica (which is a default material), silicon, glas etc. We can also place a graphene sheet onto a precoated substrate. The form, size and shape of the substrate can be easily adopted to fit your needs.

A standard sample represents a mica disk of ca. 1 cm in diameter with graphene(s) on its surface; the disk is mounted in a plastic holder. The sample is optically transparent and can be observed both in a reflected and transmitted light. Each sample is accomplished with a set of images which will help to easily locate the graphene sheet on a substrate.

RN-Graphen	For prices and detailed information for the graphenes visit at www.reinste.com



Plastics

ANTIMICROBIAL

ANTIBACTERIAL

Detergent

Textiles

ANTI VIRAL

ANTI FUNGAL

Reinste Nano Ventures Pvt. Ltd. also provides you Liquid Nano Silver technology and unique Nano Silver intermediaries which converts all kind of Detergents, Ceramics, Plastics and Textiles into effective Antimicrobial , Antibacterial, Anti Viral and Anti Fungal properties enhanced products.

Nano Silver Intermediaries

1. Liquid Nano Silver: Aqueous dispersion of colloidal silver

Potential applications of Liquid Nano Silver products range from varnishes and coatings over thermoplastic, thermosetting and elastomeric polymers to textile fibers. Liquid Nano Silver is therefore utilized as in antimicrobial additive for many chemical formulations like detergents, dyes, cleaners and cosmetics.

This Liquid Nano Silver is having the particle size of 15 nm and is totally miscible in water. It can be used as an additive to any water based coatings.

2. Nano Silver Master Batches

Nano Silver PP-Master Batch

Nano silver master batch is developed for antimicrobial equipment of Thermoplastics, in special for the equipment of fibres which are produced by melting, mono as well as multifilament fibres. It is Lightest of all Chemical Fibres, used in carpets, artificial turfs and ropes.

Chemical Character: PP resin in form of pellets containing Nano Silver.

Silver Content- 5000 ppm

Approx Particle Size of Silver < 30 nm

Standard Packages- Air tight bags with a content of 25 kg

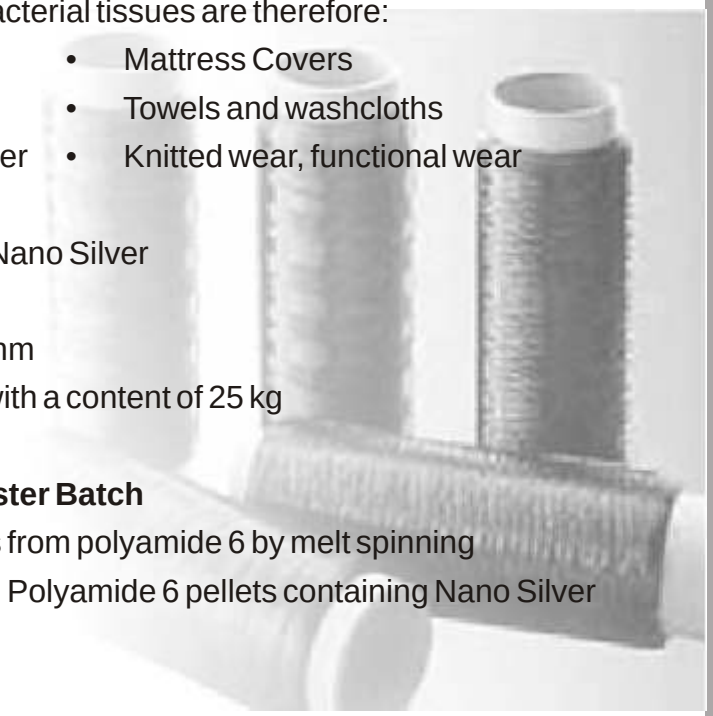
Nano Silver PET Master Batch

Nano silver master batch is developed for antimicrobial equipment of Thermoplastics, in special for the equipment of fibres which are produced by melting, mono as well as multifilament fibres.

With the products of Reinste, it is possible for you, your synthetic fiber, micro fiber fabrics and blended fabrics to be durable and anti-equip all. Bacteria prefer to keep in a moist environment in which they can reproduce the best. This environment can be found frequently in the bathroom, kitchen or bedroom and these nano silver products will help to clean them.

Ideal application areas for your antibacterial tissues are therefore:

- Linen
- Washing and dish towels
- Bathroom and Toilettenvorleger
- Workwear
- Mattress Covers
- Towels and washcloths
- Knitted wear, functional wear



Chemical Character- PP resin with Nano Silver

Silver Content- 10,000 ppm

Approx Particle Size of Silver < 30 nm

Standard Packages- Air tight bags with a content of 25 kg

Nano Silver Polyamide 6 (PA 6) Master Batch

Antimicrobial finishing of staple fibres from polyamide 6 by melt spinning

***Chemical Character/Composition*:** Polyamide 6 pellets containing Nano Silver

3. Nano Silver Yarn

These are Nano Silver embedded Fibre yarn which can be mixed with normal yarns for making Antimicrobial textiles.

For queries and ordering: Telephone: + 91-120- 4781217/14, Mo. +91- 9810662669

Order Form

You may use this form to order products. Please send it scanned per e-mail to orders@reinste.com or per fax +0120-4347644

Order No.:_____ **Date.:**_____

Catalogue Number	Product Name	Quantity	Price (INR)	Delivery Charges	Sales Tax
1.					
2.					
3.					
4.					
5.					
Total					

Delivery Address:

Name (Mr./Ms.) _____

Address _____

_____

City: _____ State:_____ Pin: _____

Country: _____ Phone: _____

Email: _____

Billing Address:

Name (Mr./Ms.) _____

Address _____

_____

City: _____ State:_____ Pin: _____

Country: _____ Phone: _____

Email: _____

Date: _____

Name: _____

Designation: _____

Signature: _____

Your Stamp

Reinste Nano Ventures

Designed to deliver the purest….

Reinste Nano Ventures Pvt. Ltd.

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No change by Purchaser of any term or condition of this contract or any of Seller's rights or remedies hereunder shall be binding on Seller, nor shall the order hereby acknowledged be changed or cancelled by Purchaser unless approved in writing by an authorized person of Reinste Nanoventures. There are no representations, agreements, promises, or understandings between Purchaser and Seller that are not expressed herein.

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We urge you to inspect all packages immediately upon receipt and report any damage, shortage or defect to our Customer Service Department as soon as possible. CLAIMS FOR THESE DISCREPANCIES MUST BE MADE WITHIN 15 DAYS OF YOUR RECEIVING THE MATERIALS. All products are sold FOB seller's shipping point unless otherwise noted. Delivery of goods to the carrier at seller's plant or to other loading point shall constitute delivery to Buyer, and regardless of shipping terms, all risks of loss or damage in transit shall be borne by Buyer.

Return Shipments:

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Hazards

All of our products should be handled only by qualified and trained individuals. In purchasing these products, the customer acknowledges that there are hazards associated with their use. Customer represents and warrants to us that from customer's own independent review and study it is fully aware and knowledgeable about

(a) The health and safety hazards associated with the handling ofthe products purchased.

(b) Industrial hygiene controls necessary to protect its workers from such health and safety hazards.

(c) The need to adequately warn of health and safety hazards associated with products.

(d) Government regulations regarding the use of and exposure to such products.

At Reinste Nano Ventures we ardently believe that innovation and differentiation are the fundamental components of growth and enlightenment of any organization. With a portfolio of products catering to the needs of almost all scientific research communities in nanotechnology sphere, we help our customers by delivering the most pertinent nanomaterials with the assurance of quality. We rejoice in the fact that our products and services add values to our customers and in progression we build a priceless relationship of eminence with precision.

Novel Technology

The main technology points concern the development of processes induced by low-temperature plasma on different surfaces and in organized mono-molecular films (Langmuir-Blodgett and Self-Assembly Films), in atomically flat inorganic solids and in liquid interfaces and advanced technologies of synthesis and modification of nano-materials.

Chemical and low temperature plasma modification of nanopowders are performed with the purpose of functionalization of nano-particle's surface assisted by new plasma-chemical methods developed for ultra-dispersed materials. This approach leads to a new family of industrial nano-products with improved and tailor-made properties.

Two technologies for industrial production of NanoDiamonds, NanoCeramics and NanoMetals

Controlled Detonation Synthesis (CDS)

Controlled Detonation Synthesis is based on super-high pressure developed at explosion in closed volume. At explosion precursor material, immersed in specific gas medium, is atomized.

During the fly from the middle of reactor to the reactor walls atoms are clusterized and form nanoparticles. During whole synthesis process the super-high pressure is supported which enable formation not only of different NanoCeramics with unusual crystalline lattice, but also of cubic carbon nanoparticles (NanoDiamonds).

Having in disposal big industrial detonation reactors PlasmaChem is able to deliver tons of detonation nanoproducts per month.

Hot Plasma Jet Synthesis (HPJS)

Hot plasma process know-how is used to produce nanoparticles.

Precursor material is atomized in plasma arc with followed clusterization to nanoparticles optionally with additional plasma chemical conversion to anothaer material than precursor. The special precautions are done to get real nanocrystals (not simply mixed phases) and to exclude big agglomerate formation.

Reinste Nano Ventures Pvt. Ltd.

Reinste Nano Ventures

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