

March 19, 2021

**DANISH
TECHNOLOGICAL
INSTITUTE**

Product Report



Gregersensvej
DK-2630 Taastrup
+45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk
www.nanoproducts.nu

March 19, 2021

Product: Silver nanoparticles DTI-Ag-PG

Batch: DTI-Ag-PG9

Description: Paste of metallic silver nanoparticles

Tests: PXRD, SEM, DLS

Storage: Store material at room temperature and avoid direct light exposure. After use, dispose of remaining materials at local waste handling facility. Do NOT release material to aqueous environments.

Conditions: The work has been performed according to the general terms and conditions of The Danish Technological Institute. The test results are solely referring to the tested (examined) materials.
Publication of extracts from the product report is allowed, if the testing laboratory has given a written approval.

Place: Danish Technological Institute, Taastrup,
Nano Production and Micro Analysis

Signature: Zachary J. Davis
Team Manager
Phone: + 45 72 20 25 07
Mail: zjd@teknologisk.dk

nanoproducts.nu

Tests

- An X-ray diffractometer (XRD) equipped with a Cu X-ray source (K_{α} wavelength 1.5406 Å). This instrument allows the crystalline phases in the powder samples to be analyzed (identification and relative quantification of phases).
- Scanning electron microscope (SEM) equipped with X-ray microanalysis facilities (EDX). This allows microstructure and element composition to be analyzed.
- A Malvern Zetasizer Nano ZS was utilized to measure Dynamic Light Scattering (DLS) on a water-diluted sample.

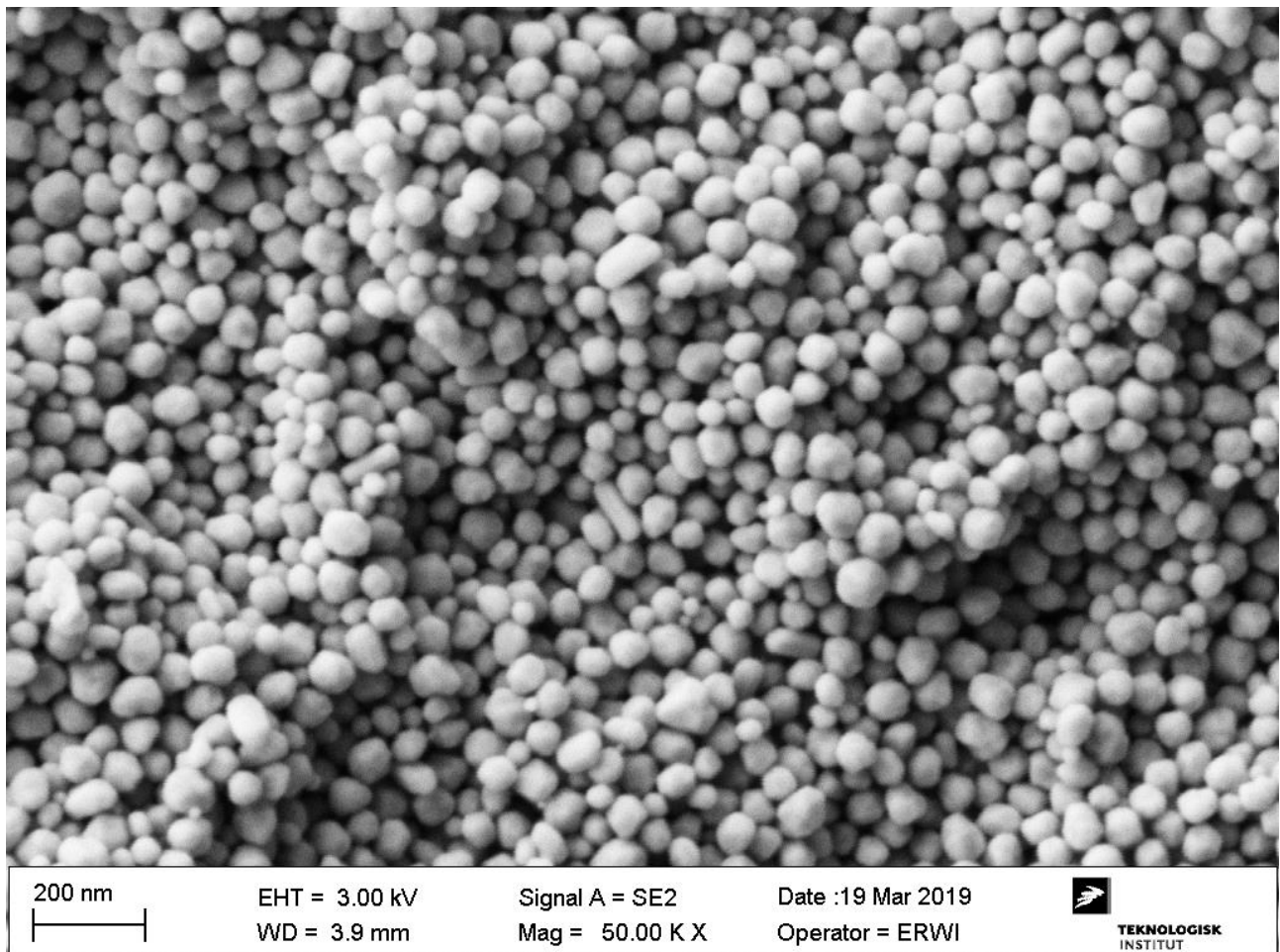
Test results

Table: average results

BATCH NAME	2019-04-DTI-AG-PG9
SEM SIZES	40-100 nm
PXRD AVERAGE CRYSTALLITE SIZES	20 nm
DLS AVERAGE SIZE	103 nm

Documentation

Figure: SEM



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Figure: PXRD

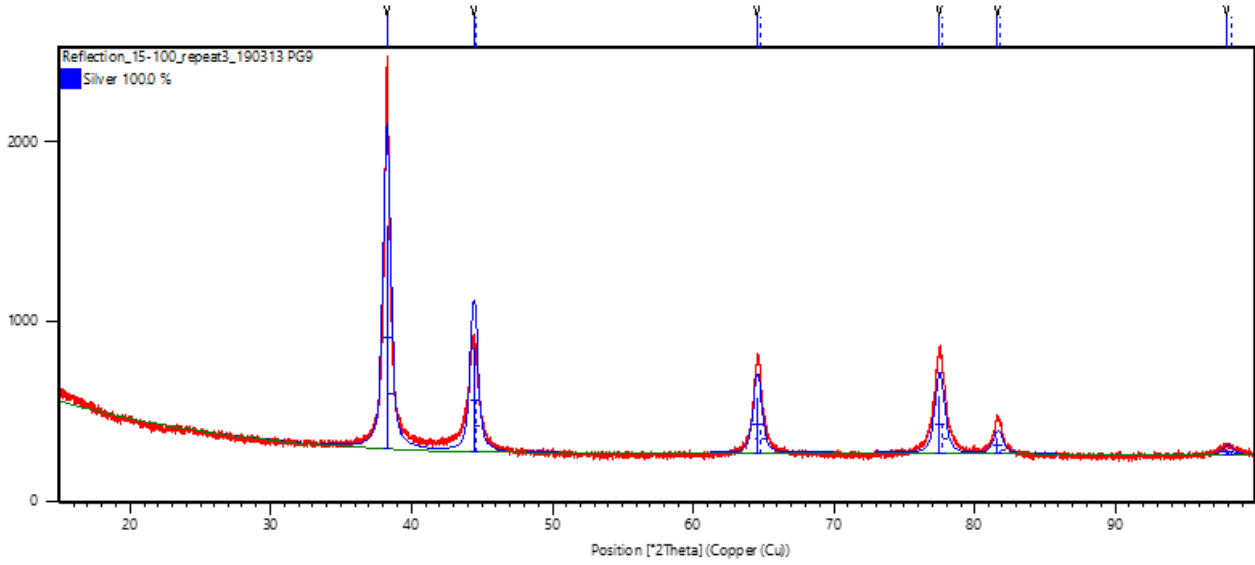


Figure: DLS

Sample Name: PG9 in Water diluted 40x 1
SOP Name: mansettings.nano
File Name: 190315 - PG9.dts
Record Number: 12
Material RI: 0,10
Material Absorbtion: 0,100

Dispersant Name: Water
Dispersant RI: 1,330
Viscosity (cP): 0,8872
Measurement Date and Time: fredag, marts 15, 2019 10:02:53

Temperature (°C): 25,0
Count Rate (kcps): 93,9
Cell Description: Disposable sizing cuvette

Duration Used (s): 100
Measurement Position (mm): 1,05
Attenuator: 3

	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 102,5	Peak 1: 124,8	100,0	54,80
PdI: 0,167	Peak 2: 0,000	0,0	0,000
Intercept: 0,849	Peak 3: 0,000	0,0	0,000

Result quality : Good

