

#### Particle Size Measurement of Colloids Platinum

#### Introduction

A platinum colloid is a suspension with a dispersed phase consisting of platinum particles between 1 nm – 1 μm evenly dispersed in a continuous phase, in this case water. The sample can be considered to be on the nanoparticle scale if the size of the dispersed phase particles is between 1-100 nm. Platinum colloidal particles are stabilized by coating their surfaces with high polymers to form 3-D barriers or using the reduction potential of platinum to impose repulsive forces between the particles. Platinum nanoparticles have found applications in catalysts for treating automobile exhaust gas and fuel cell electrodes. Other applications of platinum nanoparticles include biosensors utilizing the optical properties.

#### Analytical Test Method

Instrument:	SZ-100 nano Partica
Sample:	Copper nanoparticles
Temperature:	25° C
Dispersing medium:	Water
Algorithm:	Polydisperse, standard
Angle:	90°
Measurement duration:	90 seconds
Result format:	Number distribution

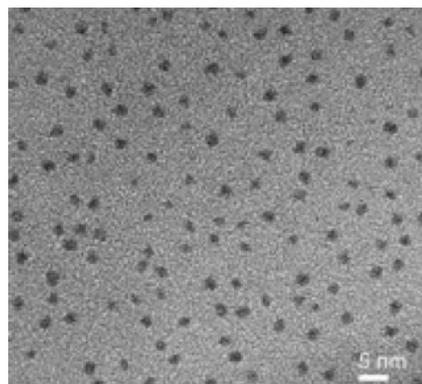


Figure 1: TEM photograph of colloidal platinum suspension\*

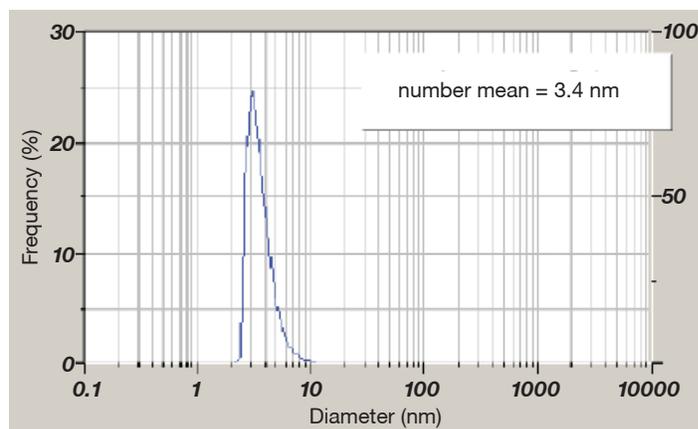


Figure 2: Colloidal platinum particle size result

#### Results

The measurement result of a platinum colloidal sample is shown in Figure 2. The mean diameter of this sample was 3.4 nm when displayed as a number distribution. Results were generated based on the number distribution in order to better compare results to existing historic data based on microscopy.

\*Photograph courtesy: Shinko Kagaku Co., Ltd., is not necessarily related to data shown in this document.