



VŠB - Technical University of Ostrava

INSTITUTE OF ENVIRONMENTAL TECHNOLOGY

Measurement report and laboratory report

for project No. CZ.01.1.02/0.0/0.0/17_115/0011684

Economic contract No. 7501805

“Nanoparticles for drinking water treatment” Declaration of NanoZone s.r.o. concerning the measurement report results and laboratory reports.



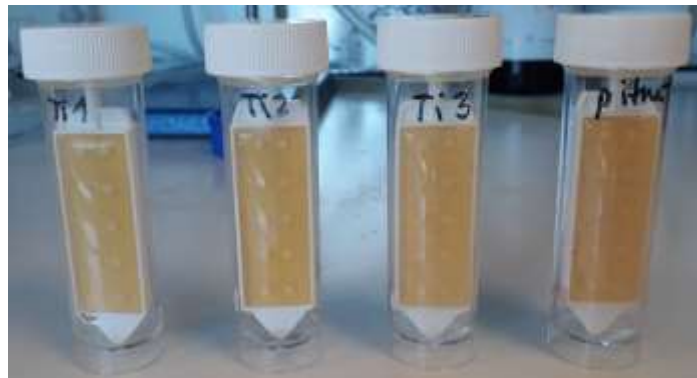
The project “Nanoparticles for Drinking Water Treatment” focused on the following analyses:

- Analysis of Ti^{4+} content in water
- Analysis of titanium nanoparticles present in water
- Microbial water purity analysis
- Analysis of ecotoxicity and biological activity of water

Analysis of Ti^{4+} content in water

Analysis of titanium nanoparticles present in water

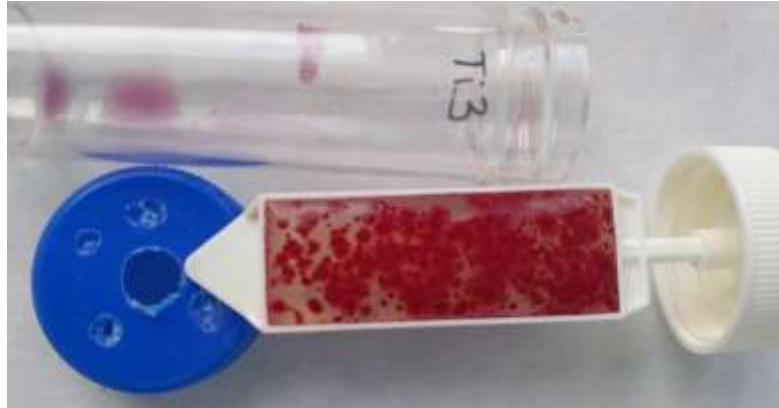
The AAS analysis did not show a statistically significant difference between the titanium content in the drinking water samples from the control (untreated) tank and the tank treated with the preparation containing TiO_2 nanoparticles. No titanium was detected in any of the surfaces analysed.



Microbial water purity analysis

Based on these results, it can be concluded that with the increasing duration of nanoparticle action, there is no significant increase in a toxic effect on the indicator organism in the treated drinking water samples.

The results of the acute toxicity tests performed on the bacterial strain *Vibrio fischeri* did not show the influence of TiZonic on the resulting toxic effect.



Analysis of ecotoxicity and biological activity of water

The comparison of test results with and without TiZonic treatment shows that TiZonic does not induce a mutagenic effect in the water samples.

Conclusion:

The objective of the research project “Nanoparticles for drinking water treatment” was to evaluate the effect of TiZonic application (based on TiO_2 with particle size from 2 nm) when applied to surfaces of vessels that come into long-term contact with water (tanks) on drinking water quality, namely at intervals of 1, 30, 100, 200, and 300 days after the nanopolymer application.

The titanium content in water was analysed using the ICP-MS method. The analysis of the titanium content did not show a statistically significant difference between the titanium content in the drinking water samples from the control (untreated) tank and the tank treated with the TiZonic preparation. In view of this fact, no further analysis of the particle distribution has been performed (see the Report), as it is evident that a potential finding of particle clusters is not related to the increased Ti content after wiping off the spraying. (Dust particles always move in the system).

