The Recovery of Precious Metals in Wastewater with Nanotechnologies

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Nanotechnology is the science that study functional systems at the molecular scale at least one dimension sized from 1 to 100 nanometers. The main purpose of this study is the application of nanotechnology and nanomaterials and their use as a part of a precious metal refining wastewater treatment process. The most common approach used in the industry for waste water consist of the use of filter presses, paper filters, selective resins, and chemical separation. New development in the field of nanotechnology can be leveraged to improve the current precious metal recovery rate.

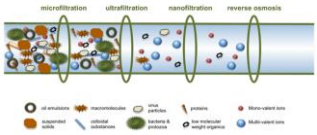

Image 1 – nanofiltration

Two main field of application are membrane filtration and Metal Organic Framework (MOF)

Membrane selection and practical test were conducted in PAMP using a pilot plant. Analysis of waste water, concentrate and filtration residue conducted by ICP OES.

The results of the test show that it is possible the recovery of precious metal also at very low concentration in water. Presence of precious metal below 1 ppm can be concentrated and recovered.

Nanotechnology represents an interesting solution that combine optimization of the efficiency of refining process and simultaneously reduce the environmental impact

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