



WATRO: Installation Instruction for Windows

WATRO (Weak Acids Transport Reverse in Osmosis) 2021 release. Including user interface (not graphic) for SWRO 1st and 2nd pass (experimentally validated) and brackish water (not experimentally validated yet), Now works with installation of the Anaconda Python 3 package

1. Download and install the Anaconda python package (works only with Python 2, not 3): <https://www.anaconda.com/download>.
2. Download and install IPhreeqc COM modules (msi files at the bottom of the page): https://wwwbrr.cr.usgs.gov/projects/GWC_coupled/phreeqc.
3. Extract the content of the Installation folder to a chosen location in your hard drive.
4. Go to the IPhreeqc folder. Find the file 'IPhreeqcCOM.dll', copy it and paste in the same folder where you placed the WATRO scripts.
5. Go to the IPhreeqc folder. From the database folder in there copy all the '.dat' files and paste them in the same folder with the WATRO code.
6. Installation of .Net Framework 3.5 from Microsoft may be needed.
7. You are ready to go. Open one of the interfaces using Anaconda, follow the instructions and run the code.

The **WATRO** (Weak Acid Transport Reverse Osmosis) computer code was Initially developed by Oded Nir and Ori Lahav at the Technion – Israel Institute of Technology, Faculty of Civil and Environmental Engineering. Further development is now performed by Oded Nir in the Zuckerberg Institute for Water Research, Blaustein Institutes for Desert Research, Ben Gurion University, Israel.

References

1. **O. Nir**, O. Lahav, 2016, Acid-base dynamics in seawater reverse osmosis: experimental evaluation of a reactive-transport algorithm, *Environmental Science: Water Research and Technology* 2(1), 107-116.
2. **O. Nir**, When does commercial software fail in predicting scaling tendency in reverse osmosis and what can we do better? *Desalination and Water Treatment*. 2018 Nov 1;131:34-42.