

Treatment of waste water from electronics/plating factory in Singapore using simple De.mem UF (Ultrafiltration)-NF (Nanofiltration) membrane process

Date

2018

Membrane Details

Membranes modules deployed:
0.5m 4" De.mem UF module (5m²)
1m 4" De.mem NF module (10m²)

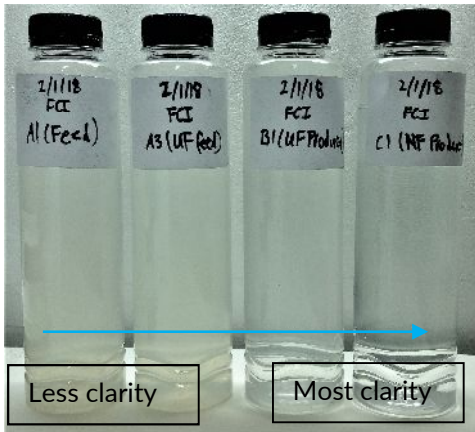
Objective

- To recycle / reuse the waste water from an electronics / plating factory using De.mem UF and NF membranes

Overview

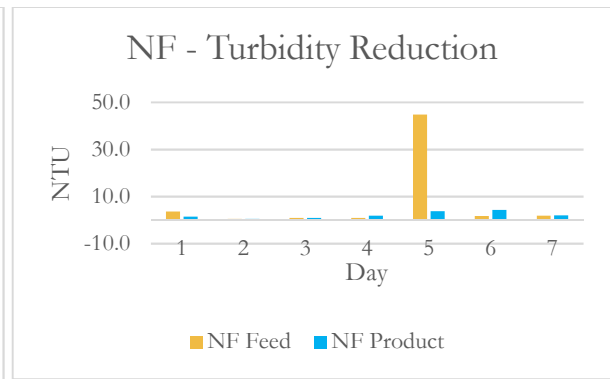
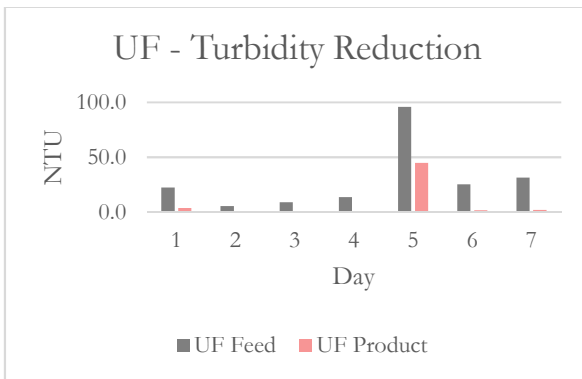
- A skid mounted waste water treatment system using De.mem UF and NF membrane modules was installed at a factory in Singapore from the electronics/plating industry
- The waste water (feed water) contained significant levels of turbidity (96 NTU), TDS (3,050 mg/L) and COD (253 mg/L).
- The system was run continuously over a period of two weeks
- The treated water was analyzed. Furthermore, it was presented to the client and the client was to perform lab analysis to confirm that the quality was good enough for recycling into their production

Treatment Results and Sample Test Data

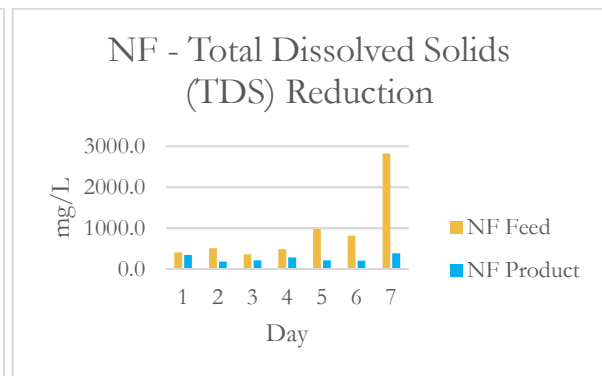
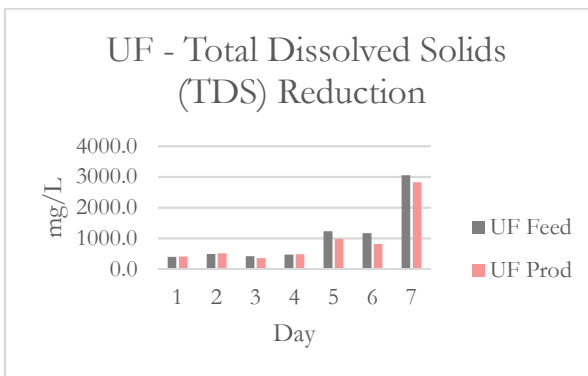


The water samples collected demonstrate the clarity of the water obtained before and after filtration. The NF module shows a visible reduction in the turbidity of the water versus that of the feed samples.

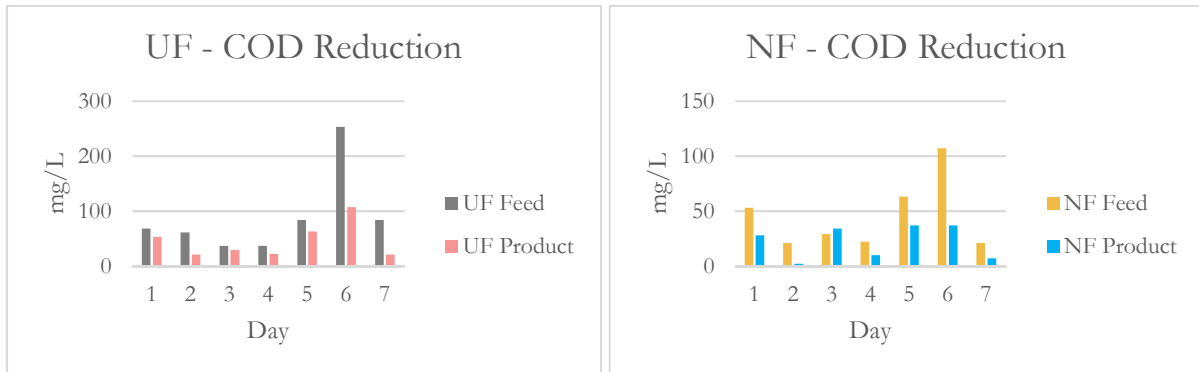
Data collected is summarized as follows:



1. The UF module is able to perform significant reduction of the turbidity of the feed water, with the NF further reducing the turbidity as well. On average, turbidity reduction is 93.0 % for the UF and 94.0 % for the NF.



- As expected, the UF can provide little reduction TDS only due to the large pore size. However, the NF has provided consistent and significant reduction of TDS of 67.6 % on average over the sample period.



- Generally, the UF and NF membranes are able to reduce COD of the waste water stream to below 50 mg/L. The total COD reduction through the UF-NF processes using De.mem membranes has been 76.9 % over the sample period.

Summary and Conclusion

- With De.mem UF-NF membrane filtration process, TDS can be reduced by up to 87% from the feed levels.
- The turbidity can be reduced by up to 99% from the feed levels.
- The COD can be reduced by up to 91.7% from the feed levels.
- Treated water was confirmed to meet the customer's requirements for reuse into their production process.