

Oil & Gas MEX

Benefits and Savings

- All contaminants are attacked in a single treatment.
- There are no toxic gas emissions.
- The waste generated is not dangerous.
- Savings in electrical energy.

Solutions

- Removal of multiple highly stable aromatic and aliphatic compounds.
- Removal of sulfur compounds.
- Eliminates and/or reduces odor and color.

CASE STUDY

Introduction

Case study for TDM treatment from oil & gas process wastewater. The source came from refinery process water, where it can be contaminated with oil, grease, organic compounds, heavy metals, etc. The main challenges to treat this water is the variability in their contaminant's composition, its high level of concentration and the complexity to remove stable compounds such as aromatic compounds. TDM faced the challenge of treating this wastewater from a Mexican refinery process, to comply with NOM-001 for discharge.

Objective

Two procedures were performed on this sample, the first one removing mainly oil and the second one, a treatment with TDM, resulting in a clear sample with a slight odor.

The client wanted to comply with Mexico's SEMARNAT regulations for discharge into the environment. (NOM-001).

Table 4

Environmental standards for effluent discharge as per the US EPA and characteristics of different petroleum refinery effluents as reported in the literature of various countries.



Environmental standard for effluent discharge as per the USA EPA (mg/L)

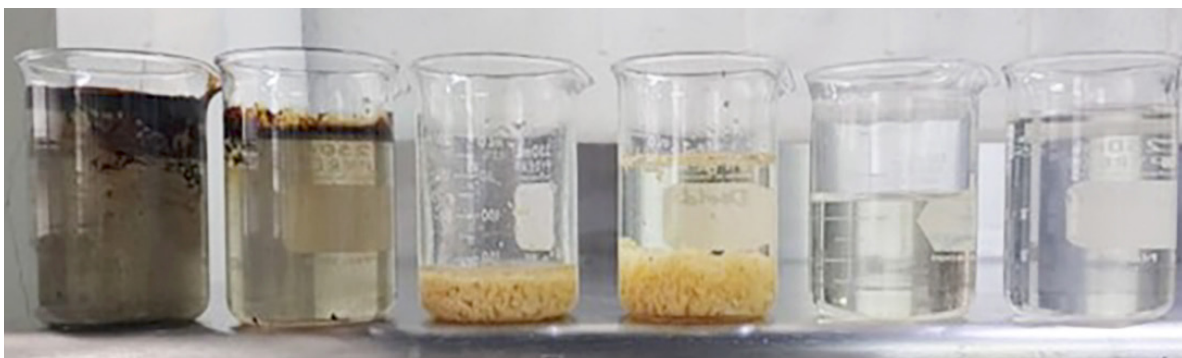
pH	COD	BOD	TOC	O&G	SST	TSS	N-NH ₄	Sulfides	Phenol	References
6-8.5	125	15	N/R	5	20	N/R	40	0.5	0.35	[31,78-80]



Results

The wastewater provided by the client came from a petrochemical process.

Variable	Raw Water	Outlet	EPA REGULATIONS	NOM-001
pH	7.84	8.41	6 to 8.5	6 to 9
Conductivity	74.3 mS/cm	73.1 mS/cm	-	-
Dissolved oxygen	0.40 mg/L	6.97 mg/L	-	-
Floating matter	-	-	-	-
Turbidity	275 NTU	0.53 NTU	-	-
TSS	510 mg/L	18 mg/L	20 mg/L	35 mg/L
COD	2,220 mg/L	110 mg/L	125 mg/L	125 mg/L
Total nitrogen	76 mg/L	18 mg/L	40 mg/L	20 mg/L
Total phosphorus	17.87 mg/L	3.29 mg/L	-	-
Zinc	0.2 mg/L	0.2 mg/L	6.0 mg/L	1 mg/L
Color	Brown	Colorless	-	-
Odor	Hydrocarbons	Slightly Hydrocarbons	-	-



Raw sample, treatment, sludge and outlet.

