nyex™
An Arvia Solution

COD Polishing for Sinopec Jinling Petrochemical

Equipment Capacity/Flow Rate	Compounds of Concern	Influent Concentration	Treatment Targets	Unit Energy Consumption
60m³/h	COD	90 – 150 mg/L	reduce the COD by 15mg/L	tbc

Background

China Petroleum & Chemical Corporation (SinoPec) approached one of our EPC partners in China, Nanjing Balance about one of their subsidiaries, Jinling Petro. Jinling Petro is a petrochemical facility located in Nanjing City, China.

Jinling Petro needed to reduce their COD following their existing wastewater treatment plant. The target was to reduce COD by the relatively small amount required to meet the stricter China surface water COD requirement.

The Objective

Janling Petro had a flow rate of 60 m³/h and an influent concentration of 90 – 150 mg/L COD. The treatment target was to reduce the COD by 15mg/L so they could safely discharge the effluent.

The Solutions

Nyex Rosalox was chosen above Ozone AOP and Fentons

The engineering company Nanjing Balance compared our Nyex™ technology with Ozone AOP and Fentons in extensive studies.

The Nyex™ technology was chosen because of its advantages in OpEx costs and due to the fact that the technology generates no sludge to dispose of.

Working with Nanjing Balance, we proposed our Nyex Rosalox water treatment process along with a new BAF and high-density sedimentation tank, would be installed after their existing wastewater treatment plant.

The Solutions

Polishing Water Treatment Process

Construction of their new water treatment plant began.

We manufactured and delivered a 96-off-7-100 Nyex-a modular system to this full-scale project in Q2 2020. The commissioning was completed in Dec 2020.

Nyex Rosalox is a combination of adsorption and electrochemical oxidation. The contaminant is adsorbed onto our patented Nyex™ media and then a low electric current is passed through the media which oxidises the adsorbed chemicals.

During this process no solid by-products (sludge) are produced, which means there is greatly reduced OpEx due to lack of incineration.

In addition, the Nyex™ media is continually regenerated during operation, which means there is very high up-time. A 2% annual top up of Nyex™ media is all that is required.

The Results

Low OpEx and no sludge

One of the reasons why Janling Petro are pleased with the result because the OpEx is very favourable. Direct 380V AC power is being used to feed to our full-scale system. It takes 1.5 kwh/m^3 unit energy consumption to remove 15 mg/L of COD.

The other very important factor is that Nyex™ does not produce any sludge. Janling Petro are able to reduce their impact on the environment by using Nyex™ water treatment process.

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Get in touch to discuss your company's treatment challenges and arrange a treatability trial on your wastewater today.