

Water and Wastewater Projects Case Studies



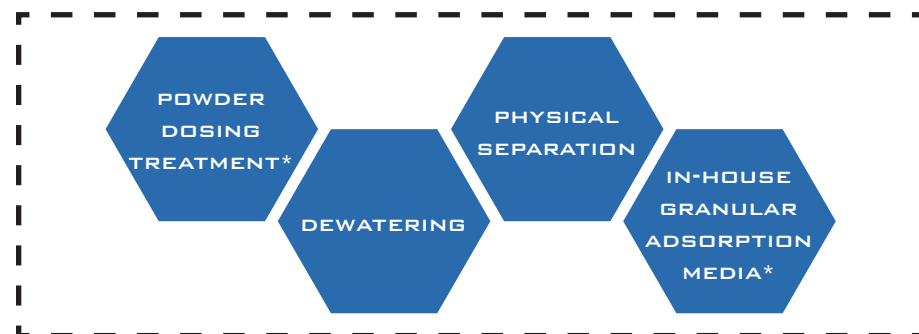
Off-Spec Wastewater Concentrate Treatment

- Capacity: 20m³/hr
- Gebeng, Pahang (2022)
- Treatment of high COD and TSS to comply to Environmental Quality (Industrial Effluent) Regulations Standard B



A modacrylic fibres producer in Kuantan was required to ensure that their discharge effluent complies to Malaysian Environmental Quality (Industrial Effluent) Regulations Standard B. The major concerns of the producer are the high value of COD (38,000ppm) and TSS value of 8,670ppm of the effluent as to comply Standard B limit of COD (200ppm) and also TSS (100ppm). For their existing practice to treat this effluent, a combustion unit was being utilized to incinerate any contaminants present in the water. However, the upset of their combustion unit resulted in the accumulation of effluent in the iso tank, which eventually occupied the premises.

Comprehensive system designed in a mobile treatment unit.



*ACM PMX 321, Winfloc 912, Winfloc 1001 and ACM CBGAC

Plug and play system which does not require any major adjustments to existing treatment plan in order to implement the mobile solution.

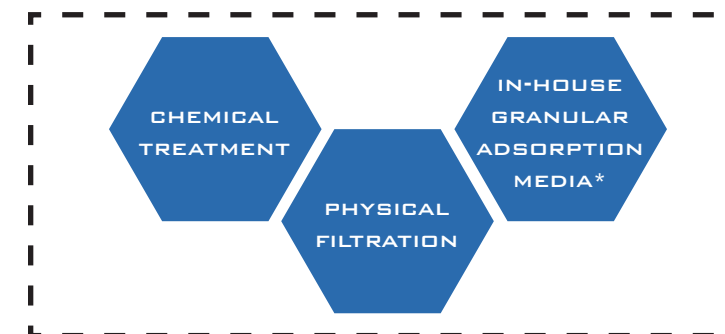
Well Water Treatment for Drinking Water

- Capacity: 10m³/hr
- Batu Bertangkep, Perlis (2022)
- Treatment of well water from existing abandoned tube well, up to Drinking Water Standard approved by KKM and WHO



Rural areas in Perlis, Malaysia, suffer from water scarcity, due to issues including irregular supply from low pressure of main water supply, and lack of access to clean, potable water. The project is estimated to benefit a total of five villages, impacting an estimation of 160 houses and 1,300 residents. The beneficiaries will gain access to potable water up to drinking standard, and clean water supply to their houses. The recovery and recycling of water would essentially solve a lot of water crisis issues that are ever-present in Malaysia, which typically results in insufficient drinking water supply, as well as daily utility uses.

Acme's R-TU designed in a 20ft container.



*ACM CBGAC and ACM OPC 200XZ

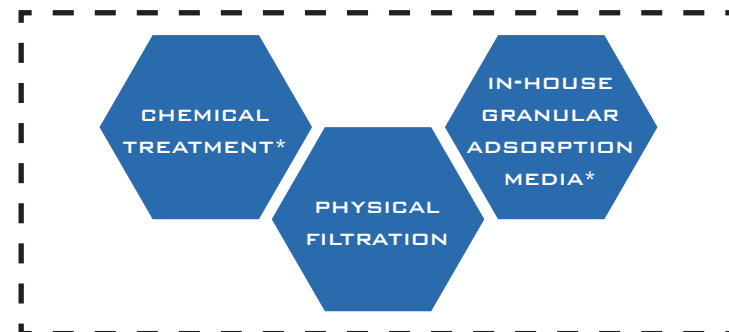
R-TU is designed in a compact container to address space limitation issue in the village, making mobilization and demobilization easy. The system was installed at a public area for ease of access to the population of rural areas, and utilises an abandoned tube well as groundwater supply, treated to Drinking Water Quality Standard.

Polishing for Bio-nutrient Removal (BNR)

- Capacity: 20MLD
- Philippines (2021)
- EPCC for the removal of nitrate, ammoniacal nitrogen and phosphate to meet Philippines DAO 2021-19 regulations



An upgrade to the existing plant system would be costly for any municipal sewage treatment plant, despite the plant's failure in treating their influent up to the effluent discharge standard. Due to the strict regulations imposed, a municipal sewage treatment plant in Manila, Philippines requires a quick and easy solution to polish their plant's treated effluent for bionutrient removal, in order to meet the Philippines Department of Environment and Natural Resources Administrative Order (DAO) standard. Their existing sewage treatment plant was regularly facing plant upsets, resulting in unusual inconsistency in parameters of bio-nutrients to be removed from their treated sewage, namely, ammoniacal nitrogen, nitrate and phosphate.



A simplified system was designed to fit in a small footprint on site. The proposed solution would firstly cater the total suspended solids carried over from the plant upsets, followed by a series of adsorption media for polishing of the bio-nutrients to be targeted.

*ACM COAG 400, ACM CBGAC, ACM OPC 200XZ and ACM OPC 200XZM

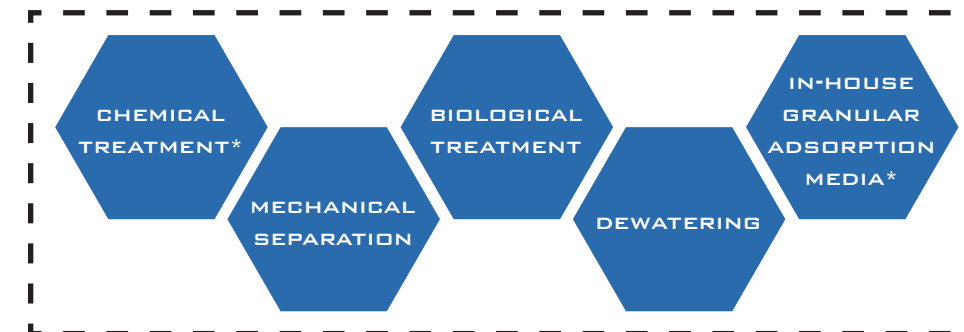
Wastewater Treatment Plant for Fish Processing Park

- Capacity: 10m3/hr
- Endau, Johor (2021)
- EPCC for the treatment of wastes from fish processing park to meet Fifth Schedule of the Environmental Quality (Industrial Effluent) Regulations 2009



From all expectation of wastewater contains, several stages of treatment involved to make sure all contaminant can be removed effectively before final discharge outlet, subjected to the Fifth Schedule of the Environmental Quality (Industrial Effluent) Regulations 2009 prior to potential discharge to the waterways.

Wastewater from fish processing can be high in dissolved and suspended organic material. This will result in high biological oxygen demand (BOD) and chemical oxygen demand (COD). Fat, oil and grease are also present in high amounts. Unpleasant odor will also be produced and may contain high



concentration of sodium chloride from unloading process from fish container, processing water and brine solution. The major types of waste found in fish processing wastewater are fish blood, fins, scales and fish gut materials.

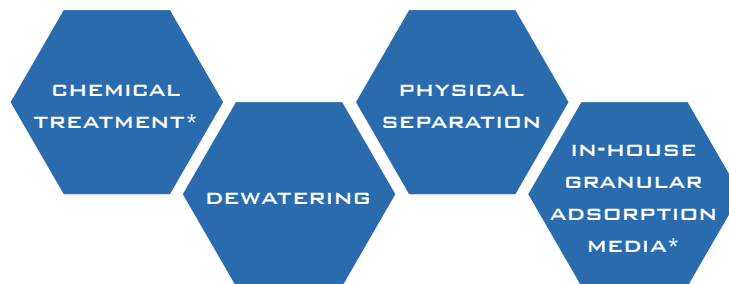
*ACM COAG 150A, ACM CBGAC and ACM OPC 200XZ

Compact Modular Unit (CMU) for Bio-MEG Wastewater Treatment

- Capacity: 5m³/hr
- Bangi, Selangor (2021)
- EPCC for Bio-MEG (from palm oil EFB) wastewater treatment to meet Environmental Quality Regulations Standard A



A research company in the extraction of Bio-MEG from Empty Fruit Bunch (EFB) requires a wastewater treatment system from their EFB process, as well as washing effluent. With the client being a research company, they require a small unit of treatment system with minimal capital expenditure. The system would also be required to cater to their space limitation on site. The proportion of wastewater is black liquor - EFB Filtrate (11.88%), general wastewater (50.33%), excess product (9.04%) and RO reject water (28.75%), where COD was recorded at 15,000 mg/L and pH at 11.28. Due to the absence of WWTP, the plant required a wastewater treatment system for the compliance of their effluent. The plant also required a unit to filter their black liquor from the pilot plant, to collect solids post-filter.



*ACM COAG 150A, Winfloc 154, ACM CBGAC and ACM OPC 250

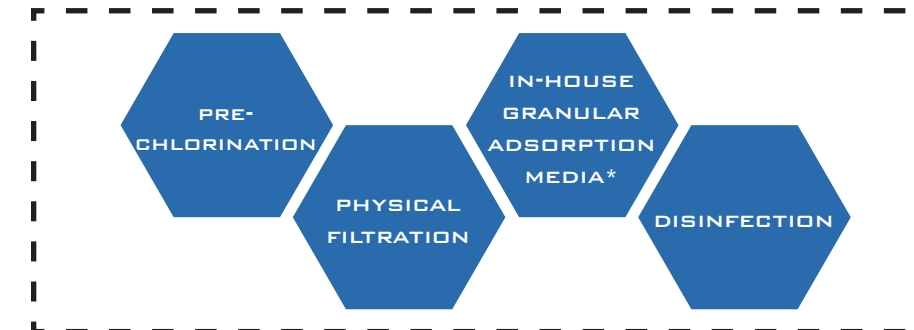
Acme's compact modular unit (CMU) was sent to treat the plant's wastewater, as well as Acme Dewatering Unit to recover lignin from black liquor. The lignin from the wastewater would need to be extracted to be commercialised.

Drinking Water Treatment Plant for Tubewell Water

- Capacity: 15m³/hr
- Kota Bharu, Kelantan (2020)
- Treatment of tubewell water up to Drinking Water Standard, as approved by KKM and WHO, for the supply and distribution of free packaged drinking water to communities during water shortage



Water supply disruption and water shortages are everpresent issues in the East Coast of Malaysia, becoming a problem for industries. Due to this increasing issue of water scarcity, a leading manufacturer of pharmaceutical products is looking into the treatment of wellwater to cater the issue of water source for utility purposes. The recovery and recycling of water would essentially solve a lot of water crisis issues in Malaysia, especially in the East Coast Peninsular. The recovery of water will allow for reduction of process cost, as well as eliminating the possibility of disruption in water use.



*ACM CBGAC, ACM OPC 200XZ and ACM OPC XZA

The treatment processes were presented in Acme's compact modular unit (CMU), filtering wellwater from dirt and iron contents to drinking water grade.



Tertiary Treatment for Bio-nutrient Removal (BNR)

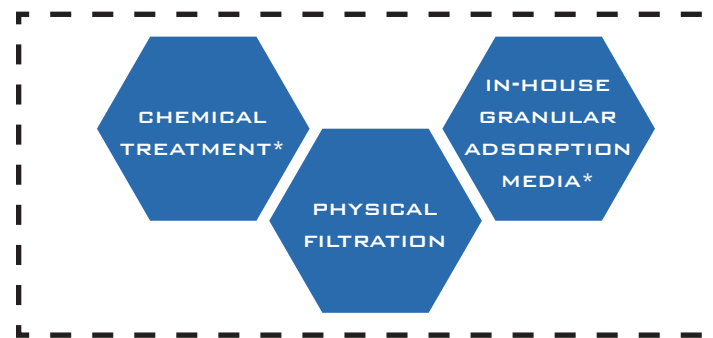
- Capacity: 180m3/hr
- Metro Manila, Philippines (2020)
- EPCC for BNR system for the removal of nitrate, ammoniacal nitrogen and phosphate to meet Philippines DAO 2018-06 regulations



A sole provider of water and wastewater services was facing effluent treatment compliance issues at multiple WWTPs when their effluent could not be treated by the existing plants to comply to the current Philippines Department of Environment and Natural Resources Administrative Order (DAO) standard. The company covered a range of areas from residential to commercial, industrial and semi-business. The residual bio-nutrients, namely, ammoniacal nitrogen, nitrate and phosphate in their treated sewage effluent were unusually high. Space constraint was another issue at the premises, prohibiting them from upgrading their WWTP system.

Modular skid to ease installation of the same system in multiple sites.

The system was built on site, featured in modular custom-designed skids, with the minimal footprint available at the premises, The modular design allows for short installation period due to the need for immediate discharge compliance.



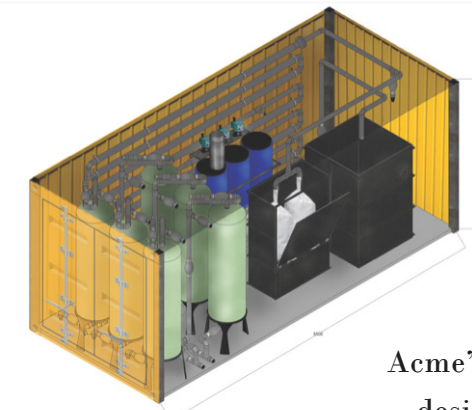
*ACM COAG 400, ACM CBGAC, ACM OPC 200XZ and ACM OPC 200XZM



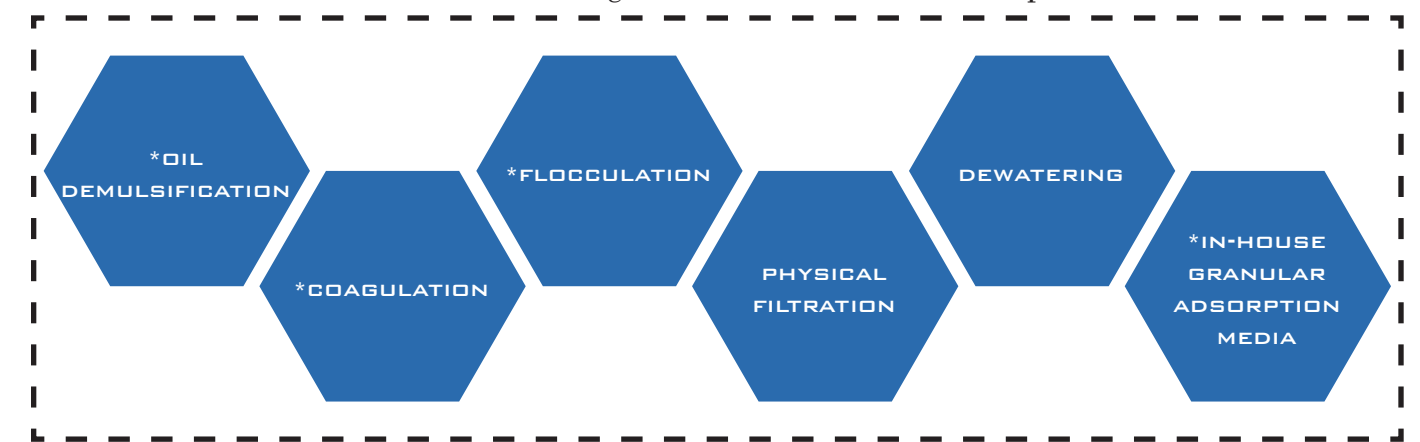
Edible Oil CPO Effluent Washing Pretreatment System

- Capacity: 5m3/hr
- Pulau Indah, Selangor (2019)
- Rental for treatment of edible oil CPO effluent washing pretreatment, which is high in COD loading, complying to Environmental Quality Regulations Standard B

An edible oil refinery failed to comply to their wastewater discharge limits. This is due to the high COD loading into their biological treatment system in their wastewater treatment plant. The refinery would need to comply to Malaysian Environmental Quality (Industrial Effluent) Regulations Standard B. The refinery would require a quick solution to remove specifically, miscible hydrocarbon, soluble surfactants and soluble COD.



Acme's portable compact modular unit (CMU) was sent, designed for ease of connection, operation and maintenance.



*Winfloc 815, Winfloc 200, ACM CBGAC and ACM OPC 200Z

ACME CHEMICALS MALAYSIA

©2024 Acme Chemicals (Malaysia) Sdn. Bhd.
All rights reserved

www.acmechem.com.my

Lot 606, Persiaran Raja Lumu, Pandamaran Industrial Estate,
42000 Port Klang, Selangor Darul Ehsan.

sales@acmechem.com.my

Tel: +603 3165 6088

Fax: +603 3165 6089

Disclaimer:

All information concerning these products and/or all suggestions for handling and use contained herein are offered in good faith and believed to be reliable. Acme Chemicals (Malaysia) Sdn. Bhd. and its affiliates, however, make no warranty as to the accuracy and/or sufficiency of such information and/or suggestions, as to the 'products' merchantability or fitness for any particular purpose, or that any suggested use will not infringe any patent. Nothing contained herein shall be construed as granting or extending any license under any patent. The buyer must determine for themselves, by preliminary tests or otherwise, the suitability of these products for their purposes. The information contained herein supersedes all previously issued bulletins on the subject matter covered. The user may forward, distribute and/or photocopy this document only if unaltered and complete, including all its headers and footers, and should refrain from any unauthorized use. You may not copy this document to a website.