

CASE HISTORY

SEMICONDUCTOR
SOLAR
PHARMA
POWER GENERATION
FOOD & BEVERAGE
PULP AND PAPER
CHEMICAL
OIL AND GAS
MINING
AEROSPACE AND TRANSPORT



Sunpower, SE Asia

Wastewater Treatment Plant Supply & Operation



Sunpower in South East Asia manufactures photovoltaic panels. H+E designed & supplied Wastewater Treatment Plants for their factories in Malaysia & the Philippines & operates the plants for them



Ammonia Removal System



Fluoride Removal System

Site: Fab 3A, Malaysia

Plant type: Fluoride and ammonia removal from wastewater

Flow rate: Two waste water streams from the etching process, one containing fluoride & ammonia (27 - 30 m³/h) & one containing ammonia (30 m³/d)

Installed by H+E: 2011

Operation by H+E: since 2011

Operators: 12

Contract scope: Full operation and maintance 24/7

Plant Highlights: Energy used by the ammonia stripper blowers was reduced substantially by installing frequency innverters, thereby achieving quarterly savings of approx. \$7,000 since Dec '16 & approx. \$14,000 since Oct '17.

Precipitation of fluoride with CaCl₂ was optimised starting in Q3 2017, achieving quarterly savings of at least \$10,000 due to lower chemical consumption / less sludge production. It is estimated that savings in Q1 2018 will amount to at least \$32,000.





Client: Fab 4, Philippines

Plant type: Physical-chemical WWTP

Flow rate: Several waste water streams from production processes, including a stream with very high copper concentration (19 m³/d, treated by precipitation), a stream with lower copper concentration (90 m³/h, also treated by precipitation) and a stream with high organic contamination (54 m³/d, treated by precipitation + filtration). These streams are mixed after treatment and then sent together with other, relatively clean streams to a common final pH adjustment with a capacity of 340 m³/h.

Installed by H+E: 2015

Operation by H+E: since 2016

Operators: 28

Contract scope: Full operation and maintenance 24/7

Plant Highlights Implemented mixed treatment for high copper and high organic streams that saved approx. \$13,000 per quarter in H₂SO₄ consumption.



H+E ranks among the world's leading suppliers in the fields of: water & wastewater treatment, and energy efficiency. Based on its global presence, the **H+E GROUP** has completed projects in over 50 countries.



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