



## Cathode Ray Tube Manufacturer, THAILAND

### THE CHALLENGE

The plant has a waste stream that contains chromium (VI), chromium (III), fluoride, high COD, and very high level of dissolved solids. The dissolved solids content in the wastewater makes the treatment process difficult as it requires a great amount of treatment chemicals in order to remove the various contaminants. Lime was used in large amount to precipitate the metals and a lot of polymer was also used to enhance flocculation and settlement. Sodium metabisulfite was used to reduce chromium (VI) to Chromium (III) prior to treatment. Large volume of slimy sludge was generated and was difficult to dewater. The treatment demanded continuous adjustments of polymer dose to minimize solids carry over in the effluent and frequent cleaning of clogged filters.

### THE SOLUTION

Several performance tests conducted with AQUASIL® AMX-5G proved that the treatment works well without the need for both neutralization and flocculent. Analytical data in the TABLE below show the results for raw and treated water. The new treatment has eliminated the use of lime and flocculent. Although TDS in raw water does not exceed the discharge limit, AQUASIL® was able to reduce the level by about 68%, thus improving the quality of the effluent. Hexavalent chrome was removed without a reduction step along with fluoride in a single step using a single product; it is a testament to the high capacity of AQUASIL® for removal of the various contaminants.

Parameter	Discharge Limits (mg/L)	Before (mg/L)	After (mg/L)
BOD	60	12.4	< 5
COD	400	234.0	< 5
Total Dissolved Solids	5000	3923.0	1250.0
Total Suspended Solids	150	62.1	5.8
Chromium (VI)	0.25	24.90	ND
Chromium (III)	0.75	5.69	< 0.05
Aluminum	NA	11.10	< 0.50
Copper	2.0	0.17	< 0.02
Fluoride	5.0	16.50	2.35
Iron	NA	1.70	< 0.05
Lead	0.2	0.22	< 0.10
Nickel	1.0	0.43	< 0.02
Zinc	5.0	2.80	< 0.01
pH	5.5 – 9.0	5.9	8.9

The AQUASIL® treatment has simplified the wastewater treatment process. The process generates small volume of sludge that is easy to dewater. Furthermore, AQUASIL® treatment reduces labor, energy, and maintenance costs.

Great Chemistry At Work™

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