



# APEX™ Technology Improves Paint Detackification Performance and Delivers Major Cost Reduction for Global Automotive Manufacturer in Thailand



CASE STUDY - MANUFACTURING  
CH-1258AP



## BACKGROUND

The paint shop of a major American automobile assembly facility located in Thailand was faced with the dual challenge of reducing their Total Cost of Operations (TCO) and environmental care while improving overall process sustainability to meet their corporate sustainability goals.

The customer's process used solvent-borne paint in base coat, clear coat and primer coat. A melamine formaldehyde detackification program was being utilized on the conventional flotation units for paint solids removal. The company's sustainability commitments focused on environmental management at its many production sites, including control of energy consumption, related VOC emissions, waste generation, and use of low hazardous ingredient chemical and innovative green technologies to improve overall sustainability performance at this facility. Specifically, the company intended to eliminate the use of formaldehyde in the paint booth.

## PROGRAM DESIGN

Nalco Water proposed a solution for the best overall control of system operations, to monitor and improve the system of the paint detackifier, and optimize chemical and water use and keeping it to a minimum.

The APEX technology program implementation featured an advanced patent-pending detackifier composed of a reacted blend of over 40 percent naturally occurring cationic plant based material combined with inorganic polymeric materials.

The APEX program contained no hazardous ingredients and was completely formaldehyde free. APEX technology provided this customer with superior operational performance, improved environmental benefits, and reduced TCO when compared to conventional programs.

The APEX technology program was implemented on the primer/clear coat and base coat (two lines of system tank) after cleaning the chemical feeding line. Water quality monitoring was

### CUSTOMER IMPACT

Sludge volume reduction of 74,000 kg per year



### ECONOMIC RESULTS



\$10,000 savings for sludge disposal per year

*eROI is our exponential value: the combined outcomes of improved performance, operational efficiency and sustainable impact delivered through our services and programs.*

conducted as pH, turbidity in every two hours. The sludge condition after using the APEX technology program had a good improvement with non-sticky, very good dryness and higher thickness solid. Water quality was also maintained in good performance level.

### PROGRAM RESULTS

The actions and steps Nalco Water took in implementing APEX Technology ensured significant results, including the following:

- Solid content in sludge increased from 33 to 50 percent, a 51 percent improvement, resulting in less sludge volume of 72,000 kg per year.
- Significant reduction of cost and volume of paint sludge management
  - Decreased sludge volume from 15,000 kg/month to 9,000 kg/month
  - Decreased cost of sludge disposal approximately \$10,000/ year
- Increased operation time by decreasing the frequency of cleaning booth, saving the cost for waste water treatment and maintenance.
- Decreased chemical consumption with high concentration program and provided less on-site chemical handling by 31-73%.

- Met the customer’s requirement for more environmentally - friendly Green Technology.
- Reduced indirect emissions of CO<sub>2</sub> from sludge incineration and transportation.
- Maintained the clean water clarity with turbidity < 30 NTU. Ultimately, it provided the clean under booth and less cleaning frequency.

### CONCLUSION

In summary, the APEX technology and service best practices help this customer achieving following Key Performance Indicators (KPIs):

- Improved paint detackification performance
- Minimized Total Cost of Operation (TCO)
- Improved sustainability performance



Figure 1 - Sludge dry and thickness solid.

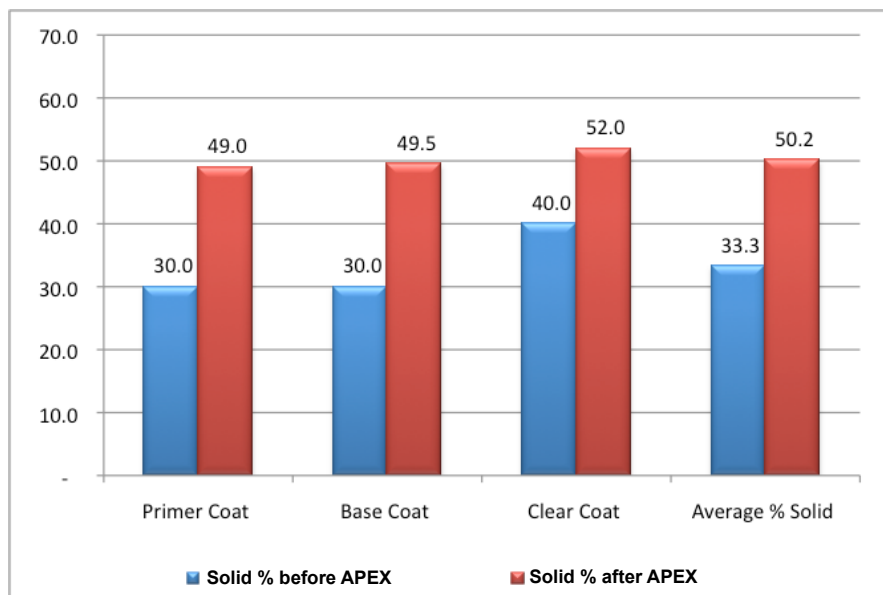


Figure 2 - Percentage of Solid in Sludge before and after using APEX

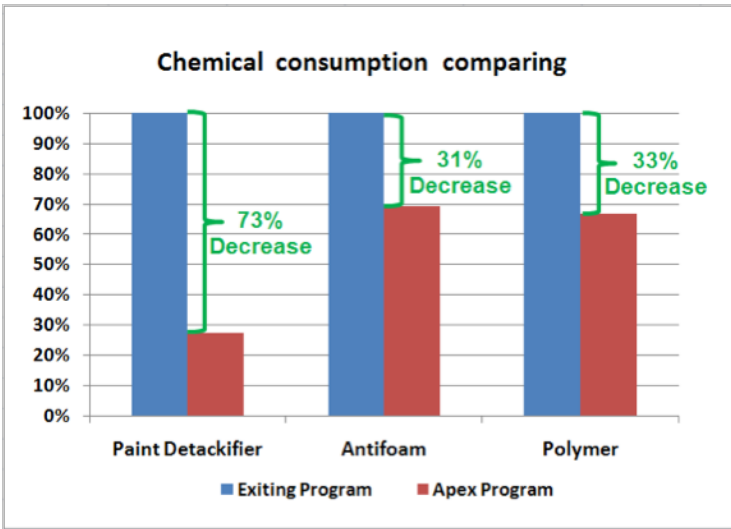


Figure 3 - Chemical consumption reduction by APEX technology.

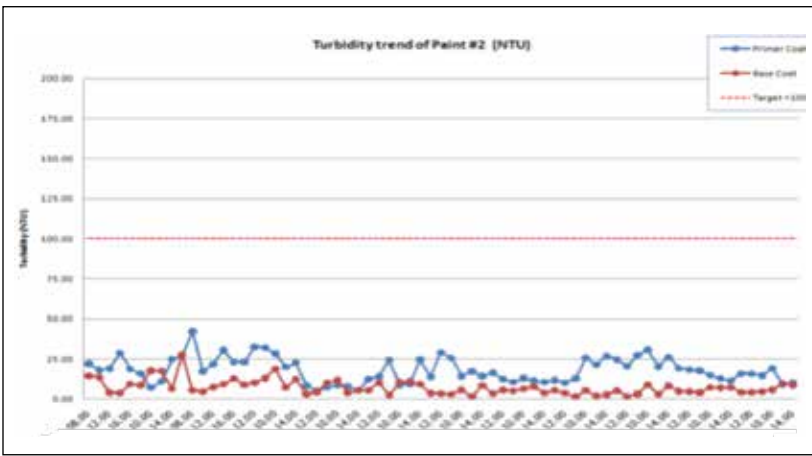


Figure 4 - Water Turbidity Trend

**NALCO Water, an Ecolab Company**

**North America:** 1601 West Diehl Road • Naperville, Illinois 60563 • USA

**Europe:** Richtstrasse 7 • 8304 Wallisellen • Switzerland

**Asia Pacific:** 2 International Business Park • #02-20 The Strategy Tower 2 • Singapore 609930

**Latin America:** Av. das Nações Unidas 17.891 • 6° andar • São Paulo • SP • Brazil • CEP 04795-100

[nalco.ecolab.com](http://nalco.ecolab.com)

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