

**CASE STUDY**

CipherLab Customer Spotlight: Formosa Plastics Group

**Formosa Plastics Group maximizes refinery efficiency with CipherLab 9500 Series****Profile**

Founded in 1954, Formosa Plastics Group has grown to be the largest enterprise in Taiwan with US\$16 billion in capital and US\$76 billion in assets. With over 40 years of development and expansion, the Group now operates and manages multiple organizations in Taiwan, the United States, China, and Indonesia. A fully diversified, multi-national company, it is also invested in several large educational and medical organizations.

The Formosa Petrochemical Corporation refines 21 million tons of oil each year into products including gasoline, jet fuel, and a multitude of other chemicals. That's 450,000 barrels each day. A highly complex and involved refinery operation runs 24 hours a day, with three shifts of engineers operating and



maintaining over 2,000 pieces of equipment and machinery across the plant. Running at optimal efficiency requires careful management and coordination of engineers' workloads and strict attention to equipment running to exact specifications.

**Challenges in the human element**

Maintenance managers schedule and dispatch engineers to check machinery condition, record operating parameters, and report status to the control center. This entire operation was a manual process. Tracking the details of each piece of equipment, completing analysis of the machinery operating efficiency, and responding to the need for service was both time consuming and prone to human error. Paper-based data gathering was inefficient, affecting engineer productivity. Plus, managers could not easily tell where engineers were or what equipment they worked with.

**Challenges in the chemical element**

Grease and oil are integral to the petrochemical refining environment. These components attract dirt. Standard bar codes attached to machinery would require constant cleaning and bar code materials do not stand up to harsh cleaning chemicals. RFID tags do not require cleaning. Plus the embedded data cannot be copied, yet can be encrypted, enhancing security. Formosa Petrochemical decided to identify each piece of equipment with an RFID tag and maintain an equipment record based on the ID. The records contained the results of an engineer's visit, maintenance and repair activity, and other information critical to the continuous, optimal operation of the machinery. Custom software was developed on Microsoft's .NET® environment.

## Deployment

The company deployed CipherLab 9500 industrial mobile computers with the Windows® CE operating system and RFID readers. They chose the 9500 for its ruggedness in the harsh environment, and compatibility with their Windows-based software.

Managers now dispatch each engineer with a 9500 running Formosa Petrochemical's inspection standard operating procedure (SOP). As engineers check equipment, they read the RFID tag with the 9500. The SOP software records the machinery tag ID and lists each inspection step on the 9500 color display. The engineers record the operating parameters into the 9500 without missing or rearranging any critical inspection step. The software instantly compiles an e-report for managers as the field data is uploaded. Managers now can identify equipment status and progress of engineers during each service and maintenance schedule. Managers and engineers can instantly respond to anomalies in operating status, maximizing plant efficiency and avoiding costly down time.



## About CipherLab

CipherLab is a global leader in the design, manufacture and marketing of automatic identification and data capture/collection products and systems. The company's mobile computers and scanners are integrated into the networks of some of the world's best known logistics, retail, distribution, government installations and healthcare companies, helping them run more efficiently and effectively onsite and on the road. Headquartered in Taipei, Taiwan with offices in the USA, UK, China and Germany and operations worldwide, CipherLab is publicly traded on the Taiwan stock exchange (Taiwan OTC: 6160). For more information, please visit <http://www.cipherlab.com>