



Pipeline Pigs

Deposits collecting in oil & gas pipelines cause coking. To address this issue, a local company *Mun Siong Engineering Pte Ltd* turned to EWTCOI. Our researchers designed and developed the formulations and manufacturing processes for producing decoking devices known as 'foam pigs' and 'pin pigs'. 'Pin pigs' are used for the actual decoking while 'foam pigs' determine the extent of the coking as well as the size of the 'pin pigs' needed. 'Pin pigs' swivel when propelled into the pipeline at high water pressure and the studs attached to the surfaces of 'pin pigs' create an abrasive force that removes the deposits from the pipelines. These innovative cleaning devices have been field tested and are now being produced in Singapore.

EWTCOI can help you break through to new possibilities.

Key Features & Benefits

- Cheaper than imported 'pigs'
- Higher productivity as local 'pigs' can be designed to suit immediate needs
- Better management of quality of local 'pigs'
- Adds value with new capabilities in maintenance services
- Enable new revenue stream

Applications

- Pipeline maintenance in oil & gas, petrochemical, refinery and power plant industries

Foam Pigs



Pin Pigs after test



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Mun Siong Engineering used to import devices known as pipeline pigs to clean its customers' pipeline systems and furnace tubes for plant and equipment maintenance.

The pipeline pigs are cleaning devices that are pushed through pipeline systems at very high water pressures to remove deposits in a process called mechanical decoking.

The "foam pig" determines the extent of coking necessary while the "pin pig" has a surface with studs to remove the deposits or "coke" in the pipelines.

Importing these devices was costly, so the company partnered EWTCO to develop the pipeline pigs and manufacture them locally.

The team carried out tests to deduce the optimal formulations that determine the durability, hardness and strength of the pipeline pigs.

They also looked into the production processes to ensure that the prototypes perform on par with the imported versions.

The project took 18 months to complete. The prototypes were subjected to rigorous laboratory and on-site testing at Mun Siong Engineering, a construction and maintenance service provider to the oil and petroleum industries in Singapore, Malaysia and Indonesia since 1985.



The locally developed and manufactured foam pig (top) and pin pig cleaning devices (bottom) are efficient and save costs for Mun Siong Engineering.

Partnering technology experts pays off

Mun Siong Engineering: Lower costs, more efficient service

"If the pig is too hard, it will damage the walls of the tube and it is costly if it is not able to clean the pipe in the tubes."

"We expect good support from EWTCO who worked on the applications to finally achieve the desired outcome," says Mr. Chong Wei Fen, executive chairman of Mun Siong Engineering.

"It was a very good test that both prototypes achieved good results in terms of decoking. Overall, the performance of the imported and locally developed versions was similar, but the locally developed version was more cost-effective," says Mr. Chong.

Mun Siong is now using the locally developed pigs.

"The company has achieved the know-how in the production of the pig's design and no longer relies on overseas suppliers. We have reaped cost savings, a shorter lead time and a faster shipment delivery when an urgent order is called for by clients," he says — Leo Kuan Lee

Decoking of pipelines by pin pigs

