HPA (S) Pte Ltd continues to impress in the Oil & Petrochemical Industry with its valuable knowledge & experience in catalyst handling, specialising in Confined Space & Inert Entry, vacuum unloading of pyrophoric material & Catalyst Dense loading.

Our Technicians having worked all over the globe accumulating knowledge of different design reactors & Refinery Safety permit systems. Safely completing major Turnarounds ahead of schedule, on Hydrocrackers, CCR, HDS and Ammonia Convertors to name a few of the more specialised units.

HPA (S) Pte Ltd offers a Catalyst Dense Loading method called Hydropac loading. Designed by Chevron & modified by HPA, Hydropac technology allows the sprinkling of catalyst in a continually uniform pattern at a rate slow enough to let each particle settle, but fast enough for acceptable loading time.

There are several dense loading technologies on the market but few, if any, that can match the Hydropac in design.

Using the right catalyst dense loading method is critical to the run and life of a catalyst bed.

Included in the Specialised service is the supply of BA equipment, video inspection, gas testing, QAQC reporting, lab test.

HPA
HYDROPROCESSING ASSOCIATES

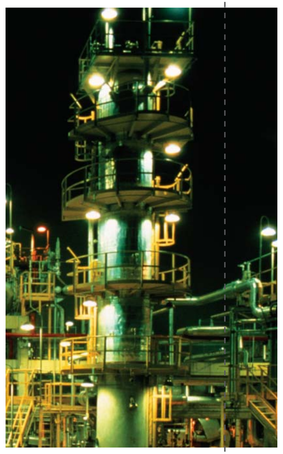
For more information, please contact:
Peter Thew, Managing Director
10 Chia Ping Rd Singapore 619978
Mobile +65 9787 9922
Office +65 6268 9270
Fax +65 6268 5352
Email peter@hpa.sg
Website www.hpa.sg

HYDROPROCESSING ASSOCIATES LLC
Suite A, The Brewt-Lee Building
12761 Highway 90, Grand Bay
Alabama 36541, USA

HPA
HYDROPROCESSING ASSOCIATES

CATALYST DENSE LOADING

THE RIGHT WAY



WHY HYDROPAC?

Hydropac Dense Loading Technology was designed and proven by Chevron and modified by HPA to load faster and give a "finer tuning" to the bed profile.

With Hydropac, even catalysts with a high angle of repose, such as spherical and extrudate catalysts, will pack uniformly into its optimal density while loading a cylindrical bed or vessel.

This is achieved by simultaneously flowing catalyst into multiple concentric rings over the full circular area of the catalyst bed. Radial partitions of the discs are designed to give an even amount of catalyst (proportional to the speed of rotation) to the area of the cross sectional bed. The position of the loader in relation to the trays (6" below the bottom tray) allows the bed to be dense loaded to its maximum potential.

A computer program is employed to estimate loading parameters and times. Furthermore, Hydropac does not create excessive dust and does not cause attrition to the catalyst.

ADVANTAGES OF HYDROPAC LOADING

- Tighter and more uniform catalyst packing, resulting in better reactant flow distribution in the trickle flow regime as used in Hydro-processing.
- Catalyst beds do not sag/change flow patterns during the course of a run.
- More catalyst is loaded into each bed because of the higher loading density, resulting in longer runs.
- Direction of rotation is reversible, which is important for loading around Transfer Tubes to avoid shadowing.
- Can load the catalyst bed higher due to its unique design, positioned 6" below the Distributor Tray.
- The unique design allows the bed profile to be viewed continuously from the trays manway (no whips obstructing the drop-lights when lowered to inspect the bed profile during loading).
- Has no centre shaft obstruction to the centre of the bed when loading, critical to achieve maximum uniformity of the catalyst particles, to lay horizontal across the entire bed as the catalyst is loaded.

HYDROPAC VS. COMPETITORS

	Hydropac	Competitor D	Competitor U
Rotating	✓	✓	✗
Can load without excess dust	✓	✓	✗
Bed profile can be viewed from Tray man-ways continuously while loading	✓	✗	✗
Can load around Transfer Tubes	✓	✓	✗
Can load without obstruction to centre of catalyst bed	✓	✗	✗
Can load to maximum height beneath the Distributor Tray	✓	✗	✗

WHY HPA (S) PTE LTD?

HPA has a long history in Catalyst Handling and Dense Loading Technology, having worked closely with ChevronTexaco in various locations around the globe, including America, Argentina and Asia. Having worked on catalyst change-outs and, in particular, Dense Loading of their catalysts for their reactor designs, we thoroughly understand Chevron's strict requirements in catalyst loading.

HPA (S) Pte Ltd was originally a Singapore based company known as VAC-TECH Engineering Pte Ltd, established in 1995 to provide Reactor and Environmental industrial services.

HPA has focused a division on catalyst dense loading bringing a much required alternative to the Oil & Petrochemical Industry.

Our experienced supervisors and specialists undergo rigorous and on-going training to keep updated on specialized knowledge. Working closely as a team, our dedicated professionals have achieved industry-leading turnaround times while maintaining an excellent Safety Record. The result is improved bottom-line results for our clients.

SELECTED REPRESENTATION OF SATISFIED CLIENTELE

The following is a sample listing of our satisfied clients. Please contact us if you would like to receive a comprehensive list of our past projects.

Malaysia
- Petronas
- Ethylene Malaysia
- Titan
- Shell
- Indimitsu
- Petronas Fertiliser
- FCM (Penang)

Philippines
- Petron
- Shell
- Chevron

Singapore
- Shell (Bukom)
- Exxon Mobil
- Lynde
- PCS
- Celanese
- Singapore Refining Company

USA
- Valero
- Premcor
- Chevron

Taiwan
- Formosa
- CPC

South Africa
- Sasol
- Engens

India
- MRPL
- BPCL

Argentina
- Repsol

Indonesia
- Pertamina
- KPA
- KMI
- Pusri