

# 2005 Worldwide Refining Survey

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Survey Editor

All figures are  
as of January 1, 2006

All figures in barrels per calendar day (b/cd)

## LEGEND

Numbers identify processes in table

### Coking

1. Fluid coking
2. Delayed coking
3. Other

### Thermal process

1. Thermal cracking
2. Visbreaking

### Catalytic cracking

1. Fluid
2. Other

### Catalytic reforming

1. Semiregenerative
2. Cyclic
3. Continuous regen.
4. Other

### Catalytic hydrocracking

1. Distillate upgrading
2. Residual upgrading
3. Lube oil manufacturing
4. Other
- c. Conventional (high pressure) hydrocracking: (>100 barg or 1,450 psig)
- m. Mild to moderate hydrocracking (<100 barg or 1,450 psig)

### Catalytic hydrotreating

1. Pretreatment of cat reformer feeds
2. Other naphtha desulfurization
3. Naphtha aromatics saturation
4. Kerosine/jet desulfurization
5. Diesel desulfurization
6. Distillate aromatics saturation
7. Other distillates
8. Pretreatment of cat cracker feeds
9. Other heavy gas oil hydrotreating
10. Resid hydrotreating
11. Lube oil polishing
12. Post hydrotreating of FCC naphtha
13. Other

### Alkylation

1. Sulfuric acid
2. Hydrofluoric acid

### Polymerization/Dimerization

1. Polymerization
2. Dimerization

### Aromatics

1. BTX
2. Hydrodealkylation
3. Cyclohexane
4. Cumene

### Isomerization

1. C<sub>4</sub> feed
2. C<sub>5</sub> feed
3. C<sub>5</sub> and C<sub>6</sub> feed

### Oxygenates

1. MTBE
2. ETBE
3. TAME
4. Other

### Hydrogen

- Production:
1. Steam methane reforming
  2. Steam naphtha reforming
  3. Partial oxidation
- Recovery:
- a. Third-party plant
  4. Pressure swing adsorption
  5. Cryogenic
  6. Membrane
  7. Other

## NOTES

A Formerly listed as Premcor Inc.

B Formerly listed as Crown Central Petroleum Corp.

C Formerly listed as Shell, Godorf, and DEA, Wesseling.  
Now combined.

D Formerly listed as Fortum Oil Oy.

E Formerly listed as Petrochemia.

F Formerly listed as Gary-Williams Energy Corp.

G Formerly listed as Shell Oil Products US.

H Formerly listed as DEA Mineraloel AG.

### Capacity definitions:

Capacity expressed in barrels per calendar day (b/cd) is the maximum number of barrels of input that can be processed during a 24-hour period, after making allowances for the following: (a) Types and grades of inputs to be processed, (b) Types and grades of products to be manufactured, (c) Environmental constraints associated with refinery operations, (d) Scheduled downtime such as mechanical problems, repairs, and slowdown. Capacity expressed in barrels per stream day (b/sd) is the amount a unit can process when running at full capacity under optimal feedstock and product slate conditions. An asterisk (\*) beside a refinery location indicates that the number has been converted from b/sd to b/cd using the conversion factor 0.95 for crude and vacuum distillation units and 0.9 for all downstream cracking and conversion units.

### Hydrogen:

Hydrogen volumes presented here represent either generation or upgrading to 90+% purity.

### Catalytic reforming:

1. Semiregenerative reforming is characterized by shutdown of the reforming unit at specified intervals, or at the operators's convenience, for in situ catalyst regeneration.
2. Cyclic regeneration reforming is characterized by continuous or continual regeneration of catalyst in situ in any one of several reactors that can be isolated from and returned to the reforming operation. This is accomplished without changing feed rate or octane.
3. Continuous regeneration reforming is characterized by the continuous addition of this regenerated catalyst to the reactor.
4. "Other" includes nonregenerative reforming (catalyst is replaced by fresh catalyst) and moving-bed catalyst systems.

## REFINERY REMOVALS

Name	Location	Country	Crude b/cd	Reason
Arabian Oil Co. Ltd. Coastal Refining & Marketing Inc.	Ras Al Khafji	Saudi Arabia	30,000	Shutdown.
Galana Raffinerie Terminal	Corpus Christi, Tex.		US	100,000 Combined with Valero refinery.
Inland Oil Refiners (Qld.) Pty. Ltd.	Toamasina	Madagascar	15,000	Shutdown for 2005 and 2006.
Parkland Refining Ltd.	Eromanga	Australia	1,425	Shutdown.
Toho Oil Co. Ltd.	Bowden	Alta., Canada	6,000	Shutdown in 2001.
Tripli Oil Installation	Owase	Japan	35,000	Shut down in April 2004.
Zahrani Oil Installation	Tripolishut	Lebanon	20,000	Shutdown.
	Sidon	Lebanon	17,500	Shutdown.