

## THE PLAYERS

Four companies produce propylene glycol in the US, but Dow and Arco account for slightly more than 82% of domestic production.

Eastman altered the business in 1991 by acquiring the polymer polyols technology and a 100-million-lb/yr propylene glycol plant at S. Charleston, WV, Arco had earlier obtained from Union Carbide.

Due to antitrust objections, Federal Trade Commission required Arco to divest the propylene glycol facility in order to keep other assets acquired from Carbide in their deal.

Texaco Chemical is moving forward with plant to convert 140 million to 150 million lbs. of ethylene glycol capacity at it Port Neches, TX, plant to propylene glycol by 1995.

Capacities at some supplier locations can be supplemented by converting equipment usually used for producing ethylene glycol to make propylene glycol.

## THE BUSINESS

US production of propylene glycol mounted to 745 million lbs. last year, essentially flat with 1990, due to a recession linked downturn in demand for unsaturated polyester, resins Plant operating rates are now at about 82%.

Domestically, demand has been strong in food, functional fluids and pharmaceutical applications. Approximately 600 million lbs. of propylene glycol were consumed in the US. in 1991.

Exports, however, tumbled more than 30% to 143 million lbs. Prices in Europe were volatile last year due to changing economic conditions and operating problems worldwide.

US production is expected to approach the 750 million-lb. mark again this year, and reach 885 million lbs. by 1996.

## The Pricing

Sluggish demand and easing foodstock costs put downward pressure on propylene glycol prices in 1991. The average US contract declined from a peak of 52.7¢/lb. in the first quarter to a low of 46¢ in the fourth.

# CHEMSCOPE

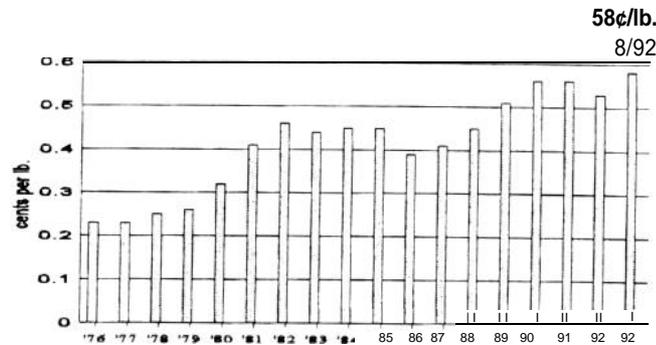
## PROPYLENE GLYCOL (CH<sub>3</sub>HOHCH<sub>2</sub>OH)

**DERIVATION: Propylene glycol is a clear, odorless water-retaining liquid produced by the hydration of propylene oxide.**

### WHO MAKES PROPYLENE GLYCOL

Producer	Capacity*
Arco Chemical, Bayport, TX . . . . .	390
Dow Chemical, Freeport, TX; Plaquemine, LA . . . . .	400
Olin, Brandenburg, KY . . . . .	70
Eastman Chemical, S. Charlston, WV . . . . .	100
<b>Total</b> . . . . .	<b>960</b>

### WHAT PROPYLENE GLYCOL COSTS\*



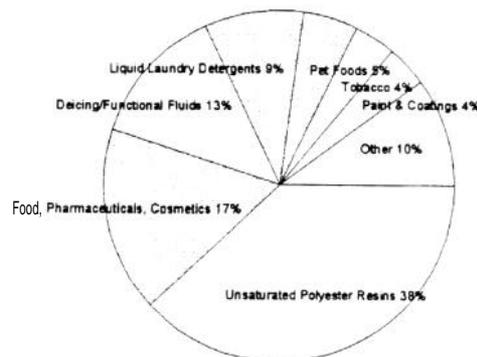
\*Per lb., industrial grade, tanks, Gulf Coast, in January 1976-92 and in August 92

### PROPYLENE GLYCOL PRODUCTION

* 1992: 750 million lbs.	1986: 600 million lbs.
1991: 745 million lbs.	1985: 538 million lbs.
1990: 754 million lbs.	1984: 487 million lbs.
1989: 810 million lbs.	1983: 484 million lbs.
1988: 890 million lbs.	1982: 403 million lbs.
1987: 770 million lbs.	1981: 473 million lbs.

. Projected

### PROPYLENE GLYCOL MARKETS



This year, selling prices have begun to recover in line with a modest uptick in demand. Contracts moved from an average of 47.5¢/lb. in January to about 53¢ early in the third quarter.

However, a loose market and a typical tapering off in fourth quarter demand make it unlikely the industry will be able to push through another price hike anytime soon. Contracts are expected to average 50¢/lb. at year end.

## The Marketplace

About 38% of domestic propylene glycol is used in the formulation of unsaturated polyester resins, which are used in construction, transportation marine and consumer products.

Demand softened in late 1990, but consumption showed signs of recovery in the first half of 1992.

USP-grade propylene glycol used in food, pharmaceuticals, cosmetics and personal care products accounts for another 17% of demand. USP-grade material is also used by the cigarette industry as a tobacco humectant.

Specialty antifreezes, aircraft deicing fluids and other functional fluids such as lubricants and inks account for an estimated 13% of US consumption.

Propylene glycol use as a co-dispensing aid with ethanol in liquid sundry detergents now accounts for about 9 percent of the total market.

Feed-grade or USP-grade propylene glycol consumed in the manufacture of pet foods accounts for 5% of domestic use. Another 4% is used by paint formulators in interior water based latex paints.

## Outlook

Future growth in overall demand for propylene glycol is pegged at 3-4%/yr. through the mid-1990s. Demand has been growing in deicing fluids and coolants.

A shift away from ethylene glycol-based products to low toxicity propylene glycol could boost demand significantly in these outlets.

Consumption as a solvent in paints and coatings could jump 6-7%/yr. through 1995 for the same reason.