

BRIEFING PAPER ON ETHYLENE GLYCOL

PRODUCTION AND USES OF ETHYLENE GLYCOL

The statistics cited below came from the following sources: Bureau of the Census, US International Trade Commission, Chemical Marketing Reporter, Chemical Week, Mannsville Chemical Products, SRI International and American Chemistry Council analysis.

Ethylene glycol is an organic chemical that is a basic building block of other chemicals used to make consumer and industrial products. These products result in a wide variety of goods and services that are valued by consumers.

Ethylene glycol is largely produced by the oxidation of ethylene followed by direct hydration. Ethylene glycol can also be produced via acetoxylation and coal gasification processes.

In 1998, on a volume basis, ethylene glycol was the 29th largest volume chemical produced in the United States. In that same year, some 5.77 billion pounds—valued at \$1.27 billion—were produced in the US. In early 1999, total capacity to produce ethylene glycol was 7.6 billion pounds. Ethylene glycol producers in the United States include BASF Corporation, Hoechst Celanese, The Dow Chemical Company, Eastman Chemical Company, Equistar Chemicals, Formosa Plastics, Huntsman Corporation, PD Glycol, Shell Chemical Company and Union Carbide Corporation.

The producers of ethylene glycol operate eleven plants in the United States. Employment at these plants is estimated at 1,500 workers, who have high-tech jobs paying weekly wages 60% above the average for manufacturing and 108% above the average for all private-sector, non-farm workers.

US ETHYLENE GLYCOL STATISTICS, 1993-1998

(in billions of pounds unless otherwise noted)

Item/Year	1993	1994	1995	1996	1997	1998
Capacity	6.47	6.31	6.95	7.38	7.45	7.45
Capacity Utilization (%)	81%	88%	80%	76%	80%	77%
Production	5.23	5.55	5.54	5.60	5.99	5.77
Exports	1.00	0.93	1.08	1.26	1.97	1.30
Imports	0.38	0.53	0.52	0.75	0.39	0.57
Apparent Consumption	4.61	5.15	4.98	5.09	4.41	5.04
Polyester Fibers	1.01	1.25	1.44	1.53	1.64	1.74
Polyester Resins	1.36	1.47	1.48	1.46	1.54	1.56
Antifreeze	1.85	1.89	1.75	1.53	1.41	1.36
Other & Inventory Change	0.39	0.54	0.31	0.57	-0.18	0.38

CONSUMER USES

Ethylene glycol is most commonly recognized as a major component of automobile antifreeze. It is used as a component in heat transfer fluids for ventilation and air-conditioning systems that improve heat transfer efficiency. It is also a component in deicing fluids for aircraft and runways, which helps in the safe operations of flying and landing planes in certain winter weather conditions.

Most ethylene glycol is used in the production of polyester materials, such as polyester resins and fibers. During the production of these materials, the ethylene glycol reacts with other chemicals to form new final products. The polyester materials

produced are used in a wide variety of other materials that benefit the average consumer, such as:

- Stain-resistant carpeting;
- Break-resistant soft drink bottles;
- Polyester film for video and audio tapes;
- Plastic parts for capacitors in motors and radios;
- Plastic film for computer disks;
- Plastics for automobile parts to reduce weight and improve fuel efficiency; and
- Polyester fibers in tire cords to improve handling and durability.

An overview of ethylene glycol demand is illustrated below.

