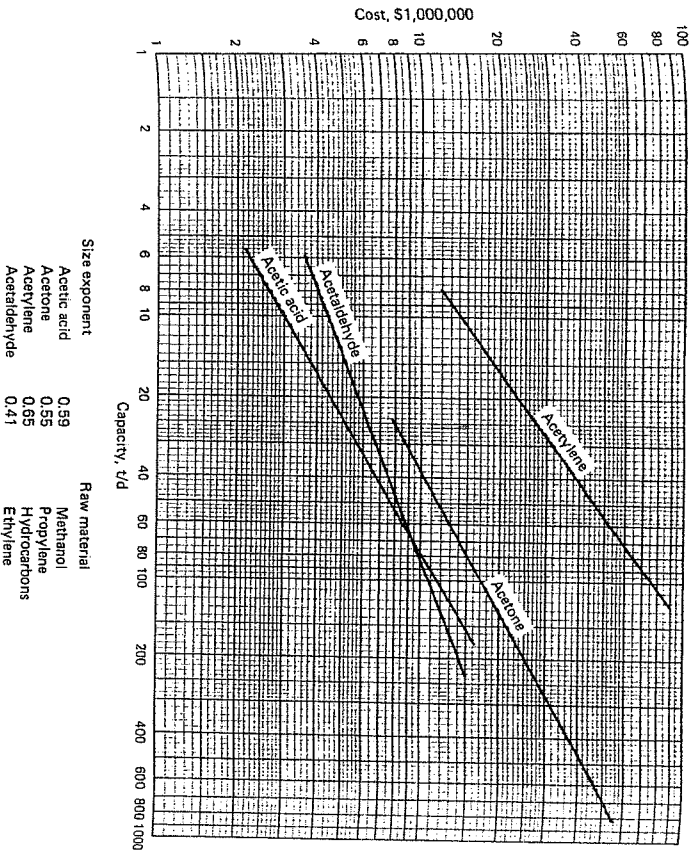
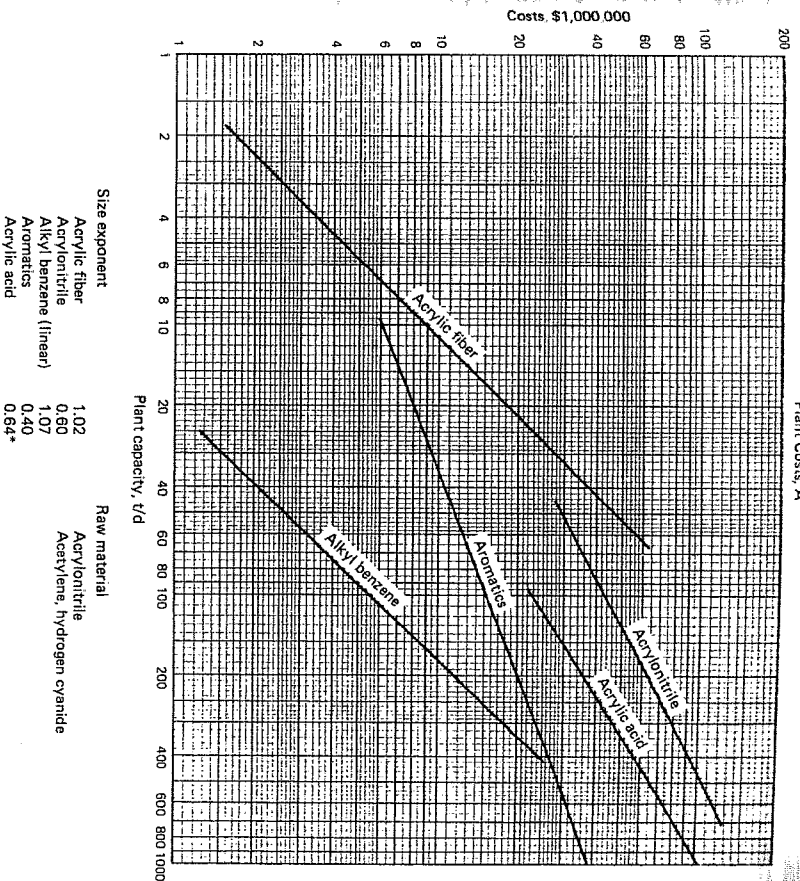


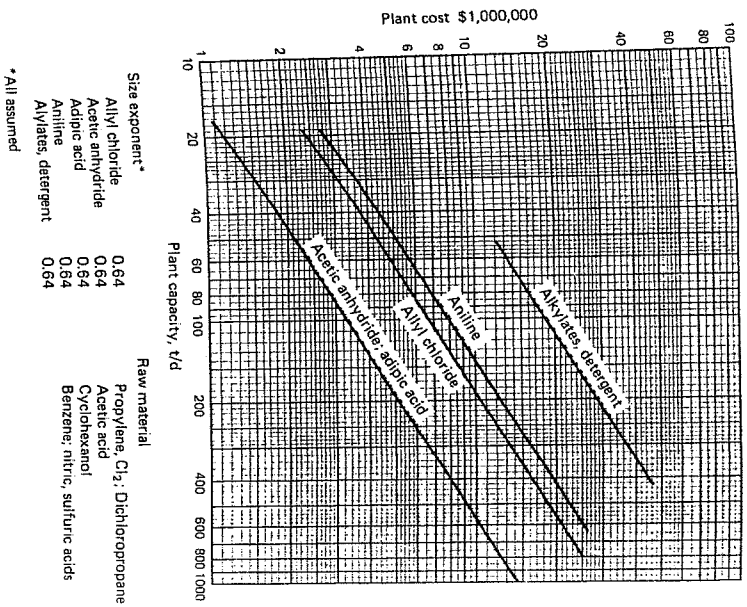
Plant Costs, A



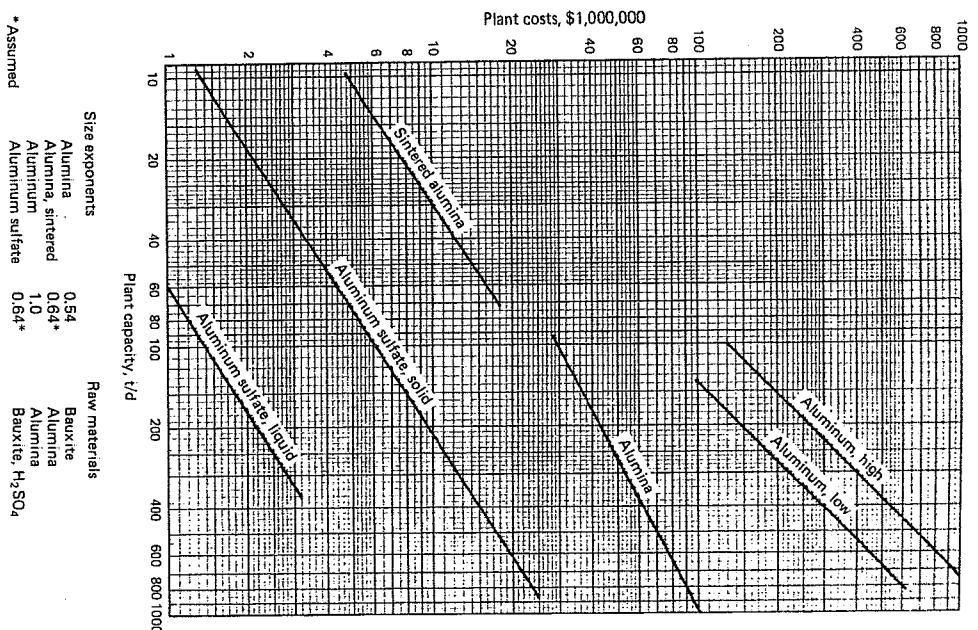
Plant Costs, A

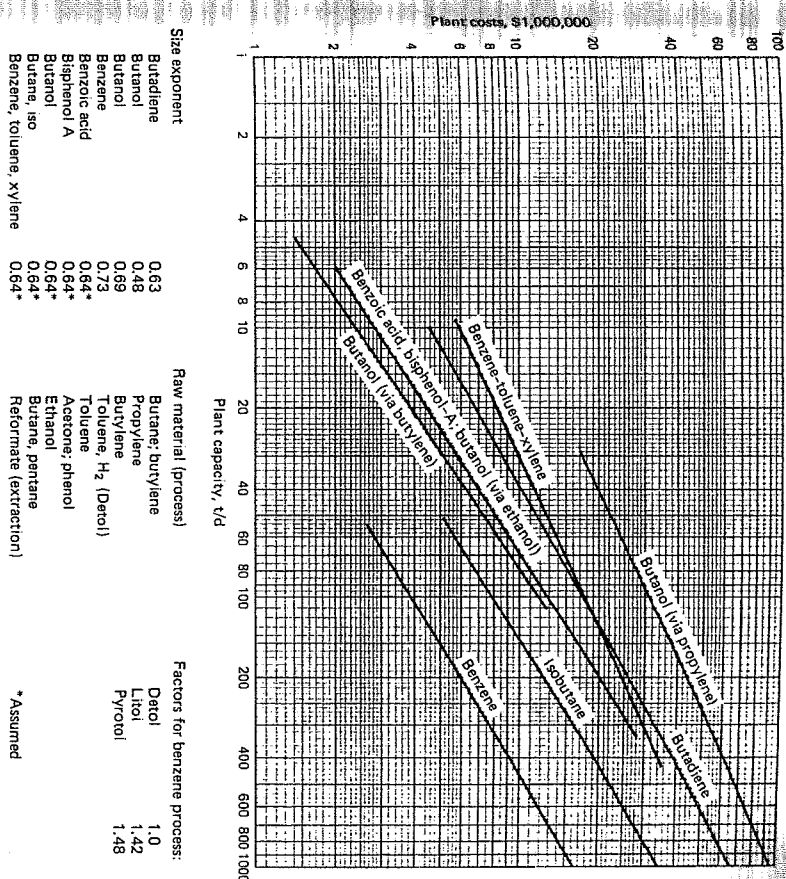
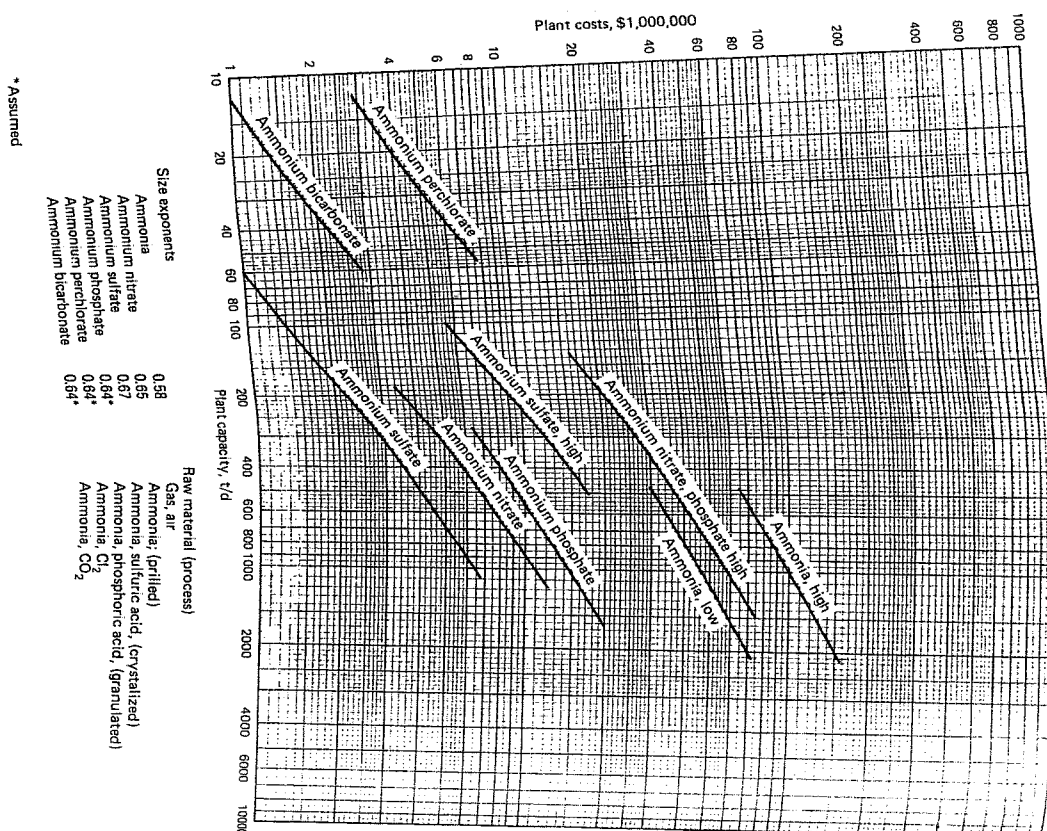


Plant Costs, A

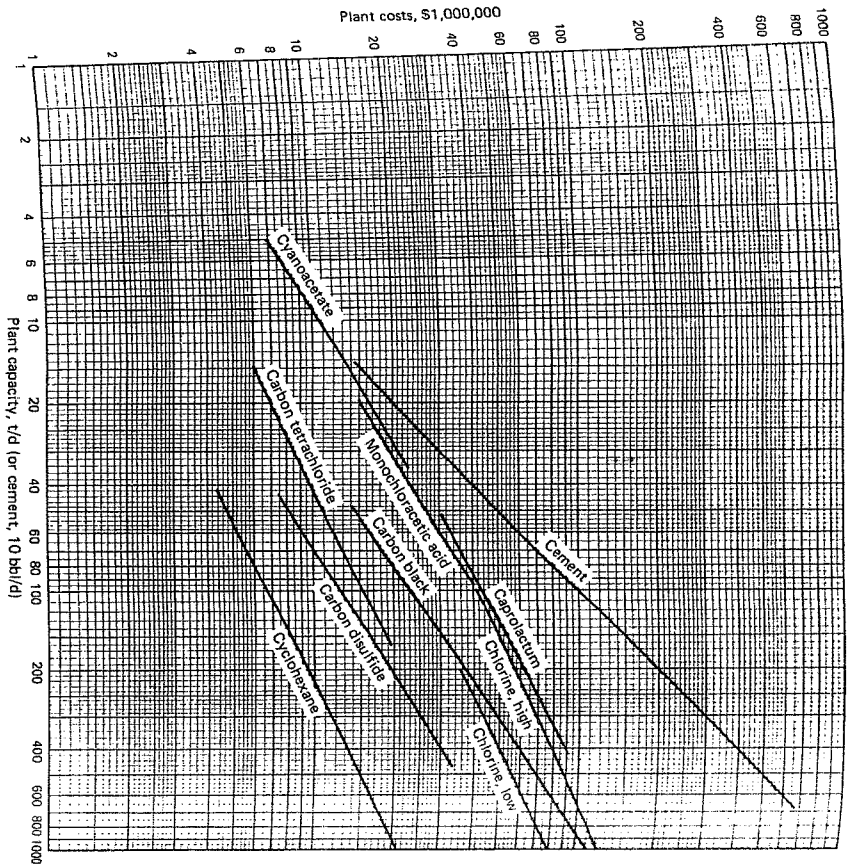


Plant Costs, Aluminum Chemicals





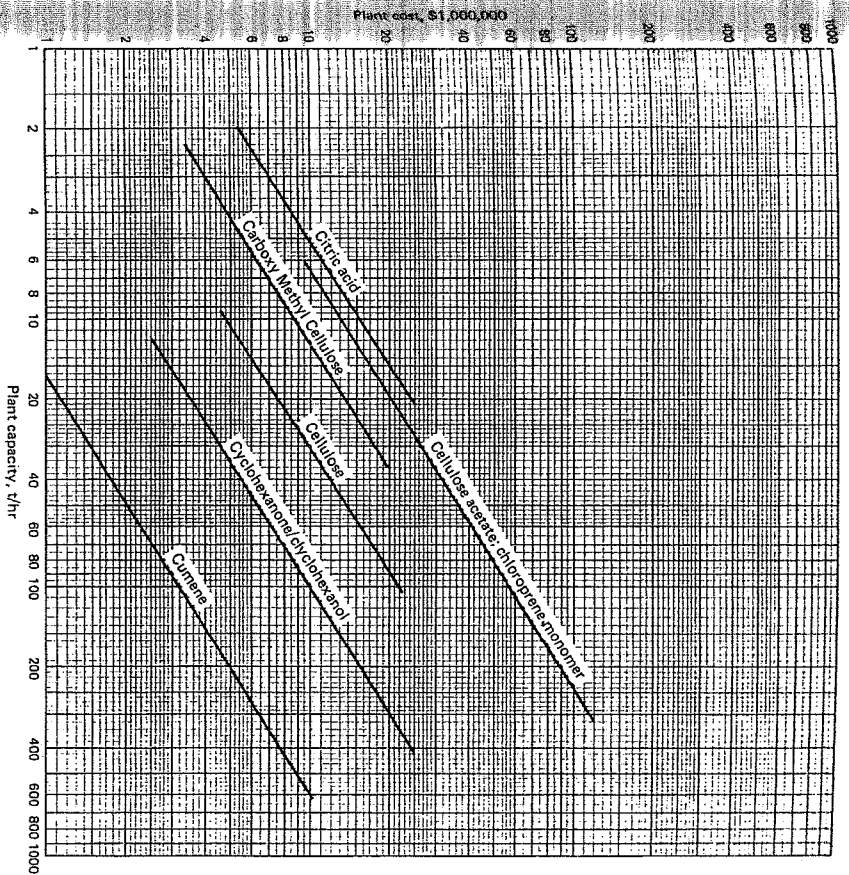
Plant Costs, C



Size exponent	Raw material (process)
0.67	Aromatic oils, gas
0.47	NaCl brine (electrolysis) (Caustic soda by-product; 1.07 lb/lb Cl_2)
0.52	Cyclohexane, NH_3 (Ammonium sulfate by-product; 1.75 lb/lb caprolactum)
0.48	Benzene, H_2
0.64*	Propane, Cl_2 (Perchloroethylene by-product; 1.33 lb/lb CCl_4)
0.64*	Carbon disulfide
1.0	Cement
0.64*	Cyanacetate
0.64*	Chloroacetic acid, mono

* Assumed

Plant Costs, C



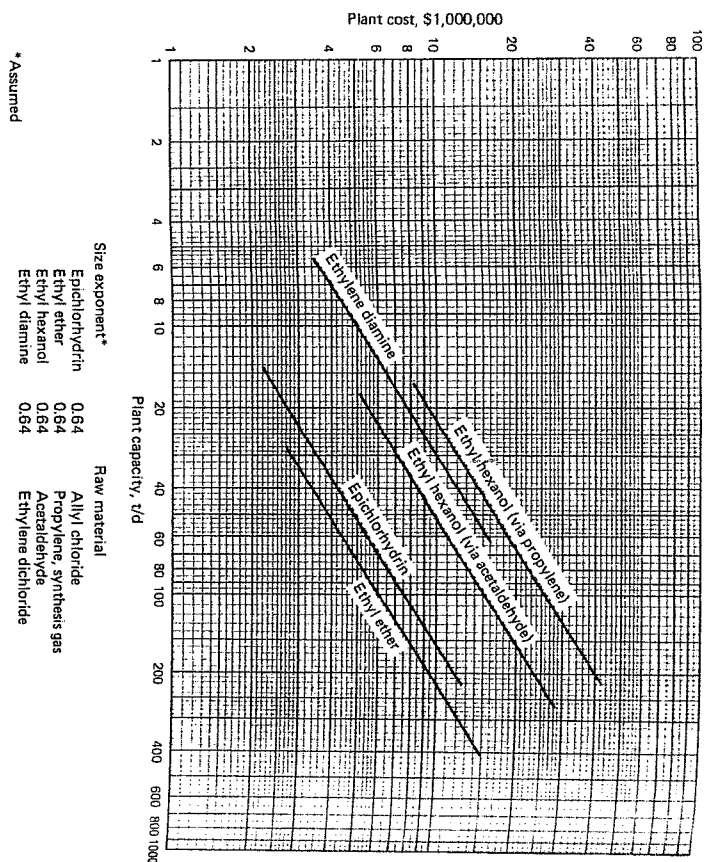
Size exponent*	Raw material (process)
0.64	Citric acid
0.64	Carboxymethyl cellulose
0.64	Cellulose acetate
0.64	Cumene
0.64	Cyclohexanone/cyclohexanol
0.64	Chloroethylene monomer

* All size exponents assumed

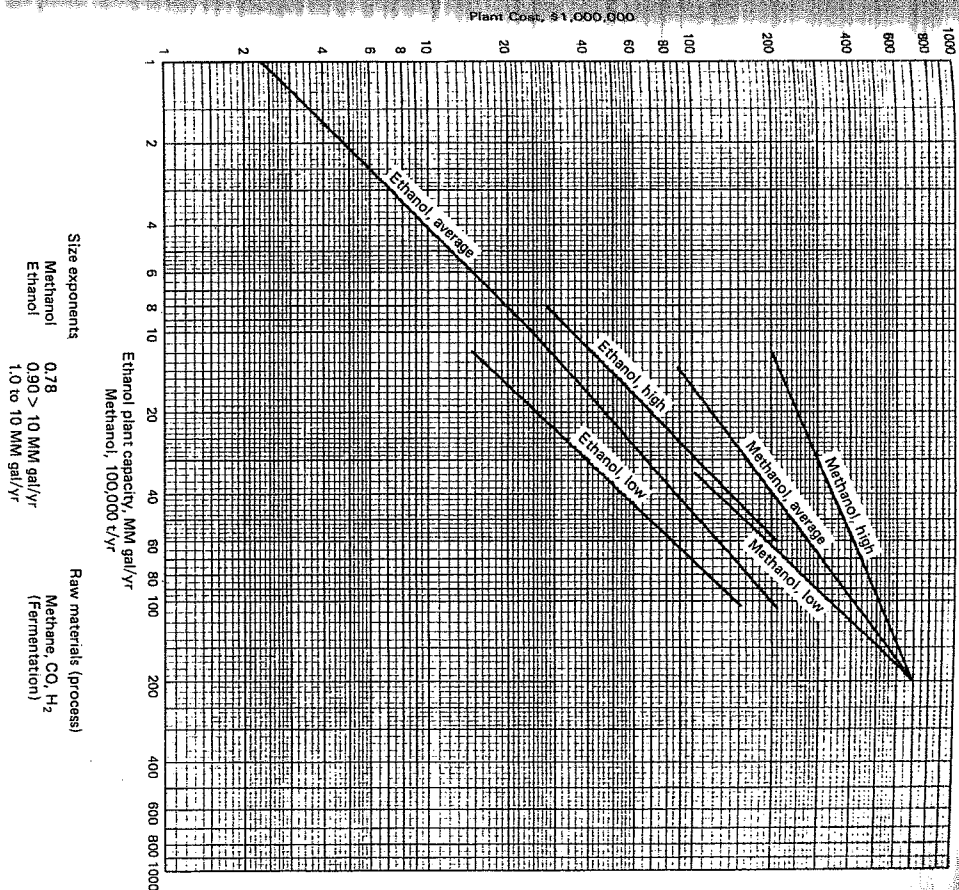
Factor for chloroethylene raw material: Acetylene 1.57



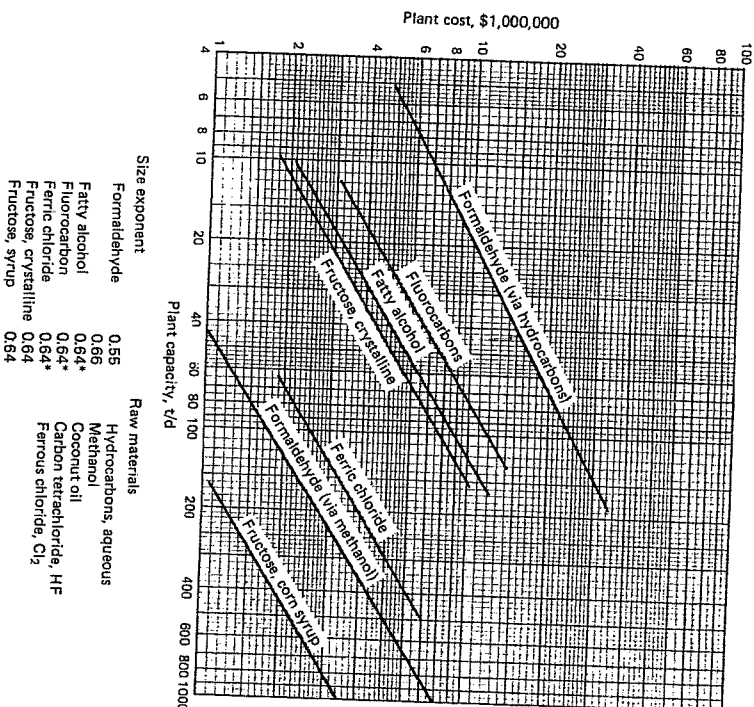
Plant Costs, E



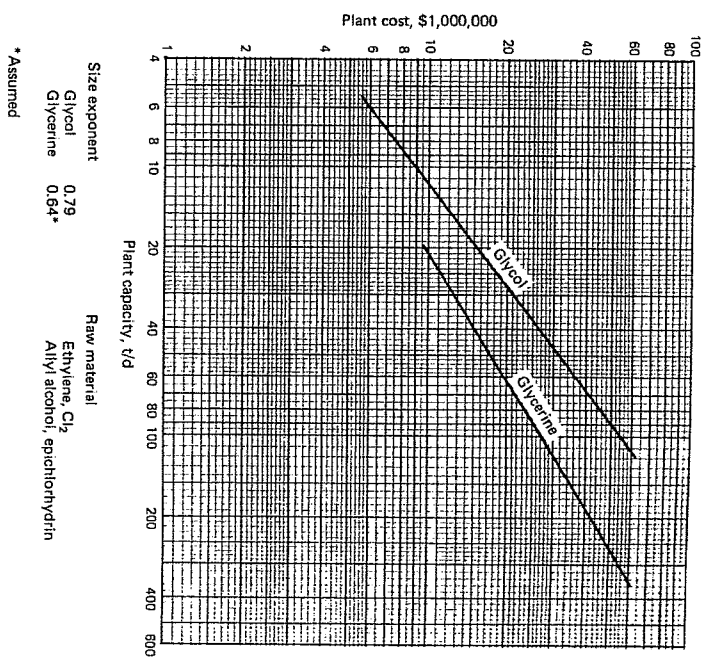
Plant Costs, Ethanol (Fermentation), Methanol



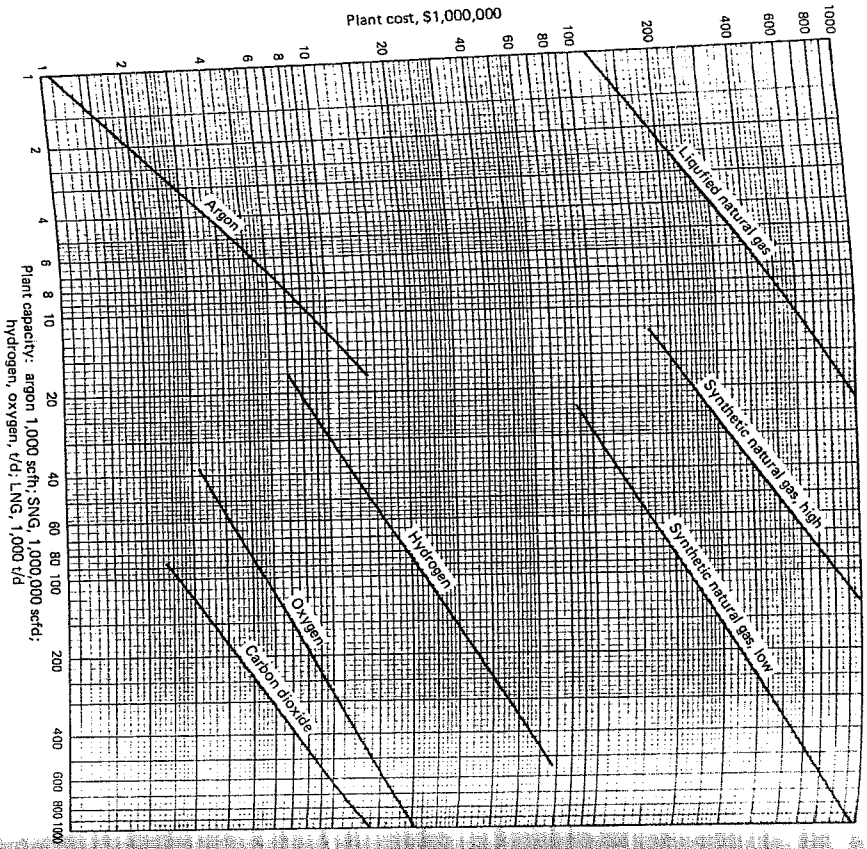
Plant Costs, F



Plant Costs, G

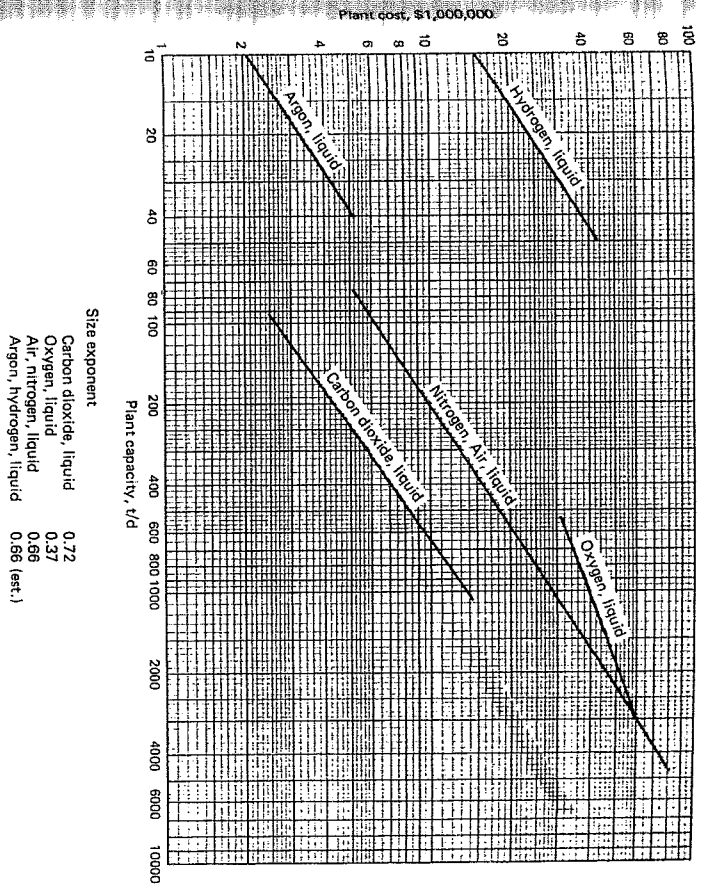


Plant Costs, Gases



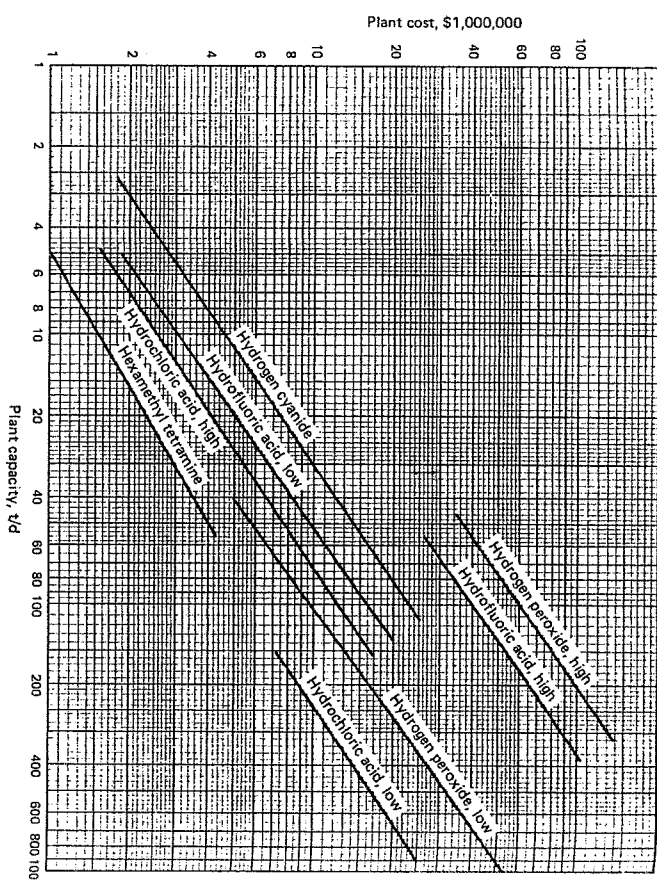
Size exponent	Raw material, process	Factors for LNG feedstock
Argon 0.89	Air, liquified	Coal 1.0
Oxygen 0.89	Air, liquified	Crude oil 0.6
Hydrogen 0.65	Methane, partial oxidation, reforming	Medium, heavy gas oil, 0.5
LNG 0.68	Teillac process	Naptha, kerosene, 0.3
SNG 0.75	Coal	light gas oil
Carbon dioxide 0.72		

Plant Costs, Liquid Air, Hydrogen, Carbon Dioxide, Oxygen, Nitrogen



Size exponent
Carbon dioxide, liquid 0.72
Oxygen, liquid 0.37
Air, nitrogen, liquid 0.66
Argon, hydrogen, liquid 0.66 (est.)

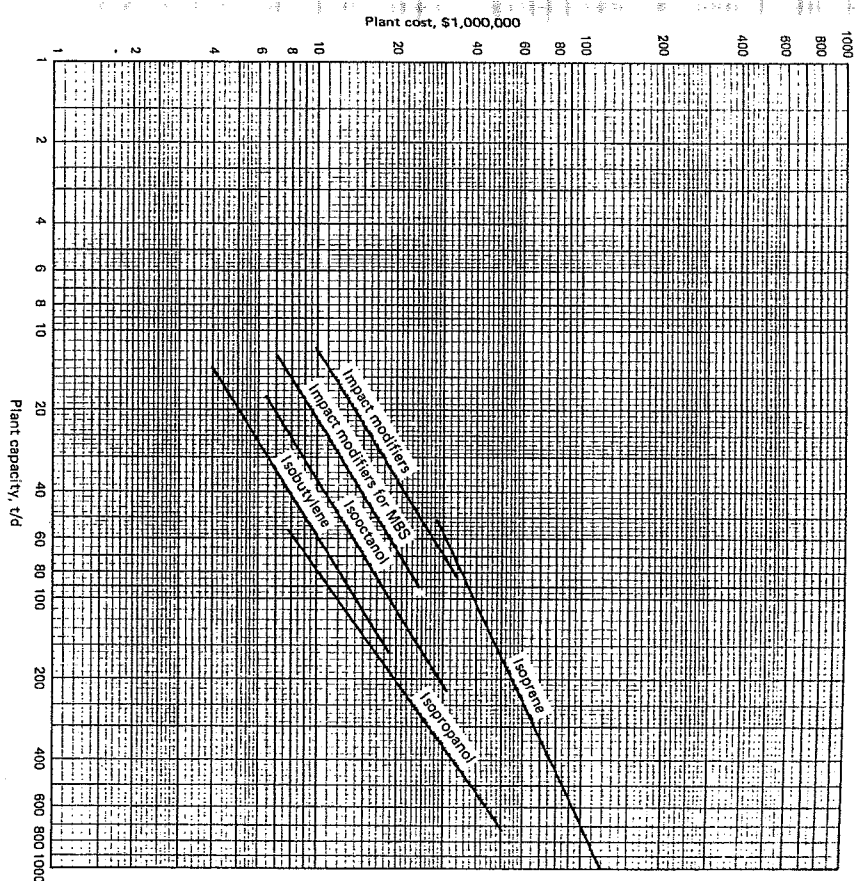
Plant Costs, H



Size exponent	Raw materials
Hydrochloric acid	Salt, H_2SO_4 (Na_2SO_4 by-product)
Hydrofluoric acid	CaF_2 , H_2SO_4
Hexamethylteramine	Methanol, ammonia
Hydrogen peroxide	Isopropylene alcohol, O_2
Hydrogen cyanide	Propane, ammonia

* Assumed

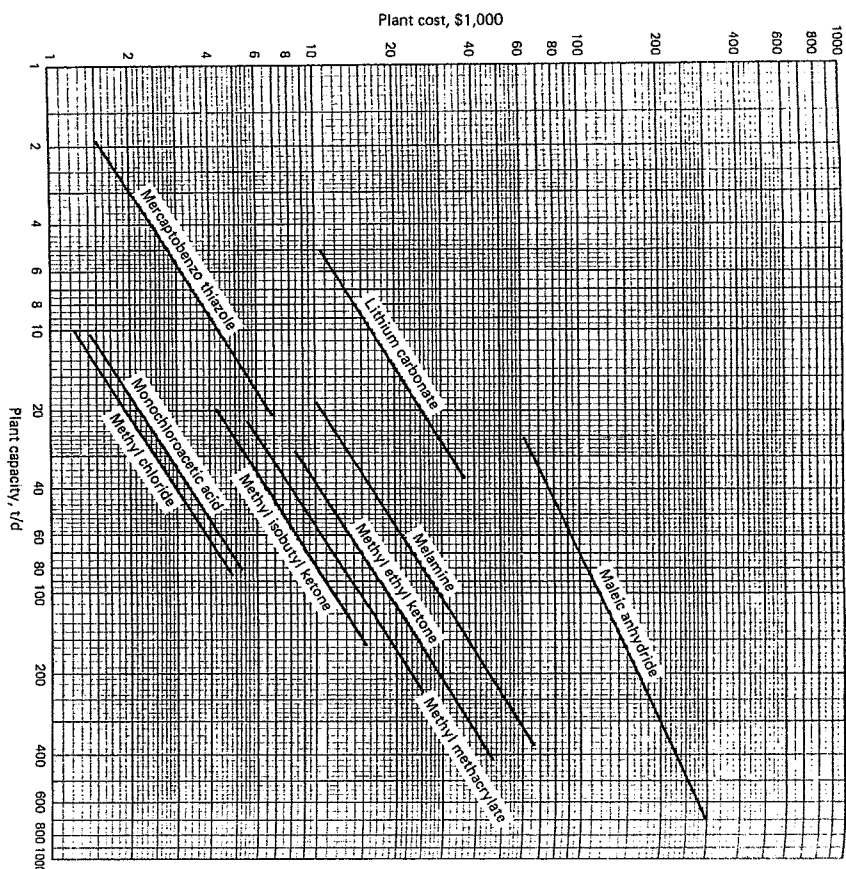
Plant Costs, I



Size exponent	Raw material (process)
Isoprene	Propylene, methanol, O_2
Isopropenol	Propylene
Isobutylene	(Liquid extraction)
Isocyanol	Heptane
Impact modifiers	
Impact modifiers for MBS	
Impact modifiers for isocyanol	
Methylmethacrylate-butadiene-styrene	

* Assumed

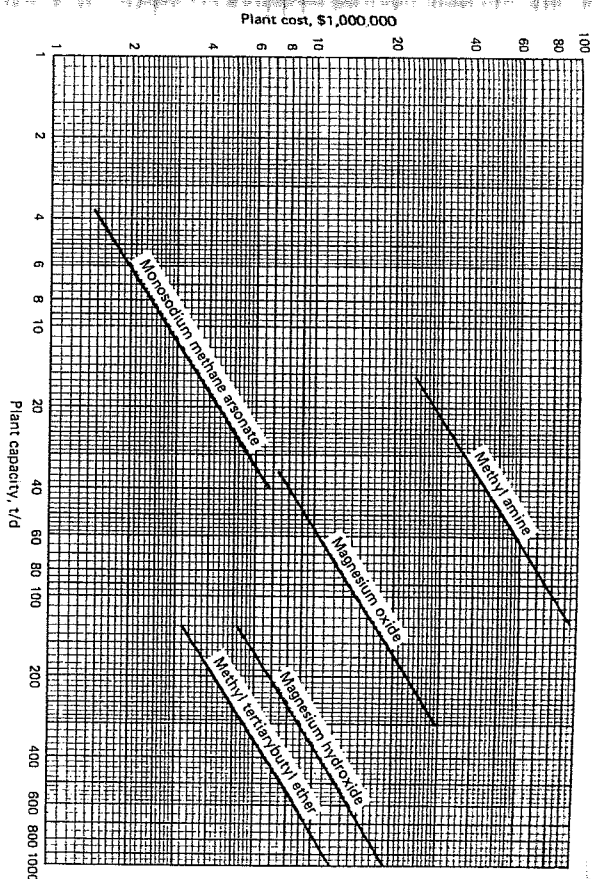
Plant Costs, L, M



* Assumed

Size exponent	Raw material
Lithium carbonate	0.64*
Maleic anhydride	0.48
Melamine	0.64*
Methyl chloride	0.64*
Methyl ethyl ketone	0.64*
Methyl isobutyl ketone	0.64
Mercaptobenzothiazole	0.64*
Methyl methacrylate	0.64*
Monochloroacetic acid	0.64*
	Spodumene ore
	Benzene
	Urea, ammonia
	Methanol
	Aniline
	Acetone, HCN
	Acetic acid, Cl ₂

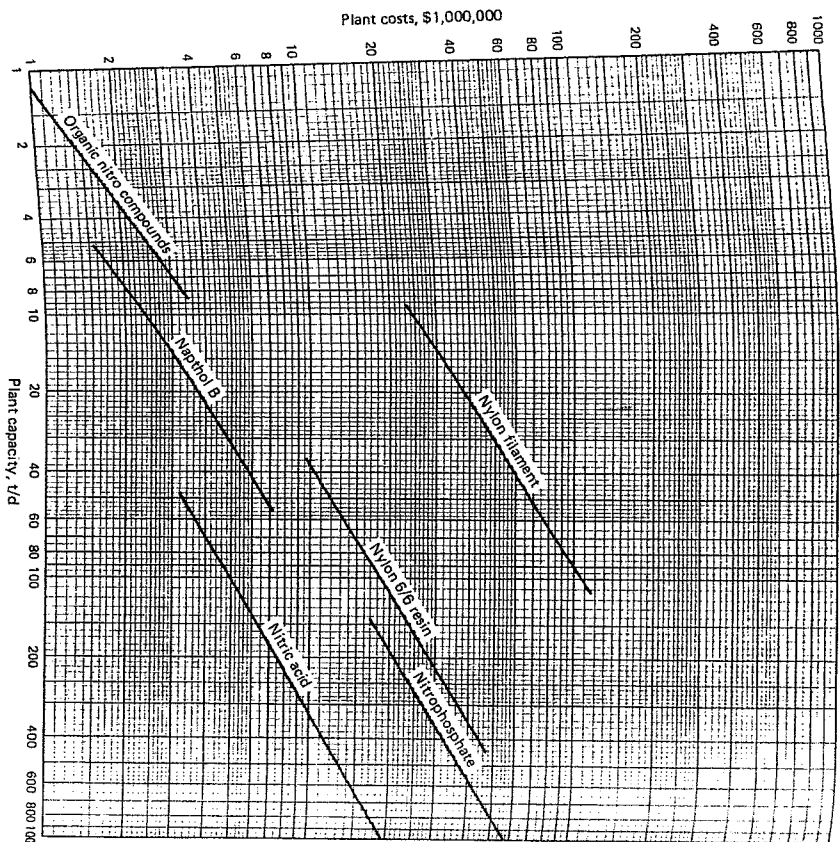
Plant Costs, M



* Assumed

Size exponent*	Raw material
Monosodium methyl arsonate	0.64
Magnesium oxide	0.64
Magnesium hydroxide	0.64
Methyl tertiary butyl ether	0.64
Methyl amine	0.64
	(coproduct, 0.67 t/d dimethyl formamide)
	(coproduct sodium cocodylate - herbicides)
	Seawater, brine
	Seawater, brine (calcined)
	Methanol - see page for ethanol

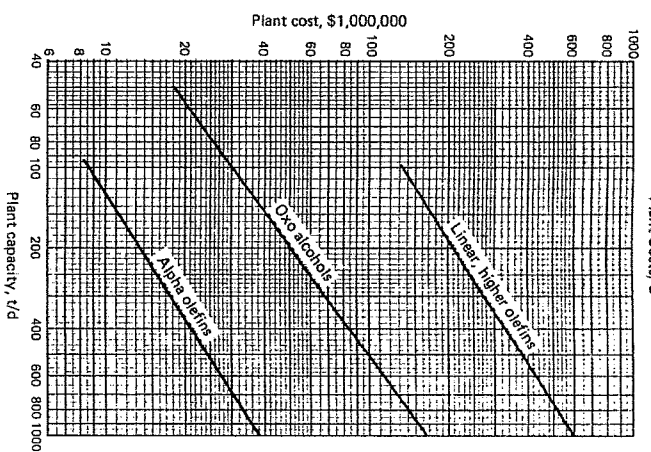
Plant Costs, N



Size exponent	Raw material
Nitric acid	Ammonia
Naphthol B	Naphthalene
Nylon 6/6 resin	Adipic acid
Nylon filament	Dimethyl formamide
Nitrophosphate	Phosphate ore, NH_4O_3
Nitro compounds, organic	
	0.64*

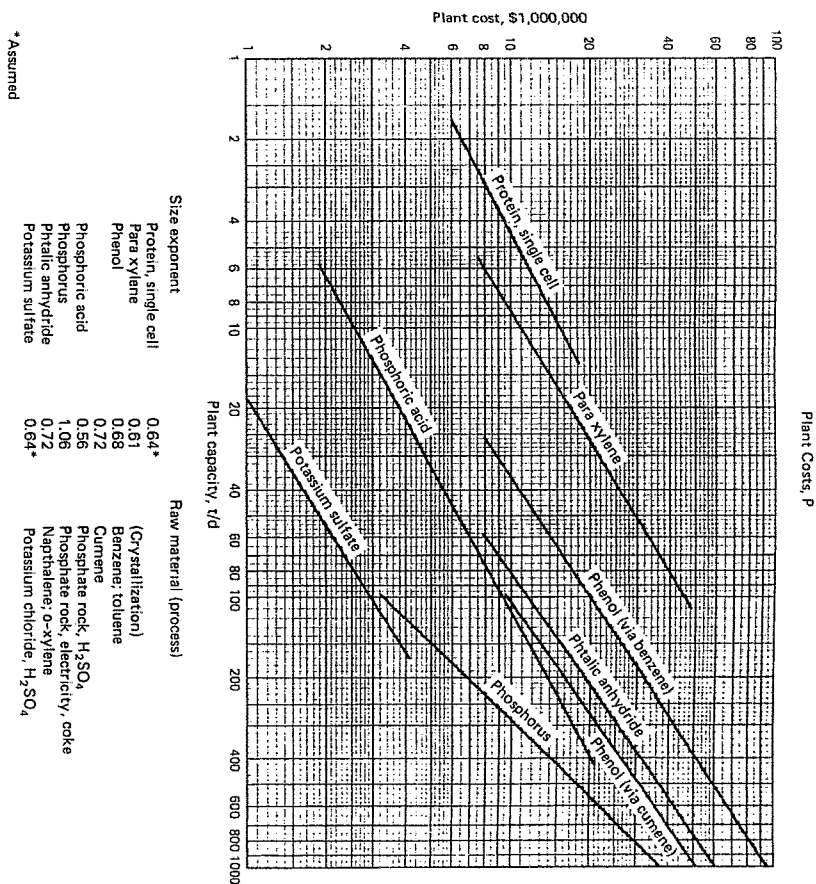
* Assumed

Plant Costs, O

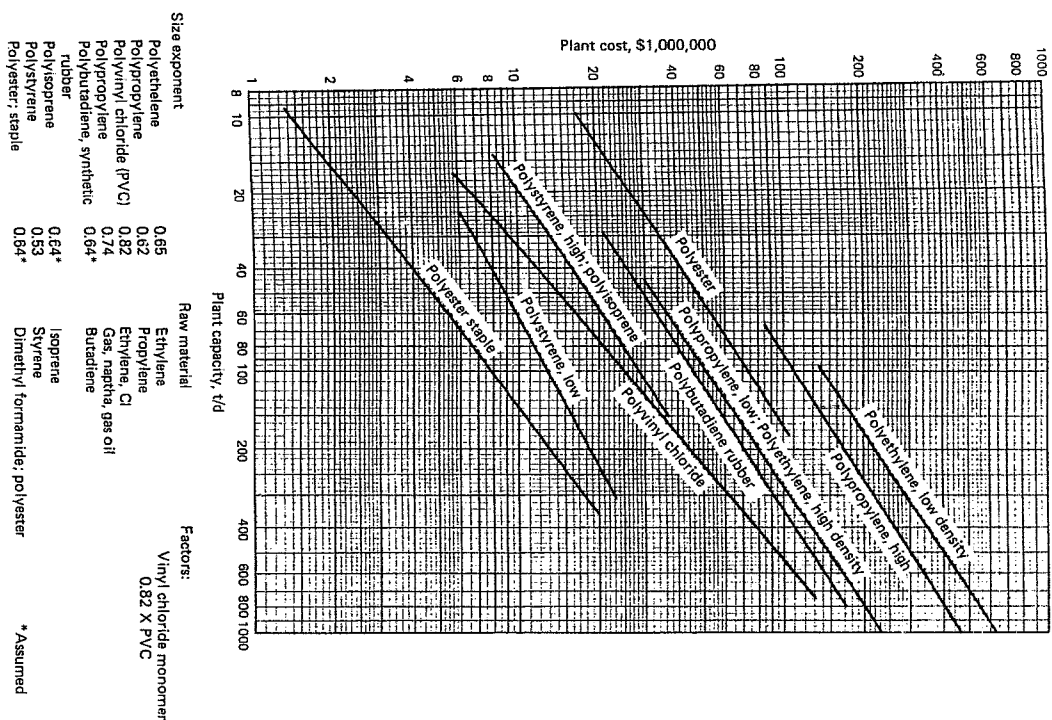


Size exponent	Raw materials
Oxo alcohols	Olefins, CO , H_2
Olefins, alpha	Hydrocarbons, wax
Olefins, linear, higher	
	0.74
	0.64*

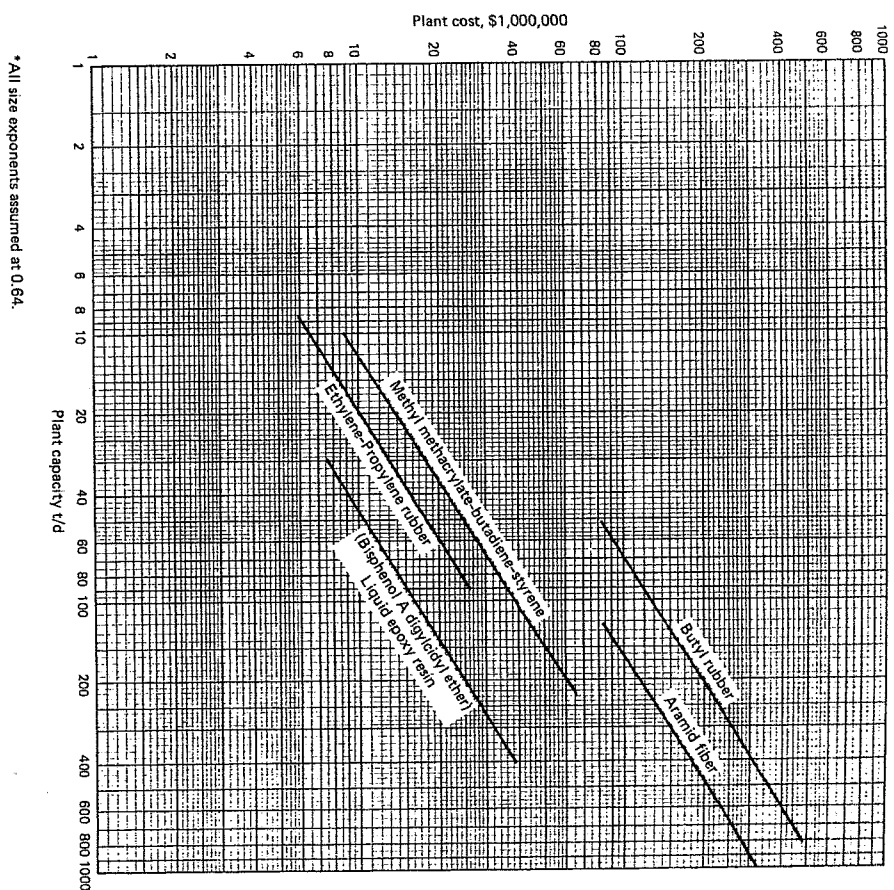
* Assumed



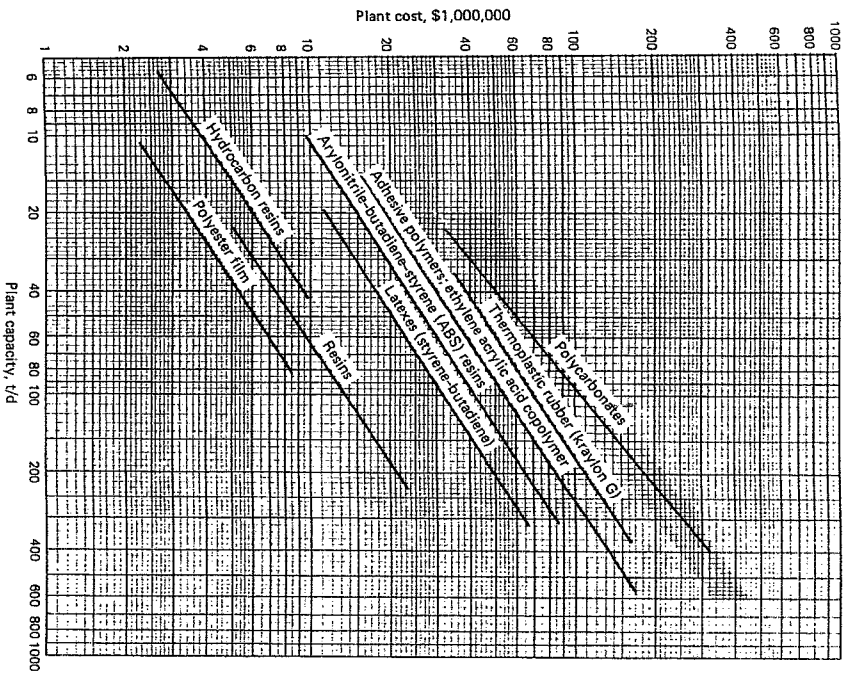
Plant Costs, Polymers



Plant Costs, Polymers

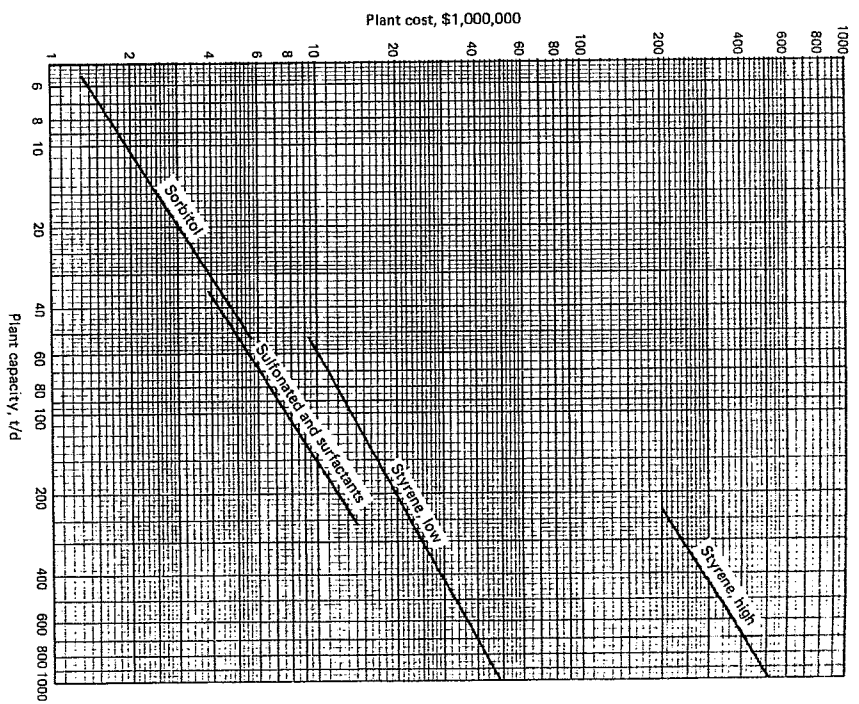


Plant Costs, Polymers



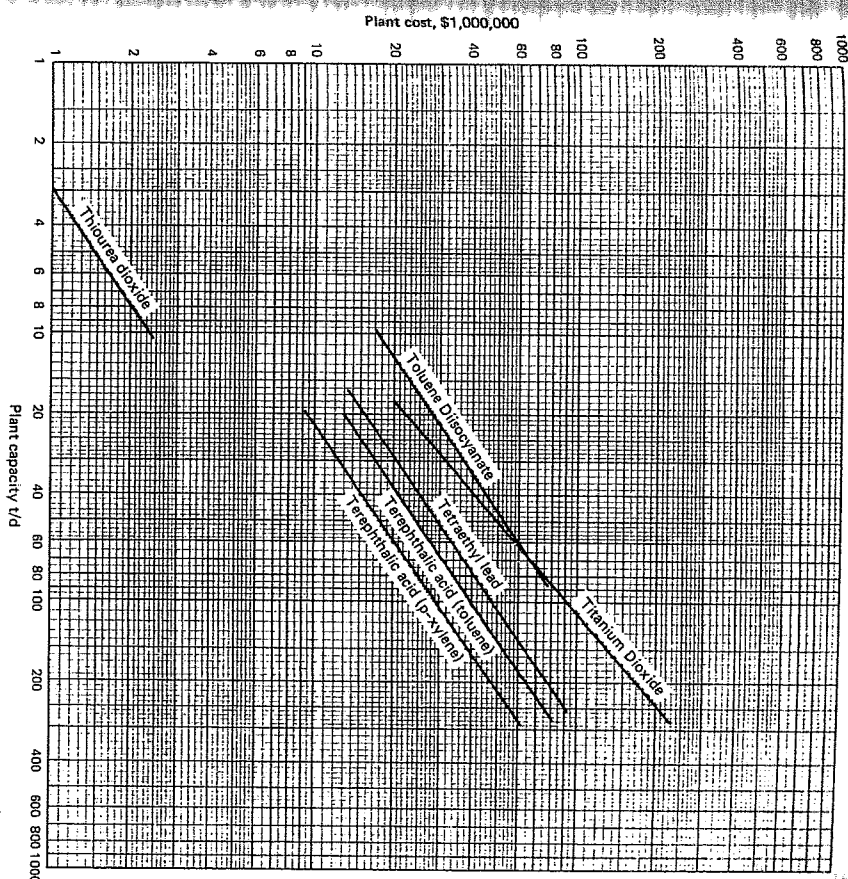
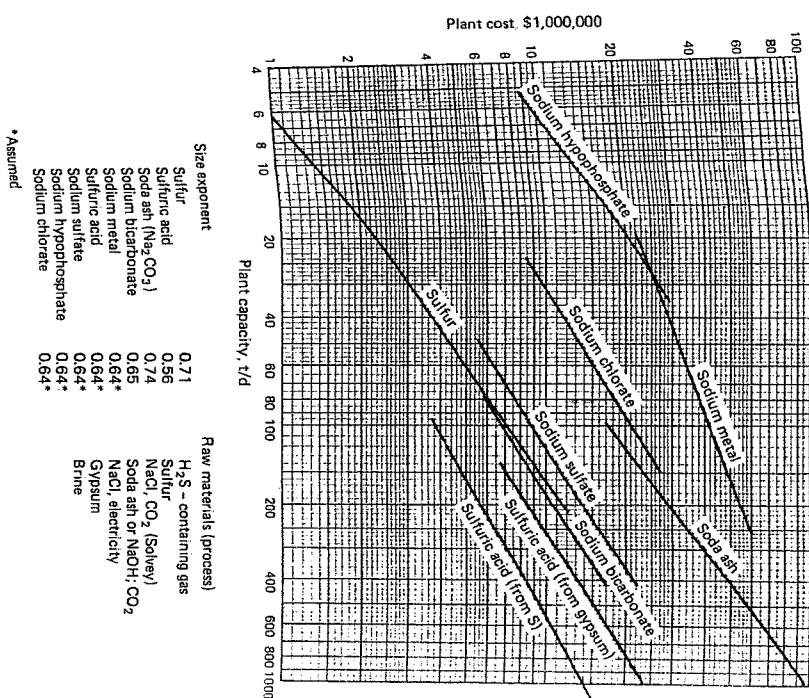
* All size exponents assumed at 0.64, except Polycarbonate 0.79

Plant Costs, S (Organic)

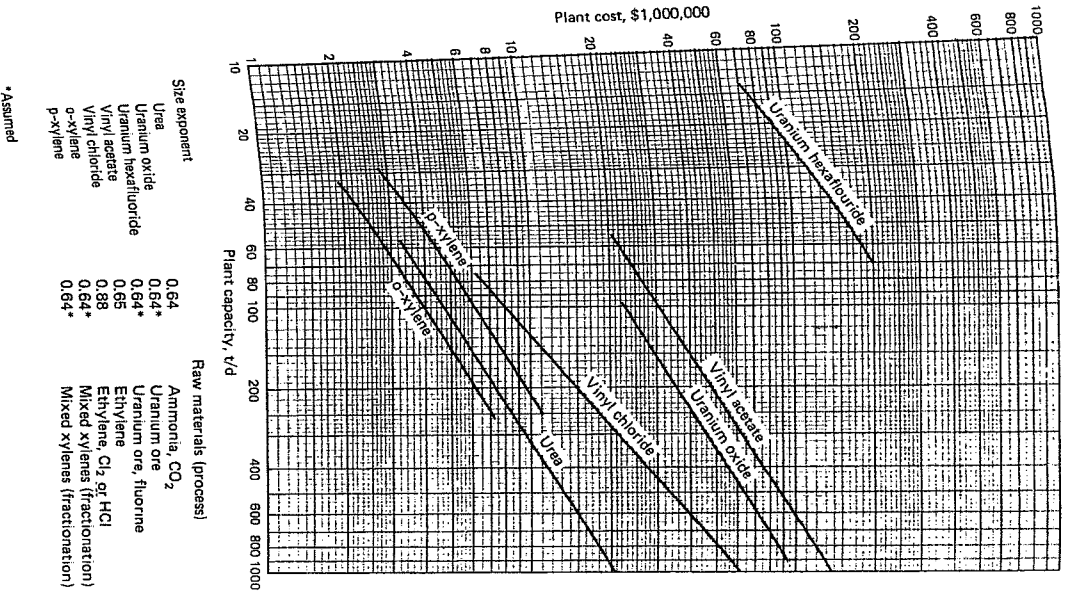


* Assumed

Size exponent	Raw materials
Styrene	Benzene, ethylene, steam
Sorbitol	0.56
Sulfonated and sulfenated	0.64*
surfactants and detergents	0.64*
	Corn syrup



Plant Costs, U, V, X



Plant Costs, Metals, Carbon

