

CHAPTER 3 Process Design Development

Table 3-11 Total product cost estimate

Cost items	Cost, ¢/kg, of ethylene
Direct production costs	
Raw materials (see Table 3-10)	63.39
Operating labor (9 workers/shift)	0.49
Operating supervision (15% operating labor)	0.07
Maintenance (labor and materials, 4% FCI)	3.62
Utilities (see Table 3-10)	8.50
Operating supplies (15% maintenance)	0.54
Laboratory charges (20% operating labor)	0.10
Indirect production costs	
Depreciation (10% FCI)	9.07
Insurance and taxes (2% FCI)	1.81
Plant overhead costs (80% total labor costs)	
	1.90
General expenses	
Administrative costs (25% overhead)	0.48
Distribution and selling costs (6% NPC)	2.87
Research and development costs (4% NPC)	1.91
Financing (interest, 7% TCI) [†]	7.05
Credit for sale of by-products (see Table 3-10)	-54.04
Annual net product cost (NPC), ¢/kg	47.76

[†]TCI = \$503,400,000 = \$453,040,000 + 10% (TCI) for working capital.

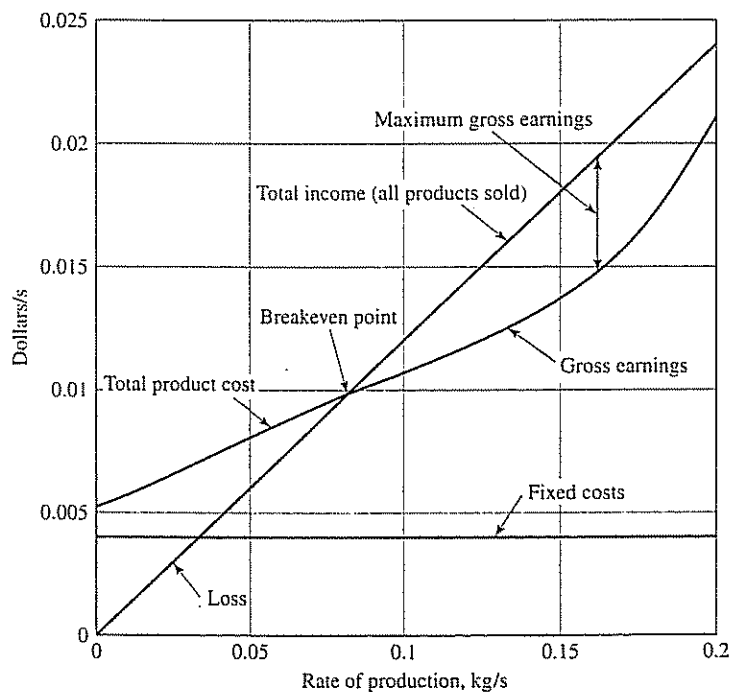


Figure 6-3 Breakeven chart for chemical processing plant

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