

8. Pharmaceuticals

IMS Health estimated that the pharmaceuticals industry had global sales of more than \$770 billion in 2008. In the United States alone, the value of shipments for the industry totaled over \$180 billion in 2006, up 9.1 percent from 2005. Production facilities may be owned by pharmaceuticals firms, or by independent firms producing brand-name drugs (under license) and/or generic products.

a) Representative Operation – Pharmaceutical Production

The representative operation modeled is an independent plant producing prescription drugs on behalf of brand-name and/or generic distributors. As illustrated in Exhibit 3.30, this operation is characterized by:

- Substantial facility and equipment requirements
- A workforce weighted toward professional/technical employees, but also including a significant number of both skilled operators and unskilled staff
- Relatively low energy requirements
- Modest in-house R&D activities.

The business is assumed to operate as a stand-alone profit center.

b) International Results

International results are illustrated in Exhibit 3.31. These results reflect the combined impact of 26 location-sensitive cost components applied to the modeled operation. Detailed results, by key cost component, are presented in Exhibit 3.32.

c) Selected Cities

Exhibit 3.33 profiles results for selected cities, by country, from among the 95 cities featured in this report. Results for all other featured cities can be found in Chapter 4, Exhibit 4.7.

EXHIBIT 3.30 – PHARMACEUTICALS	
Pharmaceutical Production – Summary of Operating Parameters	
Facilities Requirements	
Leased industrial facility	5 acres (20,234 m ²)
Size of factory built	70,000 ft ² (6,503 m ²)
Other Initial Investment Requirements	
Machinery and equipment – US \$'000	\$24,000
Office equipment – US \$'000	\$200
R&D equipment – US \$'000	\$500
Inventory – US \$'000	\$10,000
Equity financing – % of project costs	50%
Workforce	
Management	7
Sales and administration	16
Production/non-dedicated product development	
- Professional, technical	54
- Operators	23
- Unskilled laborers	20
Other	4
Total employees	124
Energy Requirements	
Electricity monthly consumption/peak demand	160,000 kWh and 540 kW
Gas monthly consumption	10,000 CCF (28,329 m ³)
Other Annual Operating Characteristics	
Sales at full production – US \$'000	\$40,000
Materials and other direct costs – % of sales	27%
Other operating costs – % of sales	15%
Investment in tax-eligible R&D – % of sales	2.6%

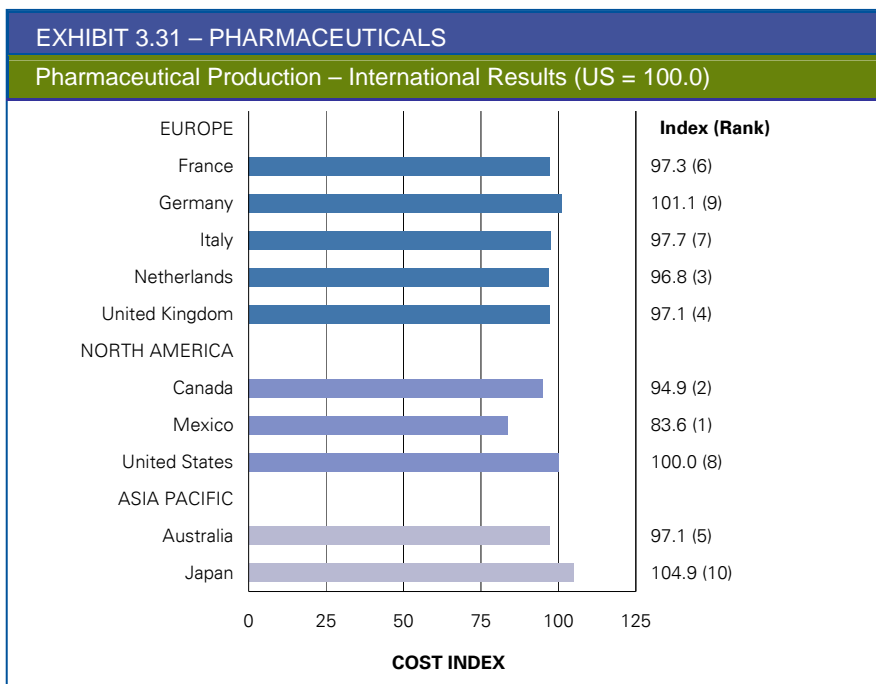


EXHIBIT 3.32 – PHARMACEUTICALS

Pharmaceutical Production – Costs, by Major Component, US \$'000

	Europe					North America			Asia Pacific	
	France	Germany	Italy	Netherlands	UK	Canada	Mexico	US	Australia	Japan
Revenues	38,150	38,150	38,150	38,150	38,150	38,150	38,150	38,150	38,150	38,150
Costs										
- Salaries & Wages	5,702	7,936	6,223	6,921	6,185	6,621	2,615	6,733	6,922	8,714
- Statutory Plans	2,594	1,371	1,330	912	587	602	192	600	910	845
- Other Benefits	1,195	1,695	1,798	1,883	2,081	1,693	778	2,616	1,577	2,205
- Total Labor & Benefits	9,492	11,002	9,350	9,716	8,853	8,916	3,585	9,950	9,409	11,763
- Facility Lease	478	597	574	637	975	372	338	354	503	1,109
- Transportation	1,635	1,649	1,803	1,948	1,564	2,288	2,365	2,036	2,383	1,386
- Utilities	341	441	599	405	390	271	251	246	419	410
- Interest & Depreciation	4,115	4,256	4,132	4,141	4,231	4,108	3,331	4,150	3,767	4,291
- Non-Income Taxes	783	189	45	40	568	334	62	886	158	954
- Location-Insensitive Costs	16,022	16,022	16,022	16,022	16,022	16,022	16,022	16,022	16,022	16,022
Profit Before Income Tax	5,285	3,994	5,626	5,243	5,547	5,840	12,196	4,507	5,490	2,215
- Income Taxes ¹	1,172	1,216	1,651	949	1,346	880	3,297	1,326	1,303	744
Effective Rate	22.2%	30.4%	29.3%	18.1%	24.3%	15.1%	27.0%	29.4%	23.7%	33.6%
After-Tax Profit	4,113	2,779	3,976	4,293	4,201	4,960	8,899	3,181	4,186	1,470
Total Annual Costs	34,038	35,371	34,175	33,857	33,949	33,190	29,250	34,969	33,964	36,680
Index (US=100.0)	97.3	101.1	97.7	96.8	97.1	94.9	83.6	100.0	97.1	104.9
Rank	6	9	7	3	4	2	1	8	5	10

1 Income taxes may be either positive or negative, irrespective of whether profit before income tax is positive or negative, due to the impact of specific expense deduction rules, minimum taxes, and refundable income tax credits. Effective tax rates are not shown where results are not meaningful because of low profitability.

EXHIBIT 3.33 – PHARMACEUTICALS

Pharmaceutical Production – Results for Selected Cities, by Country

Country and City	Index	Rank ¹	Country and City	Index	Rank ¹	Country and City	Index	Rank ¹
International Locations – All Cities						North America – Lowest Cost Cities		
AU Adelaide	97.0	41	JP Osaka	104.4	92	CA Moncton, NB	91.9	3
Brisbane	97.1	44	Tokyo	105.4	95	Fredericton, NB	92.2	4
Melbourne	96.4	23	MX Mexico City	83.7	2	Sherbrooke, QC	92.9	5
Sydney	97.8	53	Monterrey	83.6	1	St. John's, NL	93.0	6
FR Lyon	96.8	34	NL Amsterdam	96.7	32	US Shreveport, LA	95.3	17
Paris	97.9	55	Brabant Stad	96.7	31	McAllen, TX	96.0	20
GE Berlin	100.4	86	The Hague	96.9	38	Bangor, ME	96.3	21
Frankfurt	101.9	90	Utrecht	96.9	36	Youngstown, OH	96.4	22
IT Milan	97.0	40	UK London	99.5	79	Cheyenne, WY	96.4	24
Rome	98.4	65	Manchester	94.6	12	Lexington, KY	96.5	25
						Oklahoma City, OK	96.5	26
						Tampa, FL	96.5	27

1 Rank among 95 cities.