Study:

World Pharmaceutical Fine Chemicals
Market

Markets
Products
Customer base
Market trends
Chances & risks
Competition
Prospects to 2015

Acmite Market Intelligence
March 2008
# Table of Contents

## Volume I

### 1 Segmentation and Definition
- 1.1 Segmentation of chemicals ........................................... 3
- 1.2 Segmentation of Pharmaceutical fine chemicals ...................... 5
- 1.3 Active Pharmaceutical Ingredients (API) ............................... 6
- 1.4 Value chain of PFC industry ........................................... 8
- 1.5 History and background of pharmaceutical fine chemicals ....... 9

### 2 Macro-environment
- 2.1 Trends in the world economy and the chemical industry .......... 11
- 2.2 The chemical industry ................................................. 12
- 2.3 Industry concentration ............................................... 15
- 2.4 Laws and legislation .................................................. 17

### 3 Pharmaceutical fine chemicals market
- 3.1 Market overview and forecast ....................................... 20
  - 3.1.1 Fine chemicals market overview and forecast ................. 20
    - 3.1.1.1 World fine chemicals market by application ............ 20
    - 3.1.1.2 World fine chemicals production ........................ 23
    - 3.1.1.3 World fine chemicals consumption ........................ 26
  - 3.1.2 Pharmaceutical fine chemicals market and forecast ......... 29
    - 3.1.2.1 World pharmaceutical fine chemicals production ...... 29
    - 3.1.2.2 World pharmaceutical fine chemicals consumption .... 32
    - 3.1.2.3 World PFC market by therapeutic category ............ 35
    - 3.1.2.4 World PFC market by end user ........................... 38
    - 3.1.2.5 World PFC production by business model ............... 41
  - 3.2 PFC market trends ................................................... 47
  - 3.3 PFC market drivers and opportunities ............................ 53
  - 3.4 PFC Competition situation ......................................... 57
  - 3.5 Measures of PFC companies to address challenges ............. 62
  - 3.6 Industry dynamics: investment, divestment, M&A ............... 65
4 Customer base (Pharmaceutical market) analysis

4.1 Customer market segmentation

4.2 Pharmaceuticals market size and forecast

4.2.1 World pharmaceuticals market of by region

4.2.2 Market development, history and forecast 1999-2010 in %

4.2.3 World pharma market: brand-name drug vs. generics

4.2.4 World OTC drug market

4.2.5 World biopharmaceuticals market

4.3 Largest 50 pharma companies by revenue 2004 vs. 2006

4.4 World market of pharmaceuticals by therapeutic category

4.5 21 leading drug groups: market and forecast

5 Manufacturing technologies and processes

5.1 Overview of PFC manufacturing technologies and processes

5.2 30 most frequently mentioned processes

5.3 Top 200 pharmaceutical products (API, Sales, sales change, company, medical use, approval date)

6 Pharmaceutical fine chemicals market by therapeutic category

6.1 PFC market in CVD

6.1.1 Product analysis

6.1.2 PFC in CVD market and forecast

6.1.3 CVD drug market

6.1.4 Leading market players, their products in use and in pipeline

6.2 PFC in Central nervous system (CNS)

6.2.1 Product analysis

6.2.2 PFC market in CNS market and forecast

6.2.3 CNS drug market

6.2.4 Leading market players, their products in use and in pipeline

6.3 PFC market in Oncology

6.3.1 Product analysis

6.3.2 PFC in oncology market and forecast

6.3.3 Oncology drug market

6.3.4 Leading market players, their products in use and in pipeline

6.4 PFC market in Infectious disease
6.4.1 Product analysis ........................................................................................................ 169
6.4.2 PFC in Infectious disease market and forecast ....................................................... 170
6.4.3 Infectious disease drug market and forecast ......................................................... 173
6.4.4 Leading market players, their products in use and in pipeline ............................... 178
6.5 PFC market in metabolic system .................................................................................. 180
6.5.1 Product analysis ...................................................................................................... 180
6.5.2 PFC in metabolism market and forecast ................................................................. 182
6.5.3 Metabolic system drug market and forecast ............................................................ 185
6.5.4 Diabetes Drug market and forecast ....................................................................... 189
6.5.5 Leading market players, their products in use and in pipeline ............................... 192
6.6 PFC market in Respiratory disorder ............................................................................. 195
6.6.1 Product analysis ...................................................................................................... 195
6.6.2 PFC in respiratory market and forecast ................................................................. 196
6.6.3 Respiratory diseases drug market .......................................................................... 199
6.6.4 Leading market players, their products in use and in pipeline ............................... 204
6.7 PFC market in Gastro-Intestinal (GI) diseases ............................................................. 206
6.7.1 Product analysis ...................................................................................................... 206
6.7.2 PFC in GI market and forecast .............................................................................. 208
6.7.3 GI drug market and forecast .................................................................................. 211
6.7.4 Leading market players, their products in use and in pipeline ............................... 216
6.8 PFC market in musculoskeletal disease ...................................................................... 219
6.8.1 Product analysis ...................................................................................................... 219
6.8.2 PFC in musculoskeletal disease market and forecast ............................................ 220
6.8.3 Musculoskeletal disease drug market ..................................................................... 223
6.8.4 Leading market players, their products in use and in pipeline ............................... 228
6.9 PFC market in other therapeutic categories ............................................................... 230
6.9.1 PFC market in haematologic disease ..................................................................... 230
6.9.2 PFC market in ophthalmic disease ........................................................................ 231
6.9.3 PFC market in dermatologic disease ..................................................................... 232
6.9.4 PFC market in urogenital disease .......................................................................... 233

Volume II

Company profile (ca. 300) ............................................................................................... 233
Manufacturer directory
The total pharmaceutical fine chemicals production in 2006 was valued at approximately US$ 61.1 billion. It enjoys a much better market prospect than fine chemicals in other industries, with ca. 2% plus higher growth rate. The Western Europe accounts 37% of the global pharmaceutical fine chemicals production, followed by the North America with 28% and Asia Pacific with 27%.

(P. 30)
Drug development slowdown affects manufacturing
In recent years, research-based pharmaceutical firms are unusually constrained in their ability to turn their research findings into manufacturable solutions for the consumer market. One direct result of slowdown in drug development is the adverse effect on outsourcing opportunities for pharmaceutical fine chemicals manufacturers. Under such circumstance overcapacity problem is intensified.

Strategic takeovers in generic pharmaceutical market
Benefiting from the cost-control measures of the governments, generics pharmaceutical market is now becoming the highest growing market segment. As competition is much heavier in generic pharmaceutical market as branded market, strategic takeover is an efficient way to increase market share and defend profit margins. Emerging markets such as India, Brazil, Russia and China, are especially the battle fields of generic pharmaceutical companies.

Restructuring effort in pharmaceuticals fine chemicals industry
The fragmented pharmaceuticals fine chemicals market is ripe for consolidation, as critical mass is a requisite for fine chemical manufacturers to attract pharmaceutical companies.
While US pharmaceutical fine chemical industry is shrinking, Europeans are getting stronger and appear as provider of high-quality pharmaceutical fine chemicals. The traditional fine chemical producers, due to lack of capability differentiation and relatively higher fixed costs and labour costs, are facing increased competition from Asian fine chemical suppliers. In order to remain competitive with Asian fine chemical suppliers, the western fine chemical companies must focus on niche markets, production streamlining, and research and development.

Overcapacity remains a problem
Overcapacity of European pharmaceutical fine chemical manufacturers is estimated at between 25% and 40%. The overcapacity will continue to remain high in intermediates and APIs due to the substantial new capacity brought online over the past years, the excess capacity caused by fewer new drug approvals and the resulting in-sourcing by big pharmas. Overcapacity is now the major disadvantage and weakness in the European pharmaceutical fine chemicals industry.

(P. 48)
billion by 2015. The Asia Pacific market of CVD drugs was valued at around US$ 9.6 billion in 2006. It is projected to grow to US$ 14.6 billion by 2010 and to reach US$ 24.4 billion by 2015, nearly US$ 2 billion higher than that in Japan.

Cardiovascular disease is the single largest distributor to the skyrocketing healthcare costs. CVD is the number one killer in the world, causing 2500 deaths in the US, and nearly half of the total deaths in the Europe. 3 of the top 10 bestsellers are CVD drugs. Pfizer’s Lipitor alone made the sales of nearly US$15 billion in 2006. Big pharmas continue to make heavy investment in discovery and development of CVD drugs. New innovative products are rapidly capturing market share and establishing their market position.

Hypertension and Hypercholesterolemia are two overwhelmingly largest segments, making up around three quarters of the total CVD drug market. These two segments combined are almost equivalent to the central nervous system drug market, the second largest therapeutic category, in size.

With the revenue of US$ 48.5 billion in 2006, Hypertension drug market is the single largest segment. The global market of hypertension drugs is projected to grow 9% annually to reach US$ 68.6 billion by 2010 and to increase to US$ 104 billion by 2015. Hypercholesterolemia drug market lags slightly behind hypertension market, with the revenue of US$ 40 billion in 2006. It is expected to grow faster than that of hypertension drugs, with an AAGR 11% through next years, and to reach US$ 61.8 billion by 2010 and to exceed US$100 billion by 2015, equating to that of hypertension. Some of the blockbusters for hypertension are facing patent expiration, while the blockbusters for Cholesterol are launched some years later in average. This leads to the expectation that growth rate of hypertension drug market will be lower than that of cholesterol drug market.

Other segments are predicted to grow moderately with 7-8%, except Atherosclerosis and Arrhythmia market. These two markets will experience certain downturn in the coming years.

(P. 137)
3.7.2 PFC in musculoskeletal disease market and forecast

PFC market in musculoskeletal disease by condition in US$ Bn

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Osteoarthritis/Arthritis</td>
<td>1.927</td>
<td>2.078</td>
<td>2.247</td>
<td>2.401</td>
<td>2.746</td>
<td>3.751</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>1.131</td>
<td>1.220</td>
<td>1.319</td>
<td>1.409</td>
<td>1.612</td>
<td>2.202</td>
</tr>
<tr>
<td>Bursitis/Tendonitis</td>
<td>0.251</td>
<td>0.271</td>
<td>0.293</td>
<td>0.313</td>
<td>0.358</td>
<td>0.489</td>
</tr>
<tr>
<td>Sprain</td>
<td>0.168</td>
<td>0.181</td>
<td>0.195</td>
<td>0.209</td>
<td>0.239</td>
<td>0.326</td>
</tr>
<tr>
<td>Muscle tension</td>
<td>0.335</td>
<td>0.361</td>
<td>0.391</td>
<td>0.418</td>
<td>0.478</td>
<td>0.652</td>
</tr>
<tr>
<td>Others</td>
<td>0.377</td>
<td>0.407</td>
<td>0.440</td>
<td>0.470</td>
<td>0.537</td>
<td>0.734</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4.19</strong></td>
<td><strong>4.52</strong></td>
<td><strong>4.88</strong></td>
<td><strong>5.22</strong></td>
<td><strong>5.97</strong></td>
<td><strong>8.15</strong></td>
</tr>
</tbody>
</table>

World PFC market in musculo-skeletal disorder by condition - 2006

- Osteoarthritis/Arthritis 46.0%
- Osteoporosis 21.8%
- Bursitis/Tendonitis 16.3%
- Sprain 4.0%
- Muscle tension 8.0%
- Others 9.0%

(P. 220)
Order Form

Please return this form

Via Fax: +49-2102-876 1471 or
Via Email: market@acmite.com or
Via Post: Acmite Market Intelligence / Dechenstr 17, 40878 Ratingen, Germany

If you have any question please email to: market@acmite.com

<table>
<thead>
<tr>
<th>Code</th>
<th>Product</th>
<th>Page</th>
<th>Price Hardcopy</th>
<th>Price Hardcopy+CD</th>
</tr>
</thead>
<tbody>
<tr>
<td>C4631</td>
<td>World Pharmaceutical Fine Chemicals Market, Volume I</td>
<td>Ca. 230</td>
<td>☐ EUR 1190</td>
<td>☐ EUR 1390</td>
</tr>
<tr>
<td>C4632</td>
<td>World Pharmaceutical Fine Chemicals Market, Volume II</td>
<td>Ca. 350</td>
<td>☐ EUR 590</td>
<td>☐ EUR 690</td>
</tr>
<tr>
<td>C4630</td>
<td>World Pharmaceutical Fine Chemicals Market, Total(Volume I + II)</td>
<td>Ca. 580</td>
<td>☐ EUR 1590</td>
<td>☐ EUR 1790</td>
</tr>
<tr>
<td>Sum</td>
<td></td>
<td></td>
<td>☐ EUR</td>
<td>☐ EUR</td>
</tr>
</tbody>
</table>

Company: ____________________________  Contact Person: Mr ☐ Ms ☐ Dr ☐
Address: ____________________________  Name: ____________________________
                      ____________________________  Position/Dept.: ____________________________
Zip Code: ____________________________  Phone: ____________________________
Country: ____________________________  Fax: ____________________________
Homepage: ____________________________  Email: ____________________________
Date: ____________________________  Signature: ____________________________

Acmite Market Intelligence / Dechenstr. 17, D-40878 Ratingen, Germany
Phone: +49-2102-876 1470 · Fax: +49-2102-876 1471 · Email: market@acmite.com
VAT ID: DE815058100