Activated Carbon

US Industry Study with Forecasts for 2017 & 2022

Study #3018 | May 2013 | $5300 | 311 pages
# Table of Contents

## EXECUTIVE SUMMARY

## MARKET ENVIRONMENT
- General .................................................. 4
- Macroeconomic Overview ............................. 5
- Manufacturing Overview ............................... 8
- Demographic Overview ................................. 11
- Historical Market Trends ............................... 16
- Environmental & Regulatory Issues ................. 18
  - The Environmental Protection
    - Agency & Key Legislation .......................... 19
    - The Resource Conservation and Recovery Act .... 19
    - The Clean Air Act .................................. 20
    - The Clean Water Act ............................... 21
    - Safe Drinking Water Act ............................ 22
- Air Pollution ............................................ 22
- MACT Standard for Coal-Fired Power Plants .... 24
- MACT Standard for Portland Cement ............... 25
- Standards for Major & Area Source Industrial Boilers . 26
- MACT Standard for Commercial & Industrial Solid Waste Incinerators 26
- Water Pollution ........................................ 27
- Other Regulatory Agencies & Legislation .......... 30
  - Occupational Safety & Health Administration .... 30
    - Other Government Programs ....................... 31
- Competitive Materials & Technologies ............. 32
- World Demand ......................................... 35

## SUPPLY & DEMAND
- General .................................................. 37
- Product Shipments & Inventories ................... 40
- Production Capacity .................................. 41
- Capacity Expansion Activity ......................... 46
- Reactivation Activity .................................. 47
- Strategic Considerations .............................. 50
- Reactivation Methods .................................. 54
- Reactivation Capacity ................................ 55
- Activated Carbon Producers ......................... 57
- Independent Reactivators ............................. 59
- Expansion Activity in Reactivation Capacity .... 59
- Foreign Trade ......................................... 60
- Imports ............................................... 62
- Exports .............................................. 65
- Supply & Demand ..................................... 68
- Demand by Material .................................. 70
- Pricing Trends ........................................ 74

## TYPES
- General .................................................. 76
- Powdered Activated Carbon ......................... 80
- Production Capacity .................................. 82
- Supply & Demand ..................................... 85
- Demand by Application ............................... 88
- Granular Activated Carbon ......................... 90
- Production Capacity .................................. 92
- Supply & Demand ..................................... 95
- Demand by Application ............................... 97
- Other Activated Carbon Products ................. 100
- Supply & Demand ..................................... 100
- Demand by Type ...................................... 102

## LIQUID PHASE APPLICATIONS
- General .................................................. 105
- Water Treatment ........................................ 108
- Water Withdrawal & Use Trends .................... 110
- Activated Carbon Demand ............................ 113
- Types .................................................... 116
- Applications ............................................ 118
  - Drinking Water Treatment .......................... 120
  - Wastewater & Sewage Treatment .................. 128
  - Groundwater Treatment & Other .................. 131
- Food & Beverage Processing ......................... 133
- Food & Beverage Industry Overview ............... 134
- Activated Carbon Demand ............................ 137
- Sweetener Processing Applications ............... 139
- Other Food & Beverage Processing Applications .. 142
- Pharmaceutical & Medical ......................... 144
- Pharmaceutical Industry Overview ............... 144
- Activated Carbon Demand ............................ 146
- Mining .................................................. 149
- Mining Industry Overview ........................... 149
- Activated Carbon Demand ............................ 151
- Other Liquid Phase Applications ................. 153

## GAS PHASE APPLICATIONS
- General .................................................. 155
- Industrial Air Purification ......................... 159
- Mercury Removal ....................................... 160
- Industrial Gas Stream Treatment ................... 165
- HVAC & Other Industrial Air Purification ....... 167
- Motor Vehicles ........................................ 169
- Motor Vehicle Industry Outlook .................... 170
- Emissions Canister Activated Carbon Demand .... 174
- Other Motor Vehicle Activated Carbon Demand .... 176
- Solvent Recovery ...................................... 178
- Recovery & Recycling Outlook ...................... 179
- Activated Carbon Demand ............................ 181
- Other Gas Phase Applications ...................... 183

## REGIONS
- General .................................................. 187
- Regional Trends ....................................... 188
- Population Patterns .................................. 189
- Economic Outlook .................................... 191
- Coal-Fired Electricity Overview .................... 194
- Regional Demand for Activated Carbon .......... 198
  - Northeast .......................................... 201
  - Economic Overview ................................. 201
  - Activated Carbon Demand .......................... 202
  - New England ....................................... 205
  - Middle Atlantic .................................... 206
  - Midwest ............................................. 208
  - Economic Overview ................................. 208
  - Activated Carbon Demand .......................... 211
  - East North Central ................................ 213
  - West North Central ................................ 215
  - South ............................................... 216
  - Economic Overview ................................. 216
  - Activated Carbon Demand .......................... 217
  - South Atlantic ..................................... 220
  - East South Central ................................ 222
  - West South Central ................................ 223
  - West .................................................. 225
  - Economic Overview ................................. 225
  - Activated Carbon Demand .......................... 226
  - Mountain ............................................ 229
  - Pacific ............................................. 231

## INDUSTRY STRUCTURE
- General .................................................. 234
- Market Share ......................................... 238
- Competitive Strategies .............................. 242
- Acquisitions & Divestitures ......................... 244
- Cooperative Agreements ............................. 245
- Marketing & Distribution ............................ 247
- Technology & Manufacturing ....................... 249
- Feedstocks ............................................ 251
- Production Technology .............................. 252
- Product Characteristics .............................. 253
- Manufacturing Trends ............................... 255
- Research & Development ............................. 256
- Raw Material Development .......................... 256
- Other Research & Development Activities ....... 258

## COMPANY PROFILES
- ADA Carbon Solutions ............................... 261
- ADA-ES Incorporated ................................. 262
- Albemarle Corporation ............................... 264
- Arkema SA ............................................ 266
- Asbury Carbons ....................................... 268
- Babcock Power ........................................ 269
- Cabot Corporation ..................................... 270
- Galgon Carbon ........................................ 274
- California Carbon ..................................... 279
- Cameron Great Lakes ................................ 280
- Carbochem Incorporated ............................. 281
- Carbon Activated ...................................... 282
- Carbon Resources ..................................... 283
- Carbtor Corporation ................................. 285
- Donau Chemie ........................................ 287
- Indo German Carbons ................................. 289
- Jacobi Carbons ........................................ 290
- Kuraray Company ..................................... 293
- Kuraray Company ..................................... 293
- MeadWestvaco Corporation ......................... 294
- Osaka Gas ............................................. 297
- Pacific Activated Carbon ............................. 299
- Shanjie Xinhua Chemical ............................ 302
- Shenhua Ningxia Coal ................................ 303
- Siemens AG ........................................... 304
- Veolia Environnement ................................ 309
- Additional Companies in the Activated Carbon Industry .... 311

Click here to purchase online

Order now, click here!
List of Tables/Charts

EXECUTIVE SUMMARY
1 Summary Table ...................................... 3

MARKET ENVIRONMENT
1 Macroeconomic Indicators .................... 8
2 Manufacturers’ Shipments ..................... 11
3 Population & Households ....................... 15
4 Activated Carbon Market, 2002-2012 .......... 18

SUPPLY & DEMAND
1 Activated Carbon Production & Shipments 41
2 US Virgin Activated Carbon Production Capacity by Company, 2012 .......... 43
4 Foreign Trade in Activated Carbon .......... 62
5 US Activated Carbon Imports, 2008-2012.64
6 US Activated Carbon Exports, 2008-2012 .67
7 Activated Carbon Supply & Demand .......... 69
8 Activated Carbon Demand by Material .......... 71
9 Activated Carbon Pricing ......................... 75

TYPES
1 Activated Carbon Demand by Type & Application .......... 78
2 Advantages & Disadvantages of Powdered Activated Carbon .......... 82
3 Virgin Powdered Activated Carbon Production Capacity by Company, 2012 85
4 Powdered Activated Carbon Supply & Demand .......... 88
5 Powdered Activated Carbon Demand by Application .......... 89
6 Advantages & Disadvantages of Granular Activated Carbon .......... 92
7 Virgin Granular Activated Carbon Production Capacity by Company, 2012 95
8 Granular Activated Carbon Supply & Demand .......... 97
9 Granular Activated Carbon Demand by Application .......... 99
10 Other Activated Carbon Supply & Demand .......... 102
11 Other Activated Carbon Demand by Type 104

LIQUID PHASE APPLICATIONS
1 Liquid Phase Activated Carbon Demand by Application & Type .......... 107
2 Water Withdrawal & Water Use .................. 112
3 Activated Carbon Demand in Water Treatment by Type & Application .......... 116
4 Activated Carbon Demand in Drinking Water Treatment by End Use & Type .... 123
5 Activated Carbon Demand in Municipal Drinking Water Treatment by Product . 125
6 Activated Carbon Demand in Residential Drinking Water Treatment .......... 128
7 Activated Carbon Demand in Wastewater & Sewage Treatment Applications by Product .......... 131
8 Activated Carbon Demand in Groundwater Treatment & Other Water Treatment by Product .......... 133
9 Food & Beverage Industry Indicators .......... 137
10 Activated Carbon Demand in Food & Beverage Processing by Application & Type .......... 139
11 Activated Carbon Demand in Sweetener Processing by Application & Type .......... 142
12 Activated Carbon Demand in Other Food & Beverage Processing Applications .......... 143
13 Pharmaceutical Shipments .................... 146
14 Activated Carbon Demand in Pharmaceutical & Medical Applications .......... 148
15 Nonfuel Mining Materials Handled .......... 151
16 Activated Carbon Demand in Mining Applications .......... 153
17 Activated Carbon Demand in Other Liquid Phase Applications .......... 154

GAS PHASE APPLICATIONS
1 Activated Carbon Demand in Gas Phase Applications by Application & Type .... 157
2 Activated Carbon Demand in Industrial Air Purification by Application & Type .......... 160
3 Activated Carbon Demand in Mercury Removal .......... 164
4 Activated Carbon Demand in Industrial Gas Stream Treatment .......... 167
5 Activated Carbon Demand in HVAC & Other Industrial Air Purification .......... 169
6 Activated Carbon Demand in Motor Vehicle Applications .......... 170
7 Motor Vehicle Indicators ....................... 173
8 Activated Carbon Demand in Motor Vehicle Emissions Canisters .......... 176
9 Activated Carbon Demand in Other Motor Vehicle Applications .......... 178
10 Recovery & Recycling of Chemicals & Metals .......... 181
11 Activated Carbon Demand in Solvent Recovery .......... 183
12 Activated Carbon Demand in Other Gas Phase Applications .......... 186

REGIONS
1 US Population by Region & Subregion .......... 191
2 US Gross Domestic Product by Region & Subregion .......... 194
3 US Coal-Fired Electricity Generation by Region .......... 196
4 Activated Carbon Demand by Region & Type .......... 200
5 Northeast Economic Overview .......... 202
6 Northeast Activated Carbon Demand by Subregion, Market, & Type .......... 205
7 Midwest Economic Overview .......... 210
8 Midwest Activated Carbon Demand by Subregion, Market, & Type .......... 213
9 South Economic Overview .......... 217
10 South Activated Carbon Demand by Subregion, Market, & Type .......... 220
11 West Economic Overview .......... 226
12 West Activated Carbon Demand by Subregion, Market, & Type .......... 229

INDUSTRY STRUCTURE
1 Selected Activated Carbon Sales by Company, 2012 .......... 237
2 Selected Cooperative Agreements .......... 247

List of Charts

SUPPLY & DEMAND
1 Activated Carbon Industry Flowchart .......... 39
2 Geographic Distribution of Selected Virgin Activated Carbon Production Plants, 2012 .......... 44
3 Geographic Distribution of Selected Activated Carbon Reactivation Plants, 2012 .......... 53
4 US Activated Carbon Imports, 2012 .......... 65
5 US Activated Carbon Exports, 2012 .......... 68
6 US Activated Carbon Shipments by Type, 2002-2022 .......... 70
7 Activated Carbon Demand by Material, 2012 .......... 71

TYPES
1 Activated Carbon Demand by Type & Application, 2002-2022 .......... 79
2 Powdered Activated Carbon Demand by Application, 2012 .......... 90
3 Granular Activated Carbon Demand by Application, 2012 .......... 100

LIQUID PHASE APPLICATIONS
1 Liquid Phase Activated Carbon Demand by Application, 2012 .......... 108

GAS PHASE APPLICATIONS
1 Gas Phase Activated Carbon Demand by Application & Type, 2002-2022 .......... 158

REGIONS
1 US Coal-Fired Electricity Generation by Subregion, 2012 .......... 197
2 Regional Indicators for Activated Carbon Demand, 2012 .......... 201

INDUSTRY STRUCTURE
Implementation of the US Environmental Protection Agency’s new mercury removal standards will be the single most important factor impacting activated carbon demand through 2017.

**US demand to rise 11+% annually through 2017**

US demand for activated carbon, including virgin and reactivated products sold by activated carbon suppliers, is expected to advance over 11 percent per year to almost 1.3 billion pounds in 2017, with market value reaching nearly $1.35 billion. Implementation of the EPA’s new mercury removal standards will be the single most important factor impacting activated carbon demand through 2017.

**Powdered activated carbon to expand market share**

Mercury-emitting industrial facilities such as coal-fired power plants, cement kilns, solid waste incinerators, and other plants with large industrial boilers will predominantly turn to activated carbon injection (ACI) systems to meet EPA requirements. With an ACI system in a large industrial facility consuming up to two million pounds of powdered activated carbon annually, the phase-in of these new rules is expected to have a powerful impact on activated carbon demand, and powdered products will expand their market share to 70 percent of the US total in 2017. As powdered activated carbon is generally not reactivated, sales of powdered activated carbon are expected to remain high even beyond the phase-in deadline for the mercury removal standards.

Compliance with EPA regulations will also boost activated carbon demand in water treatment applications. Demand will increase by over 50 million pounds through 2017 as the EPA’s Stage 2 Disinfectants and Disinfection Byproducts (DBP) Rule goes into full effect. While some compliance with the DBP Rule had been achieved by 2012, the final phase-in of the rules will continue to promote growth. The majority of activated carbon used to address DBPs will be granular activated carbon, making water treatment applications the best prospect for suppliers of granular products, both virgin and reactivated.

**Smaller applications to boost value gains**

Among the smaller uses for activated carbon, motor vehicle applications, including emissions canisters and cabin air filters, will benefit from rebounding US motor vehicle production. Increased pharmaceutical output will promote demand for activated carbon in pharmaceutical and medical applications, such as purity control in pharmaceutical manufacturing. Mining applications will also see gains, as increased processing will be necessary to maximize mine output. An improving economy will promote demand for activated carbon in chemical purification and other industrial processes. Many of these smaller applications use higher-value specialty products, such as activated carbon fiber or cloth and carbon monoliths, boosting demand in value terms despite accounting for a small share of volume demand.
GAS PHASE APPLICATIONS

Industrial Air Purification

In 2012, industrial air purification uses accounted for 77% of activated carbon used in gas phase applications, and 34% of total US activated carbon demand. This represents significant growth from the 2002-2007 period, when industrial air purification represented less than half of total gas phase activated carbon demand. Through 2017, the number of activated carbon injection (ACI) systems for mercury control in the US will increase, supported by the phase-in of the EPA’s mercury emissions standards. Demand for activated carbon in industrial air purification is expected to advance 22.0 percent per year to 705 million pounds in 2017.

The industrial air purification market includes the use of activated carbon for mercury control emissions technology; for removing other pollutants such as nitric oxide or nitrogen dioxide from industrial flue gas streams; in industrial heating, ventilating, and air conditioning (HVAC) equipment; and in a number of other smaller-volume industrial air filtration applications such as specialized air purifiers (e.g., gas phase radon filters). Regulations monitoring outdoor and indoor air quality overseen by government agencies such as the US Environmental Protection Agency and the Occupational Safety and Health Administration (OSHA) have a strong influence on activated carbon demand in this market. As the use of industrial air purification equipment is also directly tied to the number and type of manufacturing facilities in the US, the overall state of the economy and the health of the country’s manufacturing sector are also key indicators of demand.

Powdered activated carbon is currently the largest product type in industrial air purification applications, as it is the preferred product type for use in ACI systems and other equipment used for mercury control. Before the emergence of the mercury control segment of the market, granular activated carbon was the largest product type used in industrial air purification.

Sample Text, Table & Chart

TABLE V-3

ACTIVATED CARBON DEMAND IN WATER TREATMENT
BY TYPE & APPLICATION

<table>
<thead>
<tr>
<th>Item</th>
<th>2002</th>
<th>2007</th>
<th>2012</th>
<th>2017</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Use (trillion gallons)</td>
<td>144.4</td>
<td>150.8</td>
<td>141.2</td>
<td>147.9</td>
<td>154.5</td>
</tr>
<tr>
<td>lbs activated carbon/mil gallons water</td>
<td>1.3</td>
<td>1.5</td>
<td>1.9</td>
<td>2.2</td>
<td>2.4</td>
</tr>
<tr>
<td>Water Treatment AC Demand</td>
<td>193</td>
<td>224</td>
<td>275</td>
<td>328</td>
<td>375</td>
</tr>
<tr>
<td>By Type:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Powdered</td>
<td>107</td>
<td>118</td>
<td>128</td>
<td>147</td>
<td>161</td>
</tr>
<tr>
<td>Granular</td>
<td>86</td>
<td>106</td>
<td>147</td>
<td>181</td>
<td>214</td>
</tr>
<tr>
<td>Other</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>By Application:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking Water</td>
<td>108</td>
<td>127</td>
<td>173</td>
<td>215</td>
<td>250</td>
</tr>
<tr>
<td>Wastewater &amp; Sewage</td>
<td>72</td>
<td>82</td>
<td>83</td>
<td>91</td>
<td>100</td>
</tr>
<tr>
<td>Groundwater &amp; Other</td>
<td>13</td>
<td>15</td>
<td>19</td>
<td>22</td>
<td>25</td>
</tr>
<tr>
<td>% water treatment</td>
<td>63.7</td>
<td>63.6</td>
<td>65.5</td>
<td>66.9</td>
<td>68.2</td>
</tr>
<tr>
<td>Liquid Phase Activated Carbon Demand</td>
<td>303</td>
<td>352</td>
<td>420</td>
<td>490</td>
<td>550</td>
</tr>
</tbody>
</table>

Copyright 2013 The Freedonia Group, Inc.
**COMPANY PROFILES**

**Carbochem Incorporated**
326 West Lancaster Avenue
Ardmore, PA 19003
610-645-9200
http://www.carbochem.com

Annual Sales: $20 million (estimated)
Employment: 20 (estimated)

Key Products: powder, granular, and pelletized activated carbon based on bituminous coal, coconut shells, and wood raw materials

Carbochem Incorporated is a manufacturer of activated carbon for water treatment, food and beverage, chemical processing, pollution control, air purification, pigments, catalysts, pharmaceuticals, gas and oil refineries, and other applications. The privately held company also produces and supplies various inorganic chemicals.

The Company is involved in the US activated carbon industry through the manufacture of activated carbon based on bituminous coal, coconut shells, and wood raw materials. These products, which are sold under the CARBOCHEM brand name, include powdered, granular, and pelletized types that are available with various pore sizes and high surface areas. CARBOCHEM activated carbons are engineered for use in water treatment, chemical processing, food and beverage, pollution control, air purification, decolorizing, solvent recovery, and other applications. Representative products include CARBOCHEM GS-75 activated carbon for solvent recovery end uses, CARBOCHEM CA-50 and CARBOCHEM DC-40 activated carbons for decolorizing applications, and CARBOCHEM LQ-830 and CARBOCHEM LQ-1240 activated carbons for use in water treatment processes.

---

**TABLE IV-1**

<table>
<thead>
<tr>
<th>Item</th>
<th>2002</th>
<th>2007</th>
<th>2012</th>
<th>2017</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Domestic Product (bil 2005$)</td>
<td>11543</td>
<td>13206</td>
<td>13593</td>
<td>15450</td>
<td>17500</td>
</tr>
<tr>
<td>lbs activated carbon/mil $ GDP</td>
<td>34.7</td>
<td>37.5</td>
<td>55.8</td>
<td>83.5</td>
<td>89.7</td>
</tr>
<tr>
<td>Activated Carbon Demand (mil pounds)</td>
<td>400</td>
<td>495</td>
<td>758</td>
<td>1290</td>
<td>1570</td>
</tr>
<tr>
<td>$/lb</td>
<td>0.75</td>
<td>0.90</td>
<td>0.99</td>
<td>1.04</td>
<td>1.13</td>
</tr>
<tr>
<td>Activated Carbon Demand</td>
<td>301</td>
<td>447</td>
<td>747</td>
<td>1345</td>
<td>1780</td>
</tr>
<tr>
<td>By Type:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Granular</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Powdered</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>By Application:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Phase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas Phase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Sample Profile, Table & Forecast**

“Although activated carbon demand in both Midwestern subregions is impacted by the same large-scale trends (growing mercury removal and water treatment applications, improving economic conditions), the West North Central is a smaller market for activated carbon due to its lower population, GDP, and manufacturing industries.”

--Section VII, pg. 215

---

Copyright 2013 The Freedonia Group, Inc.
Corporation Use License

Now every decision maker in your organization can act on the key intelligence found in all Freedonia studies. For an additional $2600, companies receive unlimited use of an electronic version (PDF) of the study. Place it on your intranet, e-mail it to coworkers around the world, or print it as many times as you like.

Click here to learn more about the Corporate Use License

**Order Information**

**Five Convenient Ways to Order**

**ONLINE:** www.freedoniagroup.com

**MAIL:** Print out and complete the order form and send to The Freedonia Group (see address at the bottom of this form)

**PHONE:** Call toll free, 800.927.5900 (US) or +1 440.684.9600

**FAX:** +1 440.646.0484 (US)

**EMAIL:** info@freedoniagroup.com

**Free Handling & Shipping**

There is NO charge for handling or UPS shipping in the US. Expect delivery in 3 to 5 business days. Outside the US, Freedonia provides free airmail service. Express delivery is available at cost.

**Orders Outside of the US**

Checks must be made payable in US funds, drawn against a US bank and mailed directly to The Freedonia Group. For wire transfers please contact our customer service department at info@freedoniagroup.com. Credit cards accepted.

**Save 15%**

If you order three (3) different titles at the same time, you can receive a 15% discount. If your order is accompanied by a check or wire transfer, you may take a 5% cash discount (discounts do not apply to Corporate Use Licenses).

**ORDER FORM**

**Activated Carbon**............................................................ $5300

☐ Corporate Use License (add to study price) * + $2600

☐ Additional Print Copies @ $600 each *

Total (including selected option) $__________

☐ Enclosed is my check (5% discount) drawn on a US bank and payable to The Freedonia Group, Inc., in US funds (Ohio residents add 7.75% sales tax)

☐ Bill my company ☐ American Express ☐ MasterCard ☐ Visa

Credit Card # ___________ ___________ ___________ ___________

Expiration Date ___________ ___________

Name ____________________________

Title ____________________________

Company _________________________

Division _________________________

Street ____________________________

City/State/Zip _______________________

Country __________________________

Phone ____________________________ Fax _______________________

Email ____________________________

Signature _________________________

☐ Individual Use License Agreement

The undersigned hereby represents that the above captioned study will be used by only ____ individual(s) who are employees of the company and that the study will not be loaded on a network for multiple users. In the event that usage of the study changes, the Company will promptly notify Freedonia of such change and will pay to Freedonia the appropriate fee based on Freedonia’s standard fee schedule then in effect. Note: Entire company corporate use license, add $2600; one additional user, add $600; two additional users, add $1200; three additional users, add $1800.

Signature _________________________

☐ Corporate Use License Agreement

The above captioned study may be stored on the company’s intranet or shared directory, available to company employees. Copies of the study may be made, but the undersigned represents that distribution of the study will be limited to employees of the company.

Signature _________________________

* Please check appropriate option and sign below to order an electronic version of the study.
About The Freedonia Group

The Freedonia Group, Inc., is a leading international industry market research company that provides its clients with information and analysis needed to make informed strategic decisions for their businesses. Studies help clients identify business opportunities, develop strategies, make investment decisions and evaluate opportunities and threats. Freedonia research is designed to deliver unbiased views and reliable outlooks to assist clients in making the right decisions. Freedonia capitalizes on the resources of its proprietary in-house research team of experienced economists, professional analysts, industry researchers and editorial groups. Freedonia covers a diverse group of industries throughout the United States, the emerging China market, and other world markets. Industries analyzed by Freedonia include:

- Chemicals • Plastics • Life Sciences • Packaging • Building Materials • Security & Electronics • Industrial Components & Equipment • Automotive & Transportation Equipment • Household Goods • Energy/Power Equipment

Freedonia Custom Research

Freedonia Custom Research delivers the same high quality, thorough and unbiased assessment of an industry or market as an industry study. Since the research initiative is based upon a company’s specific needs, companies harness Freedonia’s research capabilities and resources to answer unique questions. When you leverage the results of a Freedonia Custom Research engagement, you are able to obtain important answers to specific questions and issues associated with: mergers and acquisitions, new product launches/development, geographic expansion, entry into new markets, strategic business planning, and investment and funding decisions.

Freedonia Custom Research is ideal for companies seeking to make a strategic difference in the status quo and focus on future business growth. Working side by side with clients, Freedonia’s team is able to define a research project that is custom-tailored to answer specific questions and provide the basis from which a company can make informed business decisions.