Goldman Sachs
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Forward Looking Statements

The forward-looking statements contained in this announcement concerning demand for products and services, the expected macroeconomic environment, sales, margins, earnings growth rates, and other financial goals involve risks and uncertainties, and are subject to change based on various factors. These include the impact of changes in worldwide and national economies, the cost and availability of electric power, natural gas and other materials, development of operational efficiencies, changes in foreign currencies, changes in interest rates, the continued timely development and acceptance of new products and processes, the impact of competitive products and pricing, the impact of tax, accounting and other legislation, litigation, government regulation and the effectiveness and speed of integrating new acquisitions into the business.

The technology discussed is included in US and foreign patents and patent applications.
Unique Business Model

2004 Sales $6.6 Billion

Distribution Method
- On-Site: 25%
- Merchant: 29%
- Packaged Gases: 33%
- Other: 13%

End Markets
- Manufacturing: 21%
- Chemicals: 10%
- Metals: 16%
- Energy: 12%
- Electronics: 7%
- Food and Beverage: 7%
- Healthcare: 11%
- Aerospace: 4%
- Other: 12%

Price is a fraction of customer value; Low customer turnover; Terms capture above average ROC
High Return Sustainable Growth

- Focus on 11 core geographies
- Application technologies
- Key growth platforms
  - Hydrogen
  - Healthcare
  - China
  - Electronics
- New growth opportunities
  - Oil/gas well services
  - Enhanced oil recovery
  - Brazil energy markets
  - India
- Flawless project execution
- Productivity / Six Sigma

2004 ROC %

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Praxair
Average of Industrial Gas Peers

ROC=Net Operating Profit After Tax/Average Capital

Source: Bloomberg and company reports
Portfolio mix is shifting

♦ Asia CAGR +30%

♦ MS&S CAGR +12%
Key Growth Initiatives

♦ Thin film metal deposition:
  - PVD, CVD, & ALD

♦ CMP consumables:
  - Pads and slurries

♦ Electronic gases
  - On-site high purity gases
  - Select specialty gases

♦ Advanced components
  - Electrostatic chucks, chamber components, performance coatings

♦ Supply chain services

Global Market Size
- $5.9B
  - Fab-wide process specific consumables (pads, slurries, targets, gases, etc.)
  - Tool components consumables
  - Fab-wide OEM non-consumable equipment
  - Tool components non-consumables
  - Fab-wide commodity consumables (O-rings, fasteners, fittings, etc.)

Investment focus on high growth, high return markets
Materials Science - Physical Vapor Deposition

- 300mm PVD materials
  - Positioned to meet growing demand in Cu, Ta, Co and Ni
  - Supplying 80% of the 300mm fabs operating globally
  - 19% of Praxair’s PVD sales, relative to 12% of industry wafer starts

- Strong intellectual property position
  - Competitive advantage in Tantalum - AdvanTage™
  - Long life targets increase tool productivity by 30%
  - Ultrafine grain materials - better film uniformity and device yield

- Key programs & equipment
  - Product development programs with key OEM’s
  - State of the art 300mm application lab and automated cleaning & packaging line
  - R & D relationship with ITRI (Industrial Taiwan Research Institute)

A leading position in $400MM PVD market
ALD Materials Development

- Next generation ALD precursors
  - Deposition of metal and metal oxide films - Hf, Ru, Ta, & others
  - Complementary to physical deposition materials and electronic gas business platforms
- Formal development programs in place with key OEMs and IDM*s
- Projects in pilot stage
  - PX materials being used in production environment
- Differentiated products available
  - Higher purity compounds
  - Composition of matter IP

* IDM – Independent Design Manufacturer

High growth market – PVD and ALD will co-exist
Key OEM alliances enhance product development and commercialization
Advanced Components

♦ Technically differentiated components for chamber applications
  - Electrostatic chucks - design for 300mm requirements
  - Chamber components - liners, gas dispersion plates, electrodes, rings, screen/baffles, chamber, exhaust systems
  - Specialty ceramic materials and coatings technology

♦ Increasing customer productivity
  - Reducing particle generation increases product yield
  - Increasing corrosion resistance provides longer service life

♦ Enabling smaller feature sizes
  - Developing performance materials and processes to increase wafer processing accuracy

Creating value from improved component performance

New thermal spray booth - Phoenix component plant
Supply Chain Services

- Supply chain management and one-stop shopping for a wide range of generic consumables

- Praxair logistics programs offer fabs multiple benefits including:
  - Reduced material costs
  - Increased material availability
  - Improved spend visibility
  - Lower inventory levels
  - Higher technician utilization

Providing fabs a lower cost solution on consumables spend
Electronic Gases

- Specialty gases
  - Increasing demand for specialty gases in bulk supply
  - Focus on select gas products for all three market segments
  - UpTime™ gas delivery system – increased productivity and lower cost of ownership

- On-site and bulk gases
  - Selectively focusing on Asia’s high growth opportunities
  - Currently supplying 100% of 300mm fabs in China & Korea
  - Emphasizing new offerings and applications where we can differentiate

World class supply and distribution capabilities
Growing in Korea with Samsung

- First on-site/pipeline N2 supplier to Samsung (over 15 years)

- Only bulk and on-site gas supplier for all 3 major complexes:
  - Giheung – 200mm and 300mm fabs
  - Hwasung – new 300 mm fab complex
  - Asan – 7th generation LCD fabs

- Growing share of deposition materials and specialty gases

- Samsung expected to invest greater than $20B over the next 10 yrs in IC and LCD production

Praxair continuing to invest to meet Samsung’s growth
China – Semiconductor Market

- China’s IC demand is expected to grow to $103B by 2010
- China’s IC production forecasted to increase from $2.4B in 2003 to $14B in 2010
- PCs, phones, and consumer electronics are driving the demand

New production capacity being added to meet growing IC demand

China IC Demand and Production Forecast

Source: IC Insights, CCID 2005
China – Forecasted Fab Growth

♦ China forecasted to build 20 new fabs by 2008

♦ Primary fab growth will be for 200mm and 300mm fabs, but will still be a demand for 150mm and below

♦ SMIC has the largest production capacity ~ 33%

♦ Praxair currently supplies on-site gases to:
  - SMIC’s 200mm fabs (3)
  - SMIC’s 300mm fabs (1st prod; 2nd planned)
  - HHNEC 200 mm fab (1)

Well positioned to grow with market
China – LCD and LED Markets

♦ LCD market
  - SVA-NEC and BOE Hydis are the only major LCD manufacturers
  - China forecasts 5 lines in operation by 2006
  - Japan and Korea technology investments in China

♦ LED market
  - China sees LEDs as one of the solutions to the country’s emerging energy resource problem
  - 12 manufacturers, with 6 in production including Sanan and Podium
  - Domestic manufacturers are developing higher technology

Strong demand for bulk specialty gases from both markets
Praxair has leadership position for on-site gas supply to semiconductor fabs

Praxair’s large production of bulk liquid brings competitive advantage

Experienced project engineering team based in Shanghai

Focused on select specialty gases

**Focusing on highest return supply modes**

**2005 Estimated Market Share**

- On-site bulk Gases
- Specialty Gases

Source: Praxair estimate
Regional MSI CAGR (2004 – 2007): Asia Pacific 15%, Europe 8%, US 7%