CHINA: TREND IN PSA TAPE MANUFACTURING

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Summary:

In 2005, total output of PSA products in China was over 7 billion square meters, increased by 15% over 2004. China has become the largest BOPP and PVC tape producer, and it is also the second largest PSA product producer in the world next to the US. The China market for PSA tapes is projected to expand at an annual pace of 12-15 percent through 2010. Packaging tapes will continue to account for over two-third of aggregated volume because of booming manufacturing industry in China. Among other types of tapes, the best opportunities are in specialty tapes, such as high performance double-sided tapes. These tapes are increasingly important in fastening and bonding applications such as building construction, motor vehicle assembly, and electronics and telecommunications. The strong demands in housing and motor vehicle market in China will definitely drive the PSA tape industry. It is expected to keep the current high growth for a reasonable long period of time in China.

Outline:

1. Summary of PSA Tape Development in China
2. Coating Line Distribution and PSA Supply
3. Current PSA Tape Production Facility and Technology
4. Research and Development Trend
5. Intellectual Properties
6. Trend in Industry Regulation
7. China Market Forecast

1. History of PSA Tape Development in China

There have been three major development stages in China’s PSA industry.

   a. Starting (80’s)
   b. Developing (90’s)
   c. Scale Production (2000’s)

Four-major PSA types include emulsion, solvent, natural rubber, and hot melt.

Total PSA production volume in 2005 was over 450,000 metric tons. Current PSA consumption by type is: emulsion at 72%, solvent at 14%, N. rubber 7% and hot melt 7%.
Major applications include tape (70%), label (20%), applied-graphics (7%), and others (3%).

Total PSA product (coated products) was over 7 billion square meters in 2005. Total market value of the PSA products was approximately $2.0 billion. Among which the export value of BOPP tape was $300 million, and total export value of all PSA products was $500 million.
The significant industry growth in China has been contributed by following three key factors:

- China is becoming the world’s manufacturing center
- Rapid economic growth in China
- Favorable industrial conditions brought by investment of global companies:
  - New facility and technology
  - New raw material supply
  - Capital
  - More technical expertise

In the past 3 years, the average growth rate of PSA tape segment was about 15%.

2. Coating Line Distribution and PSA Supply

There are over 500 coating lines with over 7 billion square meters of PSA product output. These coating lines are distributed in three major geographical areas: in Southern China (50%), Eastern China (37%), Northern China (5%). All other areas have a total of 8%.

There are three major resources for PSA supply in China:

- Global companies (20%) focus on high-end market applications
  BASF, R&H, U.C.B., National Starch, Soken, etc.
- Taiwanese companies (25%) focus on middle market applications.
  Eternal, Hontex, Runyi, and Southern Resin
- Domestic companies (55% of market with over 100 producers) focus on adhesive self-supply
3. Current PSA Tape Production Facility and Technology

The coating facility and production skills were directly introduced from Taiwan at early stage of China PSA industry development.
  • Comma (bull-nose) coater;
  • Automation only in large-scale production
  • BOPP tapes: 160m/min; Double-coated tapes: 50m/min;
  • Label: 180m/min
  • Performance meets customer’s basic requirements

In terms of PSA production at most domestic facilities (for self-supply):
  • Semi-automatic production process
  • Manual control
  • Heat-jacketed reactor
  • The largest reactor is 38 cubic meters
  • QA of final products

Formulation technologies of most emulsion and solvent-base PSA’s were originally from Taiwanese companies including Asia Chemical and Eternal as well as from U.C.B.

Current formulation technologies used at domestic producers include:
  • VA/Acrylate copolymer (broadly used in tape PSA)
  • Product performance to meet application specification
  • No large-scale production of silicone PSA

There are increased challenges in China tape industry due to following issues:
  • Lower profit in BOPP-segment
  • Need equipment improvement by using wider and higher speed coaters
  • New product development
  • QA/QC (ISO system)
  • Test Methods with international standards

4. Research and Development Trend

• One clear trend is the booming establishment of R&D centers by global companies:
  - 3M: >200 R&D employees in Shanghai
  - Avery, Rohm & Haas, N. Starch has built R&D centers in China (about 5% of total sales invested in R&D)
  - Focus on high quality, high performance product development

• Most domestic producers focus on application oriented R&D. They invest less than 1% of total sales in R&D.
  - Low cost PSA formulations
  - VA/Acrylate copolymer system
  - EHA system
  - Compounding technology
  - Performance improvement
5. Intellectual Properties

  Total domestic patent application: 51
  PSA tape (23); application (20); label (8)
  Focus: applications of new materials

  Total from global companies in China: 19
  3M (8), Nitto Denko (6), Avery (5)
  Focus: manufacturing and innovation

• IP Trend and Issues:
  - Start paying attention on trademark and product logo but not on patent yet
  - Lack of IP experts
  - Not considering IP in strategy in development plan
  - More lawsuits related to IP
  - No famous adhesive or tape trademarks or brands in China yet

6. Trend of Industry Regulation

• Government issuing new laws and regulations
• Solvent recycling system in solvent coating lines
• Solvent and waste water treatment standards enforced
• VOC issues
• ISO system (about 10% domestic producers have ISO approval)

7. China Market Forecast

• PSA products will have broader applications in China’s economic development
  - Construction
  - Automotive
  - Medical and health-care
  - Electrical and electronics applies
  - Furniture
• PSA producers will become more specialized and more professional
  - More specialty producers in future
  - Market become more specialized and divided
  - Consulting companies formed by industry experts
  - R&D focus on innovation
  - Product performance at international standards
  - Production efficiency

• Growth Rate Estimation:
  - 10-15% for the industry for the next 3-5 years
  - BOPP tape: 8-10%
- Double-sided tape: 10-15%
- Masking tape: 15%
- PVC tape: 15-20%
- Protective films: 15-20%

• High Growth Opportunities:

a. High performance, high quality tapes:
   - Heat Resistant PSA for Thermal Insulating Tapes
   - Outdoor Removable Protection Films and Sun Screen Films
   - Acrylic Foam Tape for Construction and Auto Industry
   - Medical tape
b. Environmental Friendly PSA
   - Water based laminating PSA
   - Emulsion Removable PSA
   - 100% solid and Hot Melt PSA
   - High Solid Emulsion PSA with Low Viscosity

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