Gum Rosin, Tall Oil Rosin and Hydrocarbon Resin: complementary or competing raw-materials?

PCA Conference, - Santiago de Chile
September, 2016
"Pine trees are not like human beings, they go for a long time without altering..."

Fyodor Dostoyevsky
Fyodor Mikhailovich (11 November 1821 – 9 February 1881), was a Russian novelist, short story writer, essayist, journalist and philosopher..
Content
«Gum Rosin, Tall Oil Rosin and Hydrocarbon Resin: complementary or competing raw-materials??».

Introduction Petrofer

History of global production of Rosin

Exports of Rosin, TOR and HCR

Today’s market positions of Rosin, TOR and HCR

Future Trends

Conclusions
Petrofer AG
HQ in Reinach nearby Basel – Switzerland

3 Trading Divisions

steel  jetfuel  resina
pine chemical
First arrival in China
Meeting-Room at «Guangdong Native Produce and Animal By-Product Import & Export Corporation»

Feb 1984
Guangzhou Flying Dragon Chemical Ltd.
Sourcing and trading subsidiary of Petrofer AG

May 2006

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Beiliu Hengli Pine Chemical Ltd. (G61)
Gum Rosin Manufacturing Facility in Guangxi Province – China

March 2007
Pine Chemicals Department Team Today
Nanxiong Flying Dragon Forestry Devel. Ltd.
Afforestation Company

May 2011
Petrofer – Flying Dragon Enterprises

Entities in China

GROUP
flying dragon enterprises ltd.

China

guangzhou flying dragon chemical ltd. (FDC) 2006
beiliu hengli pine chemical ltd. (G61) 2007
nanxiong flying dragon forestry dev. ltd. (FDF) 2011
guangzhou ruishi gourmet services ltd. (GRGS) 2014
shanghai flying dragon steel ltd. (FDS) 2015

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Original strategy of FDE-Group (2007)

• Flying Dragon Enterprises:
  – Source Gum Rosin from Chinese factories and export to other countries (Petrofer AG)
    • Target to cover min. 50 % of Gum Rosin through our own factory

• Own rosin distillation facility (Beiliu Hengli Pine Chemicals Ltd):
  – Production **Plan 2007**
    • 90 % Export through FDC and 10 % on domestic market
  – Production **Status 2015**
    • 5 % Export and 95 % domestic market
Gum Rosin, Tall Oil Rosin and Hydrocarbon Resin: complementary or competing raw-materials?

Answer: They are both!
Production of Gum Rosin Worldwide

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Afforestation
What are the advantages of Brazilian afforestation?

- Planted forests with high tree-density
- Rather big flat areas
- Geometrical layout for easier operations and use of automatization
Genetic Selection

What are the advantages of Brazilian Genetic Selection?

- Improved genetics
- Fast growing pine trees
- Optimized rosin-acid-content in terms of
  - Yield
  - Distribution
Tapping / Logistics
What are the advantages of Brazilian Tapping and Logistics?

- **Cut**
  - **Brazil:** Every 14/21 days, 7’000 trees/10 month season, 6 kg crude gum/tree
  - **China:** almost Everyday, 1’500 trees/7 month season, 2-3 kg crude gum/tree

- **Stimulants**
  - Optimized stimulant paste

- **Equipment**
  - State-of-the-art cutting tools, specifically developed bags and fastener

- **Employees**
  - Trained and incentive provisioned, lower labor-cost per unit of crude

- **Logistics from the forest to the factory**
  - Developed logistics, optimized containers/lorries, unloading facilities

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Conclusions
What are the advantages of Brazilian Gum Rosin?

- Lower costs / better quality
  - Less residues, less oxidation, less evaporation of volatile matters

- Improved productivity

- Higher competitiveness
  - Especially on export markets

- Offsetting increased labor-cost

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Chinese Gum Rosin Market Today

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Brazilian / Indonesian Gum Rosin Market

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Tall Oil Rosin Market
Smaller Producing Countries

TOR 2015 – Smaller Producing Countries

- France: 15'600 in mt
- Japan: 15'600 in mt
- Brazil: 11'700 in mt
- China: 7'800 in mt
- Others: 11'700 in mt
- Austria: 11'700 in mt

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What are the characteristics of the TOR-production?

- Stable volumes in a highly structured market leads to little availability for individual buyers
- TOR is depending to a high degree on the production of pulp and paper. It is a rather small byproduct in terms of volume and earnings
- Capital-intensive industrial process. Need of large scale facilities. Focus rather lies on return of pulp and paper
- Today preferably fast growing Eucalyptus is used, therefore less CTO is available
- The battle for using CTO as feedstock for TOR or Bio-Fuel is not decided. Hence the potential for TOR-growth is limited

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What are the characteristics of the HCR-production?

• Small byproduct in Crude oil- and Gas refining process (0.2 %o)
• High flexibility to optimize mix of downstream in the refining process
  – optimized netbacks of specific Crudes or Gases.
• Natural gas is substituting Crude oil
  – therefore less heavy feeds from naphtha are available
  – means less ethylene as feedstock for HCR will be produced
• USA, Europe, Japan and Korea closed a part of their «heavy» crackers
  – China expanded capacities of this refinery-type and by this increased their feedstock for HCR considerably
• Drop in oil prices discriminated HCR against other oil-downstreams
  – high costs and low yield
  – but HCR improved its competitiveness against TOR and GR because of its low price
• Market dynamics remain complex
  – China enhanced its position as an important player in the total rosin market
Conclusion

- All types GR, TOR and HCR will remain important in the future. Exports will decrease to secure domestic industry and economy.
- TOR is a small byproduct of pulp + paper industry. The availability is limited and depends on processed type of wood and markets for Bio-Diesel.
- HCR is a small byproduct of oil and gas refining (70 % goes to transportation-fuels). Availability depends on cracking-capacity for naphtha -> ethylene as a feedstock for HCR.
- GR-production is the only stand-alone industry. Its future depends on
  - Systematical afforestation
  - Improved genetics of pine-trees
  - Efficient tapping by trained and fair-paid farmers / workers
  - Positive impact on reduced climate-warming and better life for rural population
Muchas Graçasias
Thank you for your attention

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