The Portuguese natural resin sector: from resin tapping to the second transformation industry

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Natural Resin

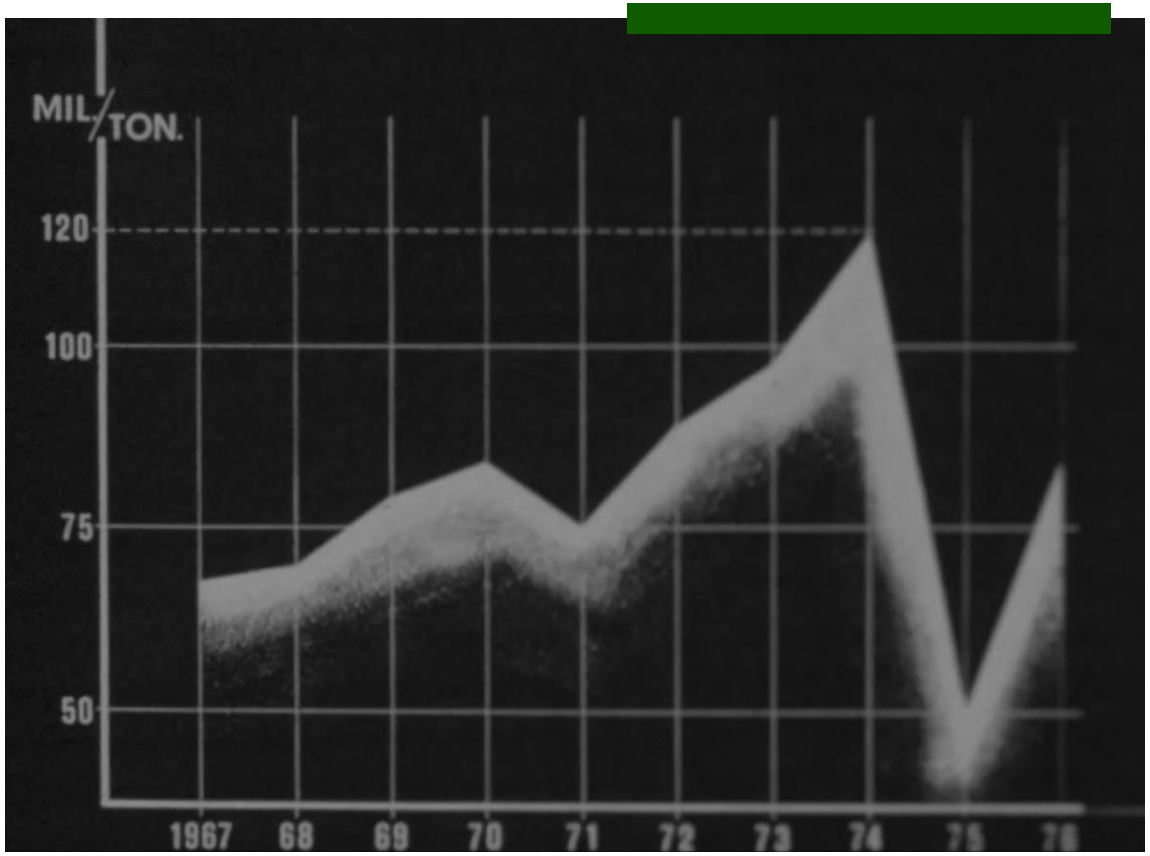
- Natural substance
- Exuded by conifers as a protection mechanism
- Transparent viscous substance
- Strong pine sent

Natural Resin

- Used in mumification in Ancient Egypt

- Used for water proofing in vessels - Naval Stores

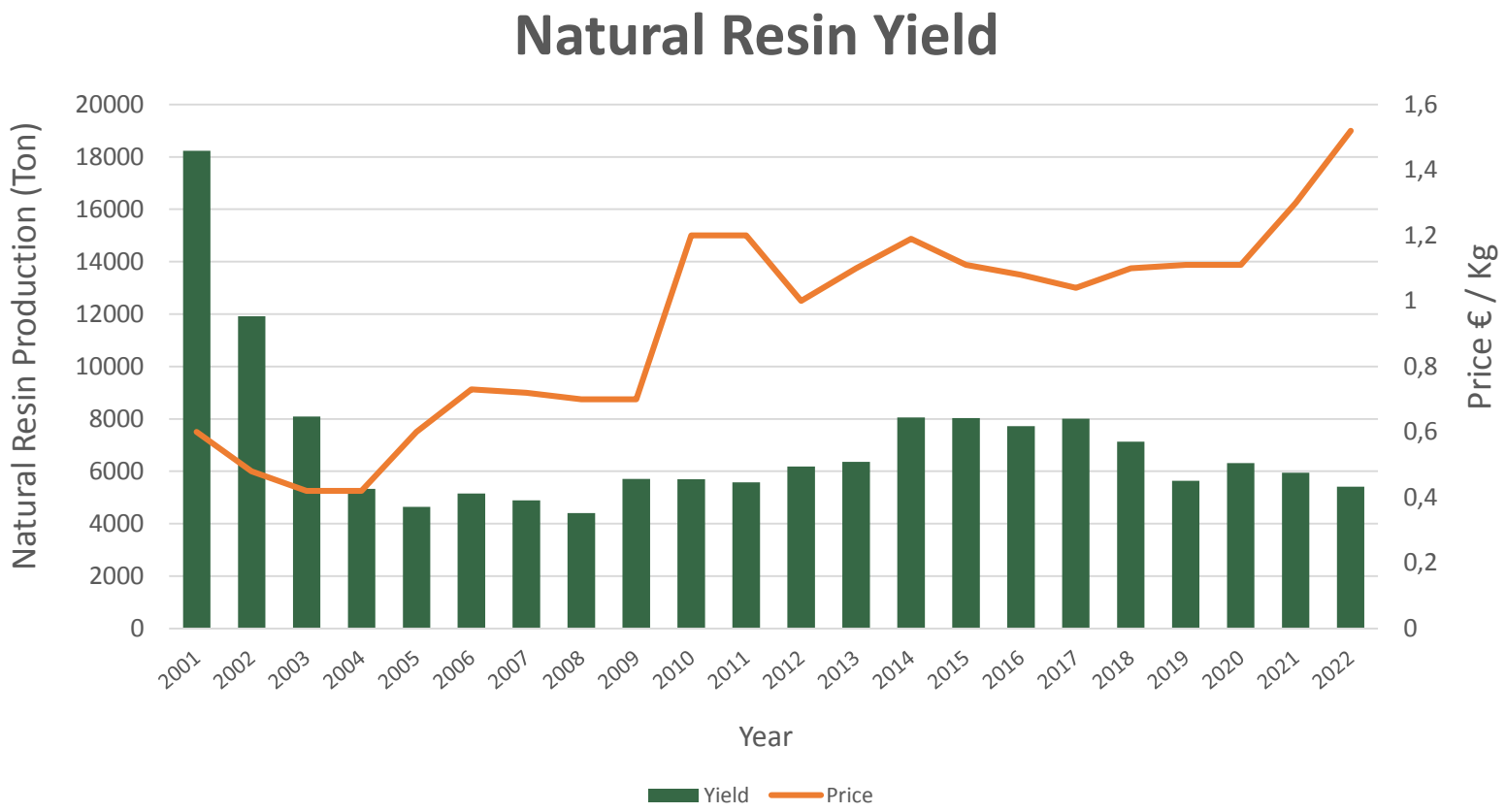
Natural Resin



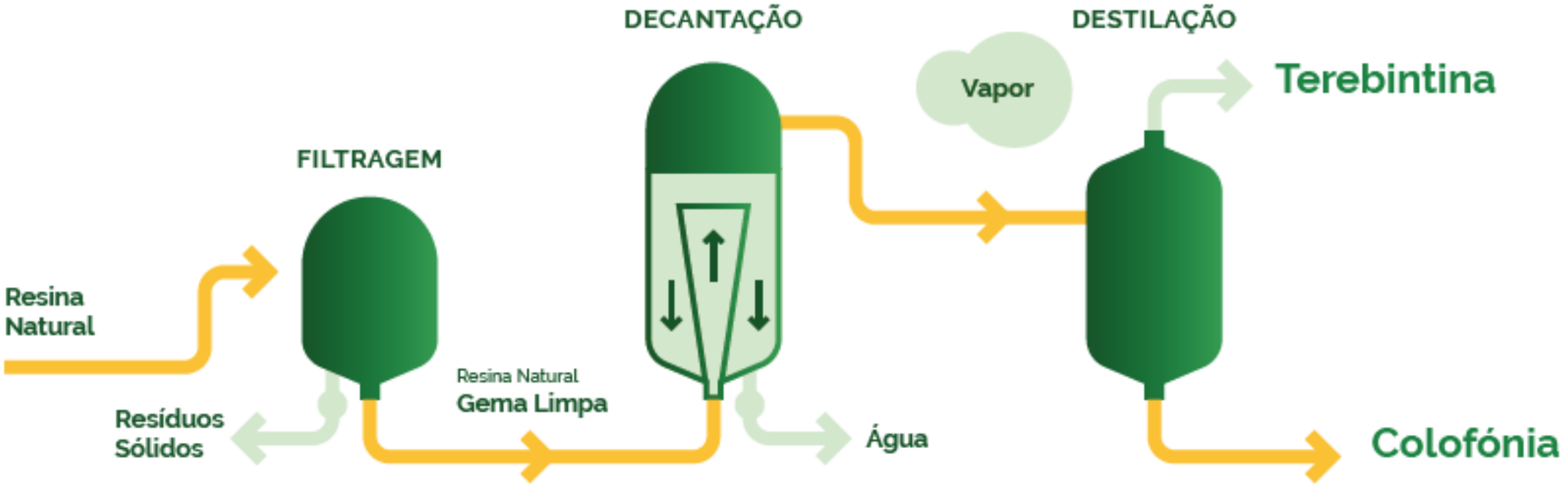
- Commercially extracted

- In the 1970s-80s Portugal was the 2nd world producer of Natural Resin

Natural Resin



Natural Resin
1st Transformation



Terepentine

Composed of Terpenes

- α-pinene
- β-pinene
- Limonene

Used in

- Cleaning products
- Disinfectants
- Perfumes
- Paints and varnishes
- Pharmaceutic Industry

Rosin | Colophony

Composed of resin acids

Abietic acid

Pimaric acid

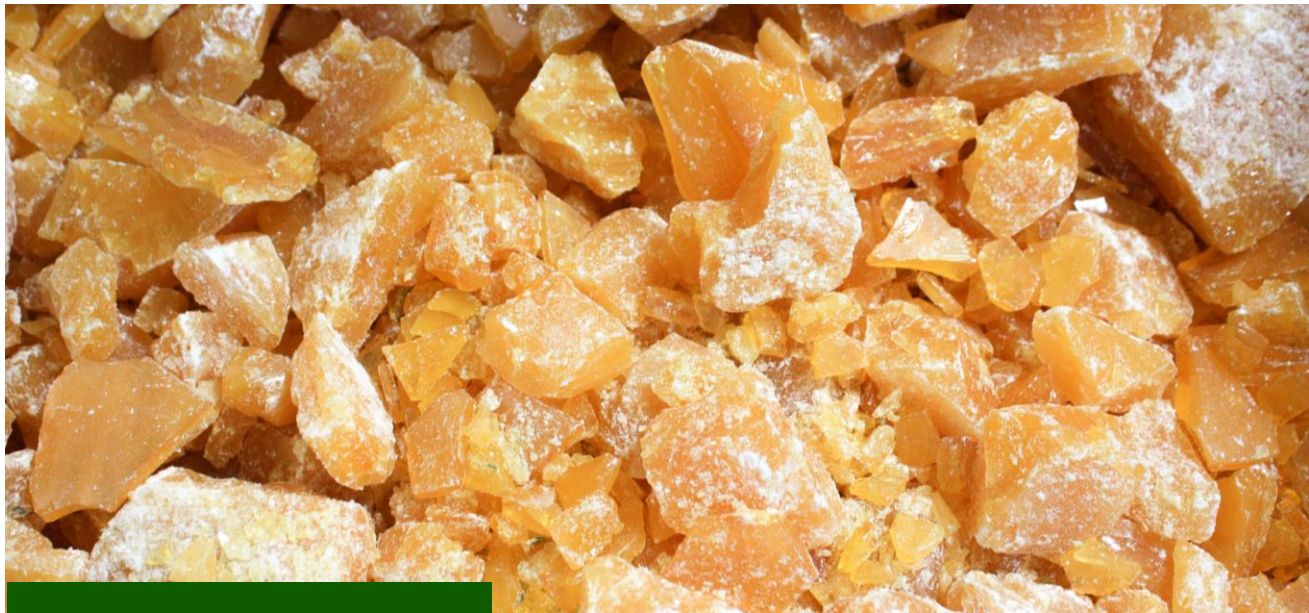
Used in

Depilatory waxes

Paper sizing

Anti-corrosion paint

Tackifier



Natural Resin
2nd Transformation

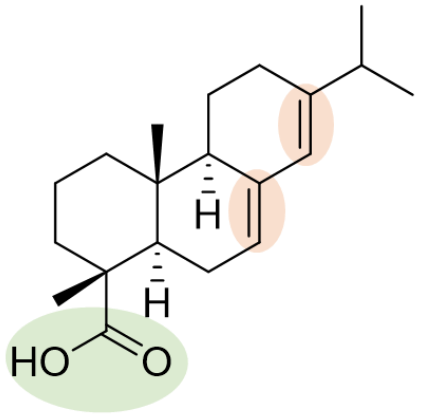
Rosin is a raw material of high industrial interest, abundant and low-cost resource with significant modification potential, thus leading to a variety of value-added products

Esterification reactions

Decarboxylation reactions

Reduction reactions

Salt formation



Abietic acid

Addition reactions

Oxidation reactions

Reduction reactions

Dehydrogenation reaction

Rosin Derivates | Applications

Hidrogenated Rosin	soldering flux adhesives Inks
Water Base Dispersions	Pressure Sensitive Adhesives Adhesive tape Paper labels
Triethylene Glycol Ester	Depilatory waxes Floor coating adhesives
Glycerol Ester	Chewing gum Depilatory waxes
Pentaerythritol Ester	Pressure Sensitive Adhesives Road Mark Inks
Disproportionated Gum Rosin	Automotive tires
Polimerized Gum Rosin	Paint and Varnish Ink Adhesives
Phenolic Modified Rosin Resin	Printing Inks
Fumaric Rosin Adduct	Paper sizing
Maleic Rosin Adduct	Pains Varnishes

Integrated Project RN21

Aims to reinforce and modernize the natural resin sector by

- Generating economic resilience
- Promoting sustainable bioeconomy
- Contributing to carbon neutrality and to a more productive and resilient pine forest
- Increasing territorial cohesion

Integrated Project RN21

Pillar I

Promoting the production of portuguese Natural Resin

- Reinforcing the productive capacity of the pine forests;
- Increase resin extraction productivity;
- Training program for resin tapping;
- Make resin extraction more attractive to the forest owners.

Pillar II

Strengthening the sustainability of the transformation industry

- Industrial investment and value chain support;
- Development of new products and applications for gum rosin derivatives;
- Industrial Simbioses.

Pillar III

Positive differentiation of Natural Resin and its derivatives

- New brand to differentiate products containing Natural Resin;
- Technical journal;
- Marketing campaign.

Integrated Project RN21

Integrated Project RN21

By involving all the of the sector key stakeholders in a multidisciplinary approach to natural resin, RN21 aims to boost the Natural Resin sector, by creating jobs in rural areas and increase human presence in the forest, which will potentially decreasing fire frequency and intensity, while promoting the resin transformation industry.

Thank you

for your attention!

Bioeconomia

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