BIO PYROLYSIS OIL
INFORMATION MEMORANDUM
This Info Memo is intended to present the Bio Pyrolysis Oil opportunity by Suzano

Memorandum chapters

1 Suzano Overview
   • Suzano´s company profile
   • Suzano´s strategy

2 The BPO Opportunity
   • Market Overview
   • Technology
   • Key applications

3 Brazilian potential
   • Operational leverages
   • Aracruz Project
Suzano is a Brazilian company with close to USD 10B revenues geographically diversified.

### Net revenues (USD billion)

<table>
<thead>
<tr>
<th>Year</th>
<th>Brazil</th>
<th>Americas</th>
<th>Europe</th>
<th>Asia</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>6.7</td>
<td>20%</td>
<td>18%</td>
<td>24%</td>
</tr>
<tr>
<td>2020</td>
<td>5.8</td>
<td>16%</td>
<td>18%</td>
<td>22%</td>
</tr>
<tr>
<td>2021</td>
<td>7.5</td>
<td>16%</td>
<td>18%</td>
<td>26%</td>
</tr>
<tr>
<td>2022</td>
<td>9.6</td>
<td>17%</td>
<td>20%</td>
<td>26%</td>
</tr>
</tbody>
</table>

*Net Revenues Breakdown*

- **Pulp**: 83%
- **Paperboard**: 11%
- **Other Paper**: 3%
- **P&W**: 3%

*Pulp End use*

- **Tissue**: 63%
- **Specialties**: 16%
- **P&W**: 14%
- **Other**: 8%
Listed in B3⁠¹ and NYSE, Suzano has a robust governance...

Listed on Novo Mercado, B3’s highest corporate governance segment and NYSE ADR-level 2 program

SUZB
B3 LISTED NM

SUZ
LISTED
NYSE

ESG: 10%
of management’s short-term variable compensation since 2021.

Board of Directors

9 Members

56% Independent members

33% of Women

Appointment of risk expert

Supported by Committees

Audit (Statutory)
People
Appointment and Compensation
Sustainability
Strategy and Innovation
Management and Finance

1. B3 S.A. – Brasil, Bolsa, Balcão is one of the world’s largest financial market infrastructure companies, providing trading services in an exchange and OTC environment.
... and irreplaceable First-Class Assets

### Our plantations

- 1.3 million hectares of planted and certified areas (equivalent to 200x Manhattan)
- Geographically diversified areas
- 40m³/ha/year average productivity
- 156 km structural average radius
- Unmatched eucalyptus genetic base
- Unique harvesting and inbound logistics

### Pulp Business

- 10.9 million tons of market pulp
- Integrated supply chain
- 90 MWm average surplus (equivalent to 1.4MM people town)
- 7 pulp mills strategically located

### Our Logistics

- All mills either close to shore or railway connected
- 3 export pulp ports
- 12 fully dedicated vessels
- 86 countries served

### Paper Business

- 100% pulp integrated
- Unique go-to-market model
- Leading Brazilian brands
- 1.4 million tons of paper
- 35 thousand clients
- ~40% Brazilian market share
Strong footprint in the most advantageous feedstock geography in the world

12 mills
1 mill under construction
21 distribution centers
5 technology centers*
5 ports
Fully Integrated Global Distribution
Undisputed competitiveness in the pulp industry

**Hardwood** CIF China I USD/ton and Production Capacity (M Ton)

- Brazil 18.2 (47%)
- Chile/Uruguay 4.9 (13%)
- Indonesia 4.5 (12%)
- Other Asia 0.5 (1%)
- US 0.9 (2%)
- Japan 0.6 (2%)

**Softwood** CIF China I USD/ton and Production Capacity (M Ton)

- Chile 1.7 (6%)
- US 7.9 (28%)
- West Europe 9.2 (32%)
- Canada 6.2 (21%)

**TOP 10**

- Suzano 10.9
- APP + PE + Domtar 5.5
- APRIL (incl. Bracell) 4.2
- CMPC 3.9
- Arauco 3.1
- IP 3.3
- UPM 2.6
- Stora Enso 2.5
- Metsa 2.4
- GP 2.4
A new 2.55 Mt project coming online in the 2Q24 will further increase our competitiveness

- Lowest cash cost of our asset base
- Total capex of R$19.3 billion (~USD 3.7 billion)
- 180 MW average energy export to the grid
- Low execution risk backed (time and budget) by strong track record in projects implementation
Large global impact with the offerings of our renewable products

<table>
<thead>
<tr>
<th>Category</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>PULP</td>
<td>10,9 M TON/YEAR*</td>
</tr>
<tr>
<td>PAPER AND PACKAGING</td>
<td>1,4 M TON/YEAR*</td>
</tr>
<tr>
<td>CONSUMER GOODS</td>
<td>150 K TON/YEAR*</td>
</tr>
<tr>
<td>NEW BUSINESSES</td>
<td></td>
</tr>
</tbody>
</table>

* Installed production capacity
Committed to zero deforestation and to a sustainable forestry model

ALL SUZANO INDUSTRIAL UNITS ARE CERTIFIED

- Forest Stewardship Council® (FSC®)¹ and/or CERFLOR® / PEFC
- 87% of areas certified

COMMITTED TO ZERO DEFORESTATION

- Operations only on already anthropized areas
- Wood purchase policy and forest management plans
  - 100% chain of custody certification
  - 100% traceability: sourcing and supply of wood
- Aiming for biodiversity maintenance / enrichment, soil conservation, carbon sequestration and carbon stock
- Committed to responsible water use

1.3 M ha
Of planted eucalyptus on 100% previously degraded areas

+ 1.0 M ha
Devoted to conservation purpose only

Constantly monitored

¹ License code FSC-C010014
Fully committed to the SDGs to accelerate the fulfillment of the 2030 Agenda

**CLIMATE CHANGE**
- 15% reduction in scope 1 and 2 emissions per ton of production

**WATER**
- Forest: Increase water availability in 100% of critical watersheds

**BIODIVERSITY AND CONSERVATION**
- Connect half a million hectares of priority areas for biodiversity conservation in the Cerrado (Brazilian savannah), Atlantic Forest, and Amazon...

**INDUSTRY AND INNOVATION**
- Offer 10 million tons of products from renewable source that can replace plastics and other petroleum products

**WASTE**
- Reduce by 70% the industrial solid waste sent to our own or third-party landfills, transforming them into by-products

**ENERGY**
- Increase renewable energy exports by 50%

**EDUCATION**
- Increase the education index (IDEB) by 40% in all priority municipalities

**POVERTY**
- Lift 200,000 people out of poverty in our areas of operation

**DIVERSITY AND INCLUSION**
- Have 30% of Women and 30% of Black employees in leadership positions
- Achieve 100% inclusive environment for LGBTI+
- Ensure 100% accessibility and achieve a 100% inclusive environment for people with disabilities
Suzano Overview

Strategic vision

1. Continue being a benchmark in the sector in efficiency, profitability and sustainability, from the forest to the client.

2. Be a transformational agent in the expansion into new markets for our biomass.

3. Be a reference in sustainable and innovative solutions for the bioeconomy and environmental services, based on planted trees.
Avenues

- Play a Leading role in sustainability
- Expand boldly into New Markets
- Advance in the links of the chain, always with competitive advantage
- Maintain relevance in Pulp, through good projects
- Be “Best-in-Class” in the Total Pulp Cost vision
Pyrolysis is a key part of the prioritized routes for growth and value creation by our biomass
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   - Key applications

3. Brazilian potential
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   - Aracruz Project
Decarbonizing the world's economy is urgent and crucial to avoid major disasters and loss of wealth.

Global CO2 emissions (GtCO2), 2022

Carbon dioxide (CO₂) emissions from energy combustion and industrial processes and their annual change, 1900 - 2022

GDP loss (per capita) by 2100 due to disasters and Climate Change²

- >4.0°C Current path
- 2.0°C Paris goal
- 1.5°C Paris goal

Source: 1. IEA CO2 Emissions in 2022 (March 2023); 2. BCG Brazil Climate Report 2020
Hard-to-abate industries account for about 30% of global emissions...

Some of the reasons why these sectors are classified as hard-to-abate:

- Lack of maturity of the technologies likely to be relied upon to mitigate their emissions
- High heat requirements which today are exclusively provided by fossil fuels
- Process emissions resulting from chemical reactions rather than the combustion of fossil fuels

... and if no action is taken, these emissions could increase by 50% by mid-century

Climate goals will not be met without the decarbonization of these industries...

... if we continue along this path, we will not be able to contain global warming at 1.5°C

Source: Adapted from Citi GPS Global Perspectives & Solutions May 2021
BIO PYROLYSIS OIL

A low-carbon alternative to fossil-based materials that allows a new rising platform for fuels, chemicals and bio-possibilities...

...generating value for all stakeholders
BPO is a sustainable and attractive solution

Proven Technology
Existing commercial production capacity

Flexible Applications
Platform for multiple bio-possibilities in different segments

GHG Reductions
Potential to reduce emissions by up to 98% in a full lifecycle basis

Large Market
+100 Mtpy addressable market in Europe and US alone
**BPO Opportunities**

Ensyn’s RTP process is a unique and proven technology that allows Suzano to produce BPO.

### Biomass feedstocks

- Planted forests and forest residues
- Construction & demolition wood residues
- Agricultural residues

### RTP® process

- Biomass is rapidly **vaporized** to moderate temperatures and condensed into a **low-carbon liquid fuel**.
- Non-condensed gas from reactor and re heater chimney gas are recovered and used to **maximize energy efficiency**.
- **Yield around 70% biomass** to liquid.
- **Biochar can be extracted** at different points and/or used to drive the process.

Source: Ensyn
BPO is a flexible solution for energy, chemicals and transportation sectors

- **Low Carbon Fuel Oil**: BPO can help to decarbonize energy sectors with low cost of implementation.

- **Biochemicals**: BPO is a platform for multiple chemical streams.

- **Co-Processing**: BPO co-processing leverages existing refineries, decarbonizing transportation sector.
Low Carbon Fuel Oil is a commercial application by Ensyn and Suzano can be a strong & reliable supplier

Low Carbon Fuel Oil (LCFO)

- **Low Carbon Fuel Oil (LCFO) is a renewable, liquid fuel for heating and cooling produced from solid biomass**

- LCFO has been used at scale for industrial heat for 30+ years at Kerry’s RTP® operations in Wisconsin

- Ensyn has been **commercially selling LCFO since 2014**
  - Production of 12 million litres/year plant in Ontario, with **deliveries focused on customers in the US Northeast**
  - LCFO has been used commercially in:
    - Large institutional and commercial boilers
    - District energy plants
    - Industrial boilers and furnaces

Source: Ensyn
Co-processing is a competitive and attractive application

**BPO Co-Processing**

- Co-processing involves existing petroleum refineries using BPO as a renewable feedstock for the production of on-spec transportation fuels:
  - renewable gasoline
  - renewable diesel
  - bio-LPG

- BPO co-processing is deployed by feeding biocrude into the refinery’s Fluid Catalytic Cracking Unit (FCCU) alongside conventional fossil fuel feedstocks

- Ensyn’s powerful competitive position is based on proprietary technologies
BPO’s low carbon fuel products are well positioned to take advantage of proposed federal Clean Fuel Standard in Canada and recent EU proposals for a 3rd Renewable Energy Directive ("RED III"), both of which are based on carbon intensity reduction targets.

Low Carbon Fuel Oil can reduce total GHG emissions by up to 98% on a full life cycle basis.

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Carbon Intensity gCO₂/MJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil for maritime transportation</td>
<td>87</td>
</tr>
<tr>
<td>Ethanol from wheat</td>
<td>85</td>
</tr>
<tr>
<td>FAME from rapeseed</td>
<td>70</td>
</tr>
<tr>
<td>Pure rapeseed</td>
<td>58</td>
</tr>
<tr>
<td>CNG from municipal organic waste</td>
<td>52</td>
</tr>
<tr>
<td>FAME from Used Cooking Oil</td>
<td>44</td>
</tr>
<tr>
<td>Low Carbon Fuel Oil</td>
<td>36</td>
</tr>
<tr>
<td>CNG from municipal organic waste</td>
<td>24</td>
</tr>
<tr>
<td>FAME from Used Cooking Oil</td>
<td>23</td>
</tr>
<tr>
<td>Pure rapeseed</td>
<td>16</td>
</tr>
<tr>
<td>CNG from municipal organic waste</td>
<td>14</td>
</tr>
<tr>
<td>LCFO* combined with biochar sequestration</td>
<td>2</td>
</tr>
</tbody>
</table>

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Suzano’s opportunity in BPO is leveraged by our current skills in large scale production with excellence

**Excellence in forests sustainable planted**
- High productivity compared to other feedstocks;
- Continuous investment in genetic improvement; enabling adaptation for use in our bio-business;
- Top-notch ESG practices attracting interest from partners;
- Forest certification;
- Integrated landscape;
- Connection with operations in the carbon market.

**Operational Excellence**
- Ability to plan, execute and manage large projects;
- Continuous scale growth;
- Cost optimization;
- Multimodal logistics approach for flexibility and cost optimization;
- Experience in moving large volumes;
- Efficient port operations;
- Dedicated vessels and terminals.

**Market Positioning**
- Strong reputation for ESG practices;
- Ambidextrous organization;
- Technological pioneering in RTP and 1st lignin producer in south hemisphere;
- Solid relationship with stakeholders.

Continue being a benchmark in the sector in efficiency, profitability and sustainability, from the forest to the client.
First project is already in advanced development in Brazil, with start-up in 4Q2025

Location: Aracruz, Espírito Santo, Brazil

Bio Pyrolysis Oil Project

- **Capacity:** 111 kt

Feedstock

- (a) **100% residues:** tree tops, energy wood and industrial biomass residues
- (b) **Planted forest:** SUZ most competitive model

Transportation

- Transfer from SUZ to terminal by pipeline
- Exports by Petrobras Terminal (TABR): liquid vessels with 10 kton of capacity

Timing

- Approval expected for 4Q23
- Start-up 4Q25
Executive Officer - New BioBusDev, Strategy, Digital Tech - Christian Orglmeister holds an engineering degree from FEI, a graduate degree from Fundação Getúlio Vargas, and an Executive MBA from TRIUM (LSE, HEC and NYU). Between 2000 and 2002, he worked at the logistics startup Intecom of Grupo Martins, after which he worked at A.T. Kearney for four years in the operations area. In 2006, he joined The Boston Consulting Group, where he led the People, Organization and Governance [AI] practice and the Family Business practice in South America. In 2015, he became Managing Director of the BCG offices in Brazil. During his 20 years as consultant, Christian assisted some of the leading Brazilian and international business groups on strategy, governance, people and digital transformation. He is currently New BioBusDev, Strategy, Digital Tech Officer of the Company.
christian.o@suzano.com.br

Manager - New Business Bio Oil – Erik da Silva holds a degree in Chemical Engineering from Unicamp and a specialization from Fundação Dom Cabral. He is currently New Business Manager. He held the position of Senior Corporate Strategy Consultant at Suzano from 2020 to July 2022. In the last 8 years, he held several high-level positions in companies in the chemical and forestry sectors. He plays an important role as responsible for the development of the Bio Pyrolysis Oil business, coordinating multiple fronts within and outside Suzano. Responsible for the commissioning and operation of the first Kraft Lignin production plant in the southern hemisphere (20,000 tonnes per year of capacity).
erikms@suzano.com.br

Manager - New Business – Gabriel Paulo holds a degree in Energy Engineering from UFSC and a specialization from Fundação Dom Cabral, with an emphasis on Finance and Business Management. He has already worked in the Forestry area, focusing on the development of digital products, connecting the business with the open innovation ecosystem, technology embedded in machines and project management. He is currently New Business Manager at Suzano, being responsible for corporate finance and business intelligence for all bio business initiatives.
gabrielsouza@suzano.com.br

Executive Manager - New Business – Elizabeth Shie holds a degree in Production Engineering from USP and an MBA from the London Business School, with concentration in Finance and Change Management. She is currently Executive Manager of New Business at Suzano playing an important role in business development initiatives through partnerships models, new business structuring, M&A deals and equity investments. In addition to new business, she acts as Investor for Suzano’s Ventures (corporate venture capital of Suzano), conducting financial and legal analysis. Over the past 12 years, she has held several positions in companies in the financial sector.
emshie@suzano.com.br

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THANK YOU

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