PIONEERING THE USE OF ENZYMES FOR THE EMERGENCE OF A SUSTAINABLE PLASTIC INDUSTRY
Disclaimer

This presentation used sources deemed credible and reliable but is not guaranteed as to accuracy or completeness. It also contains forward looking information that expresses management’s best assessments but might prove inaccurate. The information contained in this presentation is subject to many factors and uncertainties and therefore subject to change without notice. The company declines any responsibility to update, revise or correct any of the information hereby contained. This presentation does not constitute an offer or invitation to purchase securities of Carbios.
CARBIOS today

ENZYMES TO REINVENT THE LIFECYCLE OF PLASTICS

- CREATION: 2011
- IPO ON EURONEXT PARIS: Dec. 2013
- 19 EMPLOYEES
- 2 INNOVATIVE BIOPROCESSES
- 22 PATENT FAMILIES
- R&D PROGRAM: 22 M€

KEY PARTNERS:

www.carbios.fr
Plastics: not waste but resource!

Plastic production/year: 322 million tons

Plastic waste/year: 125 million tons

- **SINGLE USE AND SHORT LIFESPAN PLASTICS** 50%
  - Oceans
    - 9 Mtons/year
    - Long term pollution
  - Landfills

- **DURABLE AND MULTI-USE PLASTICS** 50%
  - Incineration
    - Non profitable
  - Recycling
    - Too limited

**SELF DESTRUCTIBLE PLASTICS**
FOR ALL SINGLE USE AND SHORT LIFESPAN PLASTICS

**INFINITE BIORECYCLING**
FOR ALL DURABLE AND MULTI-USE PLASTICS

1: Source PlasticEurope in 2015 / 2: Global estimated waste stream by extension of available data from EU, US & Asia - Carbios

www.carbios.fr
A radical innovation: enzymes to break down plastics!

1. Selection of microorganisms degrading plastics (for use as a carbon source for their growth)

2. Microorganisms produce the enzymes in charge of plastic degradation

www.carbios.fr

PLASTIC POLYMER

ENZYME (Powerful & highly specific catalysis)

MONOMERS (building blocks)

100% eco-friendly biodegradation

A focus on two global markets

BIODÉGRADATION

BIORECYCLAGE

building blocks for new virgin plastics
BIODEGRADATION
What’s on the market today and why doesn’t it work?

ORDINARY PLASTICS
- Non biodegradable
- Ban in several countries
- 200 to 300 years to degrade
- Source of long term pollution

BIODEGRADABLE PLASTICS
- High cost of biodegradable polymers
- Poor mechanical properties
- Lack of control on the time of biodegradation

OXODEGRADABLE PLASTICS
- No complete biodegradation
- Invisible soil pollution / Toxic additives
- Ban in several countries

COMPOSTABLE PLASTICS
- Requires industrial composting
- Low biodegradation capacity in the environment

It’s really time for a switch to eco-friendly solutions!
Carbios enzymated plastics with a controlled lifespan

**CHALLENGES:**

✓ Resistance of enzymes to high extrusion temperatures (PLA ~ 165°C)
✓ Maintain enzymes activity in the polymer

Enzyme incorporation in the plastic material Zero waste

I am now self-destructible just after use!
CARBIOLICE: An industrial & commercial joint-venture

Enzymatic technologies applied to polymers

Support to industrial activities (SPI fund)

4th global seed producer

Operational launch: September 2016

www.carbios.fr
CARBIOLICE: First commercial plant under control of CARBIOS

**PRODUCTS**

- **BIODEGRADABLE AND BIOSOURCED RAW MATERIALS: COMPOUND AND MASTERBATCH PELLETS**

**SIZING OF THE PROJECT**

- €18 M budget including €11 M inflow from Bpifrance
- 1 industrial production plant (capacity: 4,000 tons/year)
- 2 pilot production plant
- 1 application development laboratory

**TARGETED MARKETS**

- BAGS & PACKAGING: 17.5 Mtons/year ($28 billion)
- MULCHING FILMS: 2 Mtons/year ($5 billion)
- TECHNICAL FILMS: 500 Ktons/year ($4 billion)

**CARBIOLICE OBJECTIVES**

- Gain 1/3 of the EU market of soft biodegradable plastics
- Concede sub-licenses

**VALORISATION FOR CARBIOS**

- €8 M **Upfront** converted in shares of the joint-venture
- Collaboration Revenues: €2.5 M
- First Royalties in 2019

[www.carbios.fr](http://www.carbios.fr)
Current plastic recycling is expensive and inefficient

- **CURRENT LIMITATIONS**
  - Sophisticated and expensive sorting
  - Limited efficiency
  - Difficult for complex plastics

- **DOWNCYCLING**
  - Recycling introduces impurities and toxic additives
  - Mainly serves secondary applications
  - Recycling is not a continuous process

- **INCREASING REGULATIONS**
  - In 2014, EU plastics recycling only reached **29.7%**
  - EU has set a plastic recycling target of **60% by 2025**

CARBIOS develops a recycling process that overcomes current limitations
CARBIOS infinite recycling of PTE plastics

**Enzyme specific of PET**

**Mix of plastic waste containing different polymers (PET & others...)**

**Recovery of MEG & TA**

---

**CHALLENGES:**

- Efficiency on mixed plastic waste
- Recycling of dirty plastic waste
- High productivity level
- High purity level of the recovered monomers

**BENEFITS OF THE ENZYMATIC PROCESS:**

- 100% recycling with no loss in quality
- No sophisticated sorting required
- Recycling of complex plastics (multilayers, opaque PET...)
- Low energy consumption

**PET:** Polyethylene terephthalate / **MEG:** Mono Ethylene Glycol / **TA:** Terephthalic Acid

---

www.carbios.fr
Development model: PET biorecycling

- Limited CAPEX investments
- Public cofinancing
- TechnipFMC in charge of the first industrial engineering stages
- First collaboration revenues expected in 2018

<table>
<thead>
<tr>
<th>Year</th>
<th>Stage</th>
<th>2012-2017</th>
<th>2018</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>...</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lab/pre-pilot scale</td>
<td>20 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pilot plant</td>
<td>10 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demo plant</td>
<td>10 to 50 ktons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Full-scale exploitation</td>
<td>Full size units</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PET market potential: a huge accessible market for CARBIOS

**Bottles**
15 Mtons/year

($22.5 billion)

**Fibers**
43 Mtons/year

($64.5 billion)

**Packaging**
3 Mtons/year

($4.5 billion)

**Films**
3 Mtons/year

($4.5 billion)

Source SRI Consulting in 2010, ICIS in 2009, Samsung in 2010

www.carbios.fr
Worldwide IP protection

22 PATENT FAMILIES INCLUDING 2 WORLDWIDE EXCLUSIVE LICENCES

- Patents delivered: Europe, Asia, Northern America, Mexico, China, Japan, France, etc...

- Worldwide exclusive exploitation rights on all results within our collaborative R&D program THANAPLAST™

- A unique know-how in the development of bioprocesses combining enzymes & polymers

- Strong IP protecting the applicative use of enzymes, processes and products

Unique know-how & IP protection keeping CARBIOS step ahead from potential competitors

www.carbios.fr
2017 Highlights

Scientific milestones

• Extension of CARBIOS PET depolimerization process to opaque PET plastics (Jan. 2017)
• Synthesis of PET oligomers from biorecycled terephthalic acid (June 2017)
• First production of virgin PET from post-consumer plastic bottles treated by enzymatic hydrolysis (Oct. 2017)

Deals & Partnerships

• Contract with TechnipFMC for the scale-up of CARBIOS PET biorecycling process (June 2017)
• CARBIOS successfully carried out a share placement of €4,2 M (July 2017)
• Signature of an agreement with L’ORÉAL to jointly found consortium for bio-recycling of plastic on industrial scale (Oct. 2017)
• Free allocation of redeemable stock warrants to the benefit of shareholders (Nov. 2017)

People

• Appointment of Martin Stephan as Deputy CEO (June 2017)
• Appointment of Ian Hudson and Jacques Breuil as member of the Board of Directors (Dec. 2016/June 2017)
FINANCE
<table>
<thead>
<tr>
<th>(in thousand euros)</th>
<th>June 30, 2016 (6 month)</th>
<th>June 30, 2017 (6 month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Revenue</td>
<td>556</td>
<td>632</td>
</tr>
<tr>
<td>Operating expenses</td>
<td>2,987</td>
<td>2,383</td>
</tr>
<tr>
<td><strong>Operating Income</strong></td>
<td>(2,431)</td>
<td>(1,751)</td>
</tr>
<tr>
<td>Financial income</td>
<td>41</td>
<td>33</td>
</tr>
<tr>
<td>Operating Income before Tax</td>
<td>(2,390)</td>
<td>(1,718)</td>
</tr>
<tr>
<td>Extraordinary profit (loss)</td>
<td>(6)</td>
<td>(6)</td>
</tr>
<tr>
<td>Income tax (research tax credit)</td>
<td>(860)</td>
<td>(371)</td>
</tr>
<tr>
<td><strong>Net Income (loss)</strong></td>
<td>(1,536)</td>
<td>(1,353)</td>
</tr>
</tbody>
</table>
## Simplified Balance Sheet

<table>
<thead>
<tr>
<th>Simplified Balance Sheet (in thousand euros)</th>
<th>December 31, 2016</th>
<th>June 30, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intangible assets</strong></td>
<td>371</td>
<td>415</td>
</tr>
<tr>
<td><strong>Tangible assets</strong></td>
<td>1,211</td>
<td>1,134</td>
</tr>
<tr>
<td><strong>Financial assets</strong></td>
<td>9,688</td>
<td>9,694</td>
</tr>
<tr>
<td><strong>Fixed Assets</strong></td>
<td>11,270</td>
<td>11,243</td>
</tr>
<tr>
<td><strong>Inventory</strong></td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td><strong>Receivables</strong></td>
<td>1,945</td>
<td>1,272</td>
</tr>
<tr>
<td><strong>Cash and marketable securities</strong></td>
<td>3,987</td>
<td>4,736</td>
</tr>
<tr>
<td><strong>Pre-paid expenses</strong></td>
<td>215</td>
<td>81</td>
</tr>
<tr>
<td><strong>Current Assets</strong></td>
<td>6,162</td>
<td>6,103</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td>17,432</td>
<td>17,346</td>
</tr>
<tr>
<td><strong>Shareholder’s equity</strong></td>
<td>13,113</td>
<td>12,879</td>
</tr>
<tr>
<td><strong>Conditional advances</strong></td>
<td>3,151</td>
<td>3,260</td>
</tr>
<tr>
<td><strong>Loans</strong></td>
<td>178</td>
<td>272</td>
</tr>
<tr>
<td><strong>Trade payables and related accounts</strong></td>
<td>494</td>
<td>515</td>
</tr>
<tr>
<td><strong>Other liabilities</strong></td>
<td>496</td>
<td>420</td>
</tr>
<tr>
<td><strong>Payables</strong></td>
<td>1,168</td>
<td>1,207</td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td>17,432</td>
<td>17,346</td>
</tr>
</tbody>
</table>
## Cash flow statement

<table>
<thead>
<tr>
<th>Cash flow (in thousand euros)</th>
<th>December 31, 2016</th>
<th>June 30, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash at the opening</td>
<td>9,011</td>
<td>3,987</td>
</tr>
<tr>
<td><em>Net cash generated by operations</em></td>
<td>4,636</td>
<td>(498)</td>
</tr>
<tr>
<td><em>Net cash from investments</em></td>
<td>(9,829)</td>
<td>(77)</td>
</tr>
<tr>
<td><em>Net cash from financing operations</em></td>
<td>169</td>
<td>1,324</td>
</tr>
<tr>
<td>Change in cash</td>
<td>(5,024)</td>
<td>749</td>
</tr>
<tr>
<td>Closing cash</td>
<td>3,987</td>
<td>4,736</td>
</tr>
</tbody>
</table>

- Increase in the cash available during the first half of 2017: €749 K
- In light of the projections made on future expenses and investments, this cash position should allow CARBIOS to finance its activities until mid-2019
SHAREHOLDER STRUCTURE & MANAGEMENT
**Shares & shareholder structure as of October 31, 2017**

<table>
<thead>
<tr>
<th><strong>Market</strong></th>
<th>Euronext Growth Paris</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mnemo/Reuters/Bloomberg</strong></td>
<td>ALCRB / ALCRB.PA / ALCRB.FP</td>
</tr>
<tr>
<td><strong>Shares ISIN code</strong></td>
<td>FR0011648716</td>
</tr>
<tr>
<td><strong>BSAR ISIN code</strong></td>
<td>FR0013297587</td>
</tr>
<tr>
<td><strong>Number of shares</strong></td>
<td>4,556,469</td>
</tr>
<tr>
<td><strong>ICB Classification</strong></td>
<td>Chemistry / Speciality chemistry</td>
</tr>
<tr>
<td><strong>Indices</strong></td>
<td>Euronext Growth All-share, Euronext Growth Bpifrance Innovation Index</td>
</tr>
<tr>
<td><strong>French PEA-PME eligibility</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Analyst coverage</strong></td>
<td>Invest Securities: Laurent Wilk, Damien Choplain, Adrian Phillips</td>
</tr>
</tbody>
</table>

![Pie chart showing ownership distribution]

- Free float: 0.33%
- Truffle Capital: 23.62%
- Holding Incubatrice Chimie Verte: 27.38%
- Management & Treasury shares: 48.67%
An experienced management team

Jean-Claude LUMARET
Founder & CEO

37 years of experience in the agro-industry at an international level and expert in intellectual property

- President – CARBIOLICE
- Vice-President of Toulouse White Biotech
- VP Strategy and Innovation – METEX
- Director, Business Intelligence – ROQUETTE
- Director Fermentation and Industrial Chemistry BU – ROQUETTE
- Director, Intellectual Property – ROQUETTE

MARTIN STEPHAN
Deputy CEO

30 years of experience in the chemical industry

- Global Director of the Fluorotelomers activity, EMEA Director, CHEMOURS
- Global Product Manager – Business and Market Manager – Sales Director - DUPONT DE NEMOURS International Europe
- Business Manager Fluorotelomers ATOFINA
- CFO – ELF ATOCHEM

Professor Alain MARTY
Chief Scientific Officer

International expert in enzymology and biological processes

- Professor and Head of a Research Group - INSA's LISBP
- Evaluator for the AERES and the ANR (France’s National Education and Research Agencies)
An operational Board of Directors

JEAN FALGOUX - PRESIDENT
- Ex CEO Ajinomoto Inc.
- Ex Vice President Ajinomoto Europe
- Ex Senior VP Hoechst Roussel group

JACQUELINE LECOURTIER
SCIENTIFIC ADVISORY BOARD PRÉSIDENT
- Ex General Director ANR
- Ex R&D Director IFP

IAN HUDSON
- Ex-CEO & President EMEA DuPont
- Ex President Europabio

JACQUES BREUIL
- Ex General Secretary Barbier Group

ALAIN CHEVALLIER
- Partner Life Sciences, Truffle Capital
- Ex CFO Abivax, Ex President Deinobiotics
- Ex CFO Sanofi France

ERIK ORSENNA
- Novelist, Economist
- Member of « L’Académie française »

PASCAL JUERY
- President Solvay Essential Chemicals
- Ex CEO Rhodia Novecare

DOMINIQUE EVEN
- Ex Industrial Director Sanofi Chemicals
- Ex Industrial Director Aventis

Complementary expertises: scientific, industrial & financial