



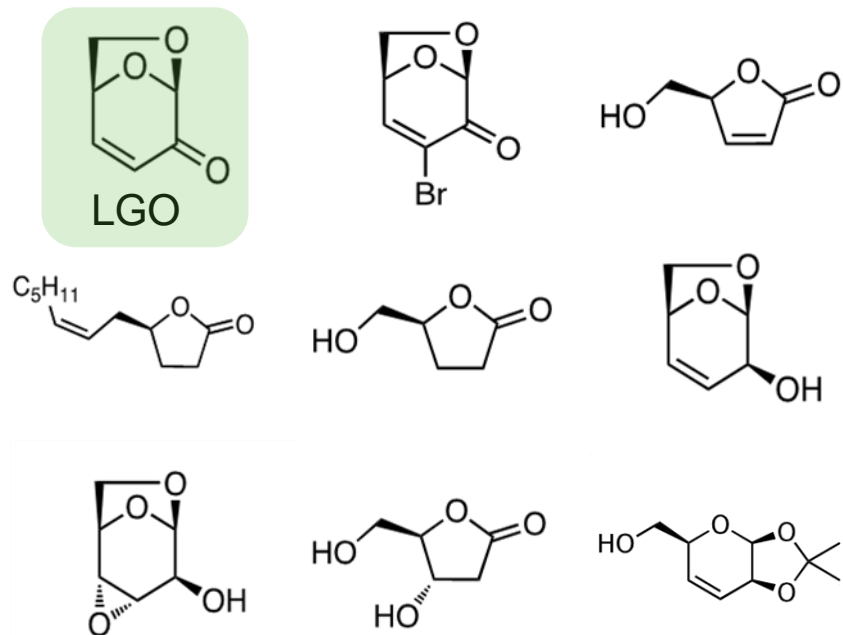
Delivering on the promise
of biomolecules at scale

Company presentation

Oslo Børs and Pareto Securities Cleantech Seminar

15 October 2020

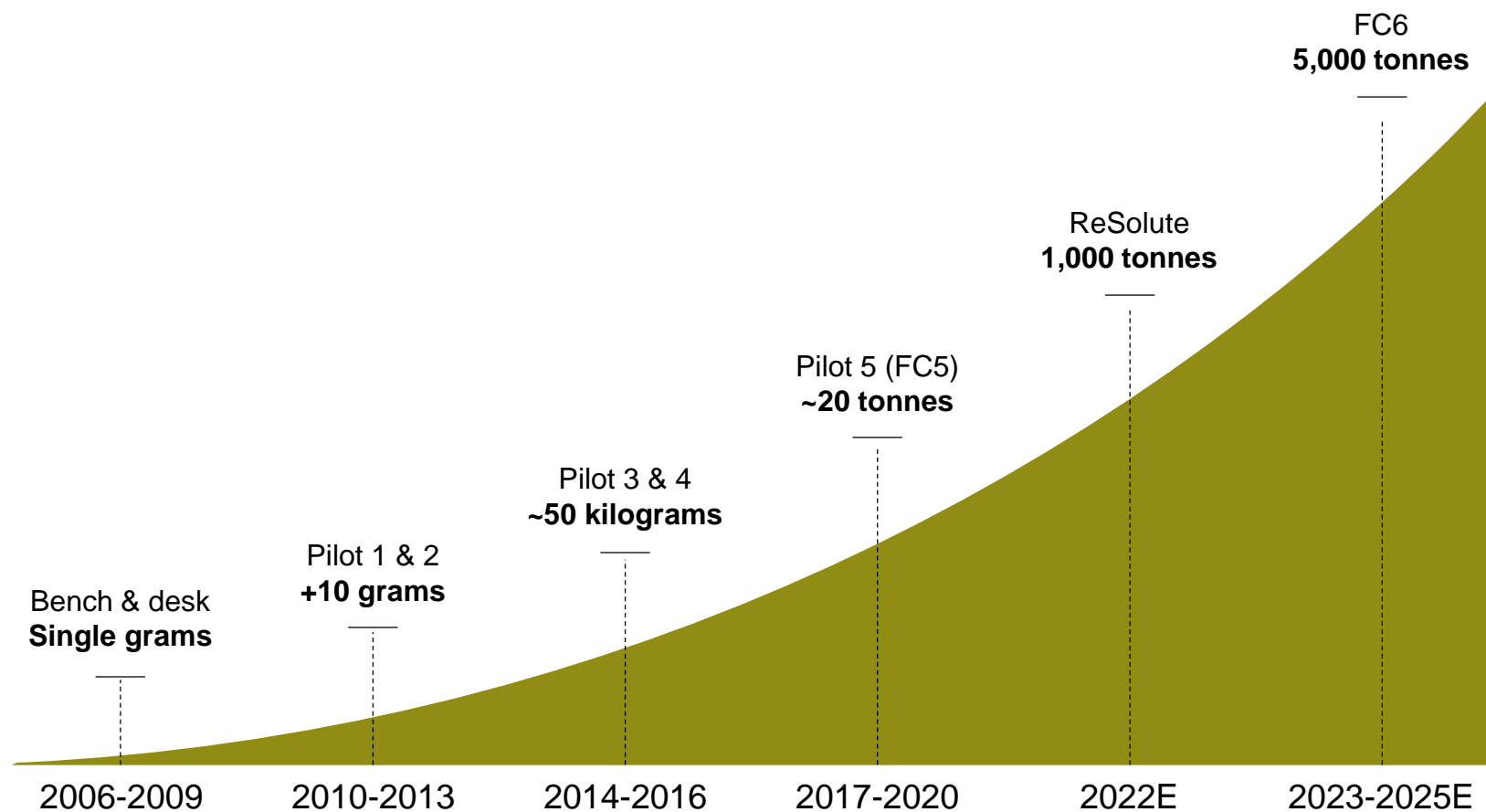
We make and sell valuable biobased molecules



- Bioeconomy ambition to replace fossil molecules with biobased molecules
- Unique ability to produce large amounts of the platform molecule LGO¹
- Successfully used LGO to derive multiple high value biobased molecules
- Essential for medicines, electronics, agrochemicals and more

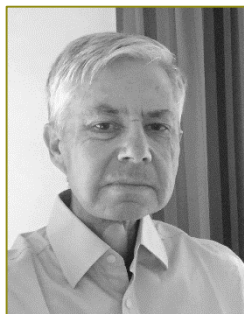
A portfolio of valuable biobased molecules

Only successfully scaled LGO production



- Circa was founded in 2006
- Built on +50 years of biomolecule research
- Developed patented Furacell™ process
- More than 10 years of technology verification
- Technology tests in Canada and Finland
- Close cooperation with Norske Skog
- Worked with researchers and companies
- Identified multiple promising LGO derivatives
- Strong awareness of LGO derivative, Cyrene™
- Selling through Merck KGaA and directly

Building on strong chemistry and process industry experience



Tony Duncan
CEO & co-founder
Circa since 2006

- Co-founded Circa Group in 2006
- +30 years industry experience
- Senior strategy and marketing roles
- “Most Innovative Bio economy CEO” by II Bioeconomista in 2017



Jason Camp
CTO
Circa since 2019

- PhD organic chemistry
- +10 years as independent academic
- + 30 publications within sustainable chemistry, method development and target synthesis
- Has worked extensively in the green chemistry and SME sectors



Peter Gome
CFO
Circa since 2020

- Experienced CFO with senior executive and advisory roles
- +20 years of international experience from listed, private, not-for-profit and family-owned businesses
- Worked within professional services, retail, marketing, oil and gas, transport and manufacturing



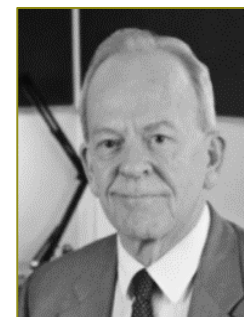
Ebbe Dommissie
COO
Circa since 2014

- PhD chemical engineering
- Senior management roles in pulp and paper, plastic packaging, energy management, precision engineering and aluminium and glass
- Has worked in South Africa, USA, China, Australia, Indonesia, the Philippines and Thailand



John Williams
CCO
Circa since 2020

- PhD polymer chemistry
- +20 years industry experience
- Senior strategy and technical roles
- Has worked extensively in the biobased economy sector



James Clark
Scientific Director
Circa since 2019

- Leading Green Chemistry Centre of Excellence at University of York
- Internationally recognised as leading on green and sustainable chemistry
- Awarded Royal Society of Chemistry Green Chemistry Prize in 2018

Clear contribution to the UN Sustainable Development Goals

3 GOOD HEALTH AND WELL-BEING



- Biobased molecules support shift away from chemicals based on non-renewable and toxic substances
- NMP, a solvent which Cyrene™ will replace, is toxic to reproduction and considered a Substance of Very High Concern by the EU (ECHA)
- Circa molecules being converted into novel pharmaceuticals

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



- Biobased molecule production is green and sustainable by design
- Support shift away from high-waste chemicals by offering low-waste alternatives
- Proprietary technology dramatically reduces production waste with co-products valuable in themselves

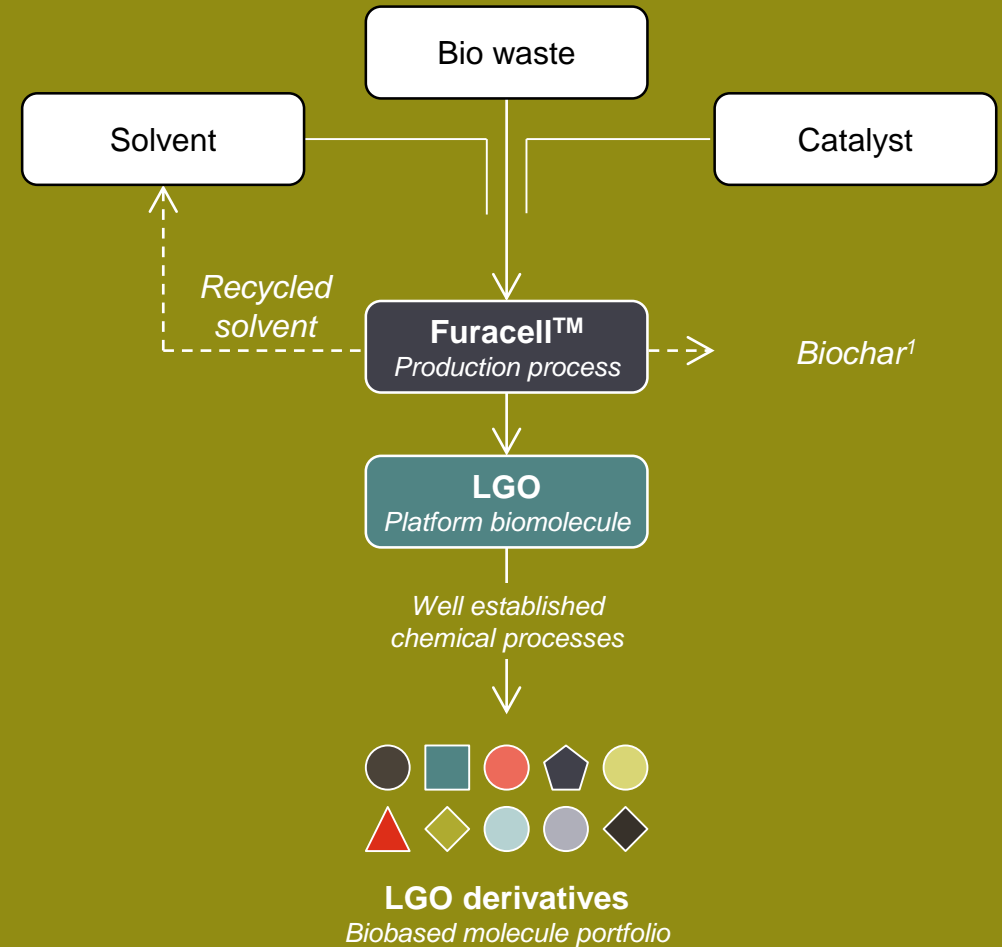
13 CLIMATE ACTION



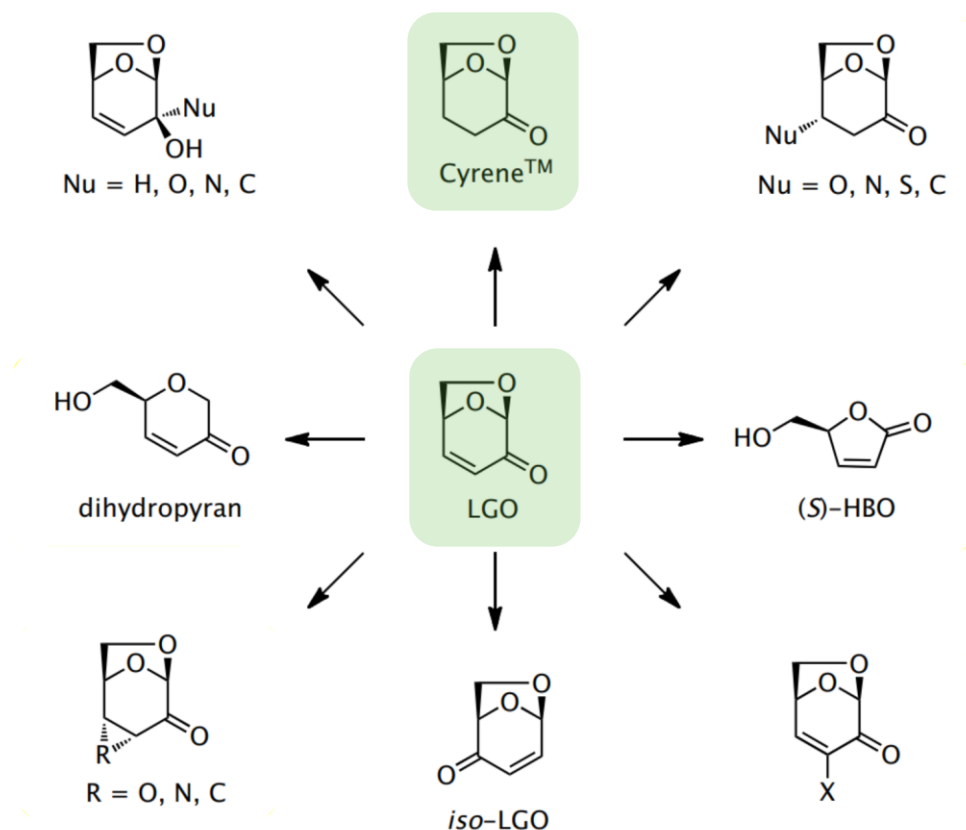
- Support shift away from fossil based chemicals by offering more sustainable alternatives
- Production of 1 kg Cyrene™ releases ~1.4 kg of CO₂, vs NMP which releases ~4.3-8.2 kg CO₂
- Biomolecules enable polymers with better economic and environmental performance (circular by design)

Proprietary biotechnology platform enabled by Furacell™

- Furacell™ is the only scalable LGO production process
- Process developed and patented by Circa (freedom to operate)
- Continuous production achieved in cooperation with Norske Skog
- More than 10 years of technology verification through five pilot plants
- Technology tests with machine suppliers in Canada and Finland
- Bio waste feedstock tolerant (sawdust, straw, chips, agricultural waste)
- Nearly carbon neutral with biochar co-product valuable in itself¹



Biobased molecule portfolio derived from LGO



- LGO is a green platform molecule for synthesis of high value biobased molecules
- Bioprivileged¹ molecule that enables synthesis of a diverse range of important derivatives
- Historically LGO has only been available at very limited research scale
- Extensive research (+350 papers) identifying +100 LGO derivatives
- Exploring use of LGO derivatives in Remdesivir (COVID-19 treatment)
- Promising opportunities for other LGO derivatives (Laiscent, HBO, PT139)
- LGO derivative, Cyrene™, has gained significant commercial interest

Cyrene™ replaces toxic and fossil solvents



UNIVERSITY
of York

MERCK
SIGMA-ALDRICH



UNE
UNIVERSITY OF
NEW ENGLAND

AgroParisTech
INSTITUT DES SCIENCES ET INDUSTRIES DU VIVANT ET DE L'ENVIRONNEMENT
PARIS INSTITUTE OF TECHNOLOGY FOR LIFE, FOOD AND ENVIRONMENTAL SCIENCES

**Green
Chemistry**
Centre of Excellence

MANCHESTER
1824
The University of Manchester

- Cyrene™ is a biobased solvent made from LGO
- The global market is +1,000,000 tonnes per year for dipolar aprotic solvents, mainly fossil solvents (NMP, DMF, DMAc)
- Executed +1,000 customer and research tests for Cyrene™
- Cyrene™ outperformed fossil solvents in 20-30% of applications
- Marketed to customers on both "outperform" and "bio" qualities
- Sold through Merck KGaA and directly to researchers and companies
- Particular focus and interest in European and US markets
- Awarded "Bio-based Chemical Innovation of the Year" in 2017
- Awarded "Top Product 2019" by Environment + Energy Leader

Tailwind from strict chemical regulation



- Once in a generation regulatory upheaval of the chemical market
- Supported by increasing pressure from both consumers and brands
- Fossil solvents, NMP and DMF, considered Substances of Very High Concern
- Increasing restrictions in the EU under the REACH¹ system
- Ban to be fully enacted once suitable alternatives become available
- CyreneTM is a biobased alternative
 - Widely acknowledged as one of very few viable alternatives to NMP and DMF
 - Non-toxic, sustainable and better for the environment
 - Dramatic reduction in waste during production and at end-of-life

Regulation driven, but not subsidy reliant

EU Flagship grant for a 1,000 tonne Cyrene™ plant in France

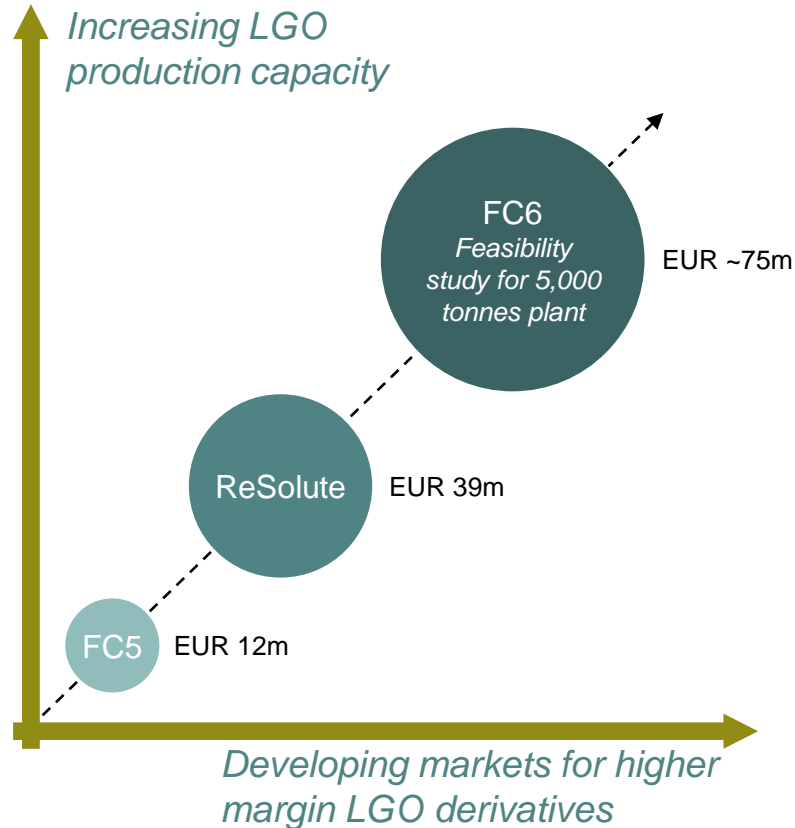
ReSolute.

biomasse: moteur de l'économie circulaire



- LGO / Cyrene™ production capacity of 1,000 tonnes
- Production of ~5,000 tonnes of biochar co-product for sale
- To be located at Total's Carling site in France
- Total project investment (capex and opex) of EUR 39m
- Received prestigious EU Horizon 2020 Flagship grant of EUR 12m
- Finalising engineering scope and contractor agreements
- Project developed with and supported by highly qualified partners
- Planned investment decision end 2020 and start-up by end 2022
- All production output volume covered by partners' Letters of Intent

ReSolute is the final stepping stone before commercial scale



- Cyrene is the commercial foundation for the ReSolute plant
- Proof of material production capacity simplifies further market work
- Feasibility study for a 5,000 tonne plant to be finalised in November
- Potential for multiple large scale plants going forward
- Basis for continued development of other LGO derivative markets
- Exploring use of HBO (LGO derivative) in Remdesivir (COVID-19 treatment)
- Promising opportunities for other LGO derivatives (Laiscent, PT139)

Delivering on the promise of biomolecules at scale

- 1 Proprietary and only scalable production process for production of the unique platform chemical LGO
- 2 Developing portfolio of highly functional LGO derivatives, including Cyrene™
- 3 Cyrene™ is a green, safe and sustainable bio chemical designed to replace toxic fossil solvents (NMP and DMF)
- 4 More than 1,000 trials by universities and industry globally successfully proving commercial potential
- 5 Prestigious EU H2020 grant of EUR 12m to support investment in EUR 39m plant with 1,000 tonnes capacity

Let's GO

Thank you

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