A Carbon Negative Replacement for Carbon Black
Carbon Black Market Opportunity
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Total Carbon Black Market - $17 Billion
Addressable Carbon Black Ink Market - $5.1 Billion

- Black Offset Ink $2.5B
- Black Flexographic Ink $1.8B
- Black Screen Ink $279M
Traditional Carbon Black
Petroleum Production
The Problem with Carbon Black

Made from Petroleum
Carcinogen
Government Regulations
Large Carbon Footprint
Hasn’t changed in 100+ years
Algae Black™ Solution

CO₂ → Algae → Powder → Various Applications (COATINGS, TIRES, TECHNICAL RUBBER, INKS, PLASTICS)
Petroleum-based Pigments = Algae Cells
Our Solution

100% Renewable Feedstock from Waste Material

Meets Industry Specifications

Drop in Replacement

100% Safe Materials

Innovative Marketing Opportunity

Negative Carbon Footprint

-200%
Introduction to Algae

• Grown by companies around the world for nutraceuticals such as astaxanthin and omega-3 oils

• Particle size, ash content, chemical composition, silica, processing steps, shape

• Algae cells exponentially grow using sunlight, water and CO₂ from industrial sources

• Waste-algae material is generated after product of interest is extracted from biomass

• Grown by companies treating waste-water

A 100-acre algae farm located in Southern, California. The farm is owned and operated by Earthrise Nutritionals, a subsidiary of DIC Corp. They produce whole cell spirulina powder and a blue colorant called phycocyanin for the natural foods market.
As algal cells grow, they use carbon molecules derived from carbon dioxide as their building blocks. Algae farms bubble carbon dioxide from industrial sources so the algae can efficiently sequester carbon dioxide from these sources before entering the atmosphere.
**Polyaromatic Hydrocarbons**

<table>
<thead>
<tr>
<th>Analytes</th>
<th>Black Ink Sample</th>
<th>Limit of Detection</th>
<th>Analytes</th>
<th>Black Ink Sample</th>
<th>Limit of Detection</th>
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<tbody>
<tr>
<td>Acenaphthene</td>
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<td>Phenanthrene</td>
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<td>Pyrene</td>
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</table>
Living Ink collaborates with brands to tell eco-innovation stories for marketing and sustainability purposes, thus allowing Algae Ink to be pulled through the brand’s supply chain. Living Ink manufactures the black pigment and finished ink products, which are **sold direct to printers**.
Living Ink integrates sustainable Algae Black™ pigments into a variety of ink formulations that can print on different substrates for a diverse number of applications.
Algae Ink™ Products in the Market

- Passed RSL tests of several brands
- Passed print/color trials of brands / vendors
- Passed severe wash test trials
- Easy for printers to use - no difference in shelf-life
  Soft-base and high solids base
- Ink has high UV lightfastness
Algae Ink™ Products in the Market

Flexographic Ink
(Hang-tags)
Algae Black™ Plastic Products

Masterbatch (rPET, PP, PLA)

Plastic Packaging (Rigid)

Composites (Bioresins)
Algae Black™ Products in Development

Cosmetics Formulation
(-beauty products)

Foam Formulation
(footwears products)

Textiles Dyeing
(garments)
Our customers and partners are innovative retail and material brands committed to achieving sustainability focused marketing and technical goals.
Many of the largest chemical and ink companies in the world have demonstrated significant interest in working with Living Ink. The company is exploring potential partnerships with strategic groups.
Global Interest

Ink World Magazine’s #1 read article was about Algae Ink. This demonstrates the interest in innovative and eco-friendly ink products.

These 10 online exclusives drew the highest readership totals during 2019:

1. Living Ink is Successfully Commercializing Its Algae-Based Ink

2. Ink Industry Leaders Offer Their Thoughts on Upcoming Year

3. HP’s Award-Winning True Water-Based Inks Created With Corrugated, Display Markets In Mind

4. Proposition 65 and the Ink Industry

Ink World Magazine’s #1 read article was about Algae Ink. This demonstrates the interest in innovative and eco-friendly ink products.
IP Position

**Patent Applications**
- Non-Provisional Application – Compositions, Systems, Methods and Devices for Utilizing Microorganisms in Print (Filed 2015; US application)
- Non-Provisional Application - Biological inks and coatings (Filed November 2019; PCT application)

**Trademarks**
- Registered - Living Ink®
- Used in commerce - Algae Ink™; Algae Black™

**Trade Secret**
- Process formulations; Process steps; Optimal material types

Initial non-provisional patents are pending with further filings expected to grow the patent family; trademarks have been filed.
Company Today
Living Ink Roadmap

Technical Validation

- Patents filed
- Process defined
- Sales / samples to partner
- Successful pilot trials
- Validate market need
- Pilot plant construction

Grant - $1.6M - 2017-20

Scale Up

- Commercial production
- Continue R&D
- Validate business model
- Build out pigment production

Seed - $1.5M - 2020

Commercialization

- Series A
- Long-term supply contracts
- Partner contracts
- Focus on pigment production

Series A - $5M - 2022
Sustainable inks – a broad brush approach to screen for vibrant algal pigments

Principle investigator: Matthew Davey
Scottish Association for Marine Science
Team

Scott Fulbright
CEO
Steve Albers
CTO
Fiona Davies
Scientist
Aparna Nagarajan
Scientist
Kangmin Kim
Coatings Chemist
Vicky Putsche
Scale-up Engineer

Ben Walker
Over 30 years business planning and operations experience with Hewlett Packard.

Kyle Wente
Owner and President of Ecoenclose, an environmentally packaging Company

Peter Bradley
Chairman of 2 companies, 1 PE-owned and the other NASDAQ listed.

Brian Zimbelman
Investment Principal and Crawley Ventures, a Denver based VC firm

Terry Clayton
Dr. Clayton is a Director at EFI.

Solid technical team that laid the foundation for developing and validating technology. The team will need to strengthen business development expertise.
Call to Action:
• Printers in the UK
• Algae Suppliers

scott.fulbright@livinginktechnologies.com
575-932-9938
Livingink.co
<table>
<thead>
<tr>
<th>Product</th>
<th>Technical Validation</th>
<th>Market Validation</th>
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<tr>
<td>Black Offset Ink</td>
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<td>Black Screen Ink</td>
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