

Confidential document



EXTRACTHIVE

Creating value from waste

Fund raising – Teaser
Feb 2024



*Extracthive has developed
the PHYre® technology, which
recycles carbon fibers
composites to produce affordable
high-performance fibers with an
outstanding environmental
impact*

PHYre®
BY EXTRACTHIVE



Key investment considerations

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|----------|---|---|---|---|
| 1 | The carbon Fiber Reinforced polymer (CFRP), a composite material that supports the energy transition, is growing at a fast pace but is desperately in need of recycling solutions . Hence, the market for recycled fiber is expected to grow by 14% annually . | ➔ | Strong market fundamentals | ✓ |
| 2 | PHYre® technology, developed by Extractive, allows for the recycling of a wide variety of carbon fiber waste materials. Contrary to competitor, it does produce high-quality recycled fibers at a competitive price , with a 10 times lower carbon footprint than virgin fiber . | ➔ | High quality and low impact product | ✓ |
| 3 | After two patents and seven years of technical and commercial development with CFRP consumer industries , the industrial site is secured in a chemical complex operated by Arkema is ready to welcome the first 30-ton/y plant . In 2025 and to be easily scaled up to 1,000 tones in 2026. | ➔ | Technology ready (TRL 7) for industrialization | ✓ |
| 4 | Extractive industrial units account for only ¼ the CAPEX of a new investment in virgin carbon fiber production. The Phyre fiber will compete with virgin fibers manufactured by historic players, thereby targeting high-volume, high-growth markets (aerospace, automotive, etc.) | ➔ | Low capital intensity process | ✓ |
| 5 | The 1,000t/y standard unit will generate c.€17m of revenues and EBITDA of +€4m by 2028 . The technology is scalable internationally, with an ambition to build 12 units worldwide by 2035 generating c.€200m revenues . | ➔ | Clear value proposition to get international | ✓ |

REQUEST: €8m Series A round to go-ahead on a 30t/y pilot to in an Arkema facility. This derisking phase will pave the way toward a fully industrialized 1,000t/y facility that will require only €6-9m more equity for a start in 2027

€3m non dilutive "France 2030" award in Dec-2023: Extractive is the only selected player for the ADEME call for projects for composite recycling

Growing volumes of Composites and Fibers wastes , facing lack of adequate treatment and recycling solutions, end up in landfill, a very unsustainable solution



Carbon fiber production emits **40 tons of CO₂ equivalent per ton of fiber produced**



PHYre solvolysis process ensures a **90% reduction of CO₂** issued vs. Virgin CFRP and limits also the water use and footprint (2 LCAs from CEA and Quantis)



A material that is **widely used in many sectors** (aeronautics, hydrogen storage, wind power, leisure, automotive...), where supply is expected to fall short of demand by 30% by 2026



€230k in annual revenue already secured from 4 customers on the future pilot



Inadequate treatment solutions, with almost **85 % of waste landfilled or incinerated**. By 2050, the aeronautics sector alone will have produced 500k tons of composite waste.



Production cost at less than **€20/kg**. Extracthive offers a **viable and circular** alternative to landfill



Existing recycling solutions do not allow for the production of high quality fibers and are indeed **downcycling**



2 patents filed and 5 validated PoCs. **Solvolysis process does not distort the fibers**. Ready to go at scale by 2026

The carbon fiber market is waiting for a **recycled fiber that keeps its mechanical properties while offering a circular model with a much better environmental footprint.**

Source : ADEME empreinte database, Composite World 30/11/2022, Sana Kazilbash - Engineering.com 13/01/2022 , E. Pakdel et al. Resources - Conservation and Recycling, 2021, 16, 15340

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