

ALEC² Piloting the Marine Industry Toward a Circular, Fireproof and Sustainable Composite Material Future

Disruptive ceramic composite material is helping to navigate the way to a safer and more environmentally responsible option for the nautical world.

CALGARY, ALBERTA, CANADA, January 2, 2024 /EINPresswire.com/ -- The maritime composite material landscape is shifting, with the industry facing a critical crossroads - balancing weight and performance with unwavering environmental responsibility. WT&C, a leading business development firm, is proudly helping to navigate this course by unveiling ALEC², a revolutionary [ceramic composite](#) material poised to reshape the future [circularity](#) of [fireproof](#) marine composite materials and sustainability.



Manufactured product sample

Fireproof and Lightweight – A Marked Improvement in Fire Safety with Circularity

ALEC² is a testament to material science ingenuity, boasting an unprecedented combination of fire proofing and remarkable lightness. Unlike traditional composites, ALEC² doesn't use any polymers, ignite or burn, offering unparalleled safety for crew and passengers:

- Zero Burn Rate – Upon contact with flame, ALEC² does not ignite and stops fire spread, ensuring vessel safety and the well-being of personnel onboard.
- Non-Toxic - Unlike some composites, ALEC² generates no toxic fumes or harmful chemicals in the event of a fire, further minimizing environmental impact and enhancing safety.
- Extreme Heat Resilience - With a softening temperature exceeding 1,000°C, ALEC² provides exceptional thermal insulation and endures extreme heat conditions.

ALEC² also has incredibly low density, approximately one-fifth that of aluminum and one-third that of carbon fiber composites, which makes it a lightweight champion, paving the way for:

Fuel Efficiency Redefined



The marine industry faces a critical choice: prioritize performance and prioritize the planet. ALEC² offers a solution that doesn't require compromise. ALEC² is going to play a very important role."

Bill Hayward

Lighter vessels mean reduced fuel consumption and diminished greenhouse gas emissions. This aligns seamlessly with the industry's push toward sustainability.

Green and Sustainable - ALEC² Pioneers a Circular Composite Economy

Beyond being an engineering feat, ALEC² is also new class of composite with complete circularity and promotes increased environmental responsibility. Created from ~85% recycled industrial waste, it paves the way for a sustainable future based on the core principles of the circular composite economy: 100% recyclable material for reuse.

Seamlessly integrated with established recycling processes, ALEC² creates no waste while its reliance on recycled materials eliminates dependence on virgin resources, protecting the planet for generations to come.

Beyond its material science innovation, ALEC² champions and promotes environmental responsibility:

- Closed-Loop System - ALEC² operates in a closed-loop system, allowing for regeneration and reuse, eliminating the need for costly and complex open-loop recycling.
- Economic Viability - ALEC² is environmentally friendly and commercially viable, offering higher financial benefits and lower real cost (considering total system LCA) compared to incumbent composite technologies and metals.
- Simplification - ALEC²'s closed-loop system simplifies the recycling process, minimizing the need for challenging and uneconomical post-manufacturing recovery steps associated with currently used polymer-based composites.

ALEC²'s Versatility Sparks Innovation

ALEC²'s versatility makes it a game-changer for diverse marine applications:

- Nail-ability and Bondability - ALEC² integrates with existing construction methods, facilitating simple and seamless adoption and customization.
- Sandwich Structure Synergy - ALEC²'s adaptability allows for creating lightweight, fireproof sandwich structures. This makes it ideal for engine rooms, room panels, cargo containers and more.
- Suitable for Complex Shapes - ALEC² can be used for intricate molded designs with no or minimal pressure.

Futureproof Solution that Addresses Industry Challenges

ALEC² addresses critical challenges faced by the marine industry:

Difficulties with Composites' Circularity

ALEC²'s closed-loop system provides a solution to the complex, expensive and resource-intensive nature of recycling traditional composites.

ALEC²'s sustainability and fireproof performance make it important in securing the future of the composites industry in our increasingly more environmentally conscious and demanding world.

With ALEC², fireproof becomes a promise, and composite circularity a reality.

About WT&C

WT&C, a leading business development firm, partners with ARIS Inc., the visionary creators of ALEC², a disruptive and innovative fireproof and acoustic ceramic composite. Through collaborative efforts, WT&C empowers clients across marine, aerospace, and electrified transportation to achieve their innovation goals and build a better and more sustainable future.

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