



UNIVERSAL MATTER

ADVANCED MATERIALS

USING CARBON TO

decarbonize

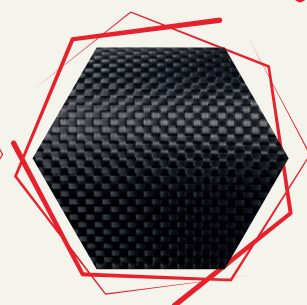
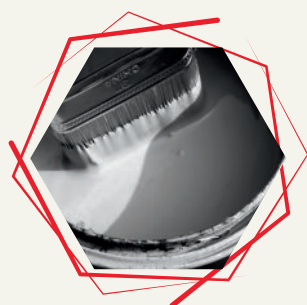
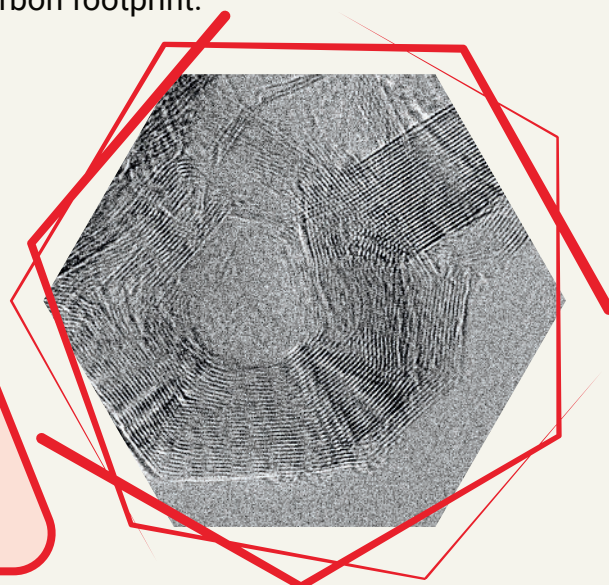
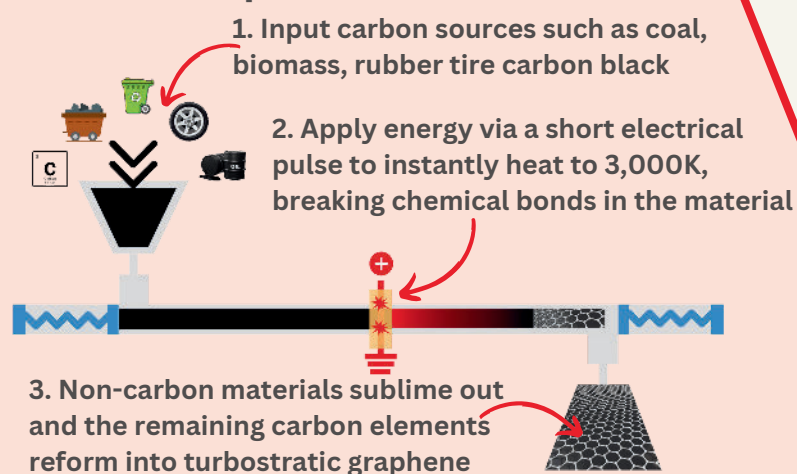


INTRODUCING FLASH GRAPHENE

Universal Matter upcycles carbon into graphene and related advanced materials to boost the performance and sustainability of your innovations.

Our process delivers high quality, economical graphene and related advanced materials from simple carbon feedstocks enabling optimized solutions that enhance performance and reduces your carbon footprint.

How the **Flash** process works...



Why Choose Us



High Quality Graphene

Few layer graphene and related advanced materials with low defects and superior dispersibility



New Morphologies

Process and manufacturing flexibility enables fiber, flake, polyhedral and functionalized graphene



More Economical

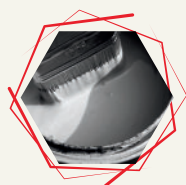
Efficient, high volume process facilitates a significantly lower cost graphene production method



Highly Sustainable

Energy efficient process requiring only electricity. No other chemicals or heat needed. Raw materials include recycled carbon waste streams

We understand the challenges you face...



PAINTS & COATINGS

Barrier Improvement

- Anti-corrosion
- Chemical resistance
- Water barrier

Conductivity Applications

- Electrical conductivity
- Anti-static dissipation
- Thermal conductivity

Mechanical Properties

- Abrasion resistance
- Tensile strength
- Impact resistance

Electromagnetic Spectrum

- UV protection
- EMI shielding

Product Attributes

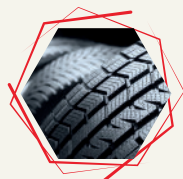
- Patent pending graphene-polymer composite
- Cost effective replacement for SBS + cross-linker
- Excellent dispersion stability for both bitumen terminal or asphalt plant addition

Performance and Sustainability Improvement

- Significant reduction in fatigue damage compared to other polymeric modifiers such as SBS
- Production CO₂ emissions are 92% lower than the industry standard SBS + crosslinker



ASPHALT



RUBBER & TIRES

Performance Improvement

- >20% increase in tear and abrasion resistance
- >10% improvement in fuel economy
- No negative impact on any other characteristics

Sustainability Improvement

- 20% reduction in compounding energy consumption
- Uses recycled waste tire carbon to enable the development of the circular economy



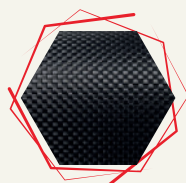
Performance Improvement

- Easy to use, no adjustment to existing concrete manufacture
- >35% increase in compression strength
- Significant reduction in water permeability

Sustainability Improvement

- Potential for 25% reduction of cement in concrete without impacting concrete strength, leading to significant decrease in greenhouse gas emissions

CONCRETE & CEMENT



POLYMER COMPOSITES

Performance Improvement

- Increase in mechanical performance; tensile strength, fracture toughness, fatigue and impact resistance.
- Increased barrier performance

Enabling Innovation - Type V Hydrogen Storage

- Through a 20 years life simulation, our graphene enables the composite to get stronger over the pressure cycles
- Mass reduced by 40%, cost reduced by 50%
- 5000psi gas storage capability



THIS CHANGES EVERYTHING

THE LEADER IN SUSTAINABLE GRAPHENE

Universal Matter is leading the transition toward the **circular economy** by transforming carbon materials, including waste streams, into graphene to dramatically **reduce green house gases** emissions and **decarbonize** industrial materials across key market sectors.

Using Carbon to Decarbonize

Global Player with a Local Presence

UM has a network of production and innovation centers, and increasing global coverage of distribution partners. This enables us to offer consistent supply of high quality products and offer the technical support our customers deserve.



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