

Rotoplas 2021

A Rotomolding Revolution

September 23, 2021



ASSOCIATION OF
ROTATIONAL MOLDERS

HELLO ARM! WE ARE...

 **LYTEN**

Ultimate Materials. Infinite Possibilities™

 **LYTEN**



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ROTATIONAL MOLDERS

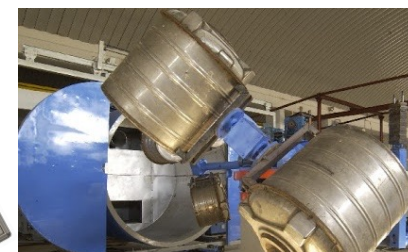
LYTEN EXITS STEALTH AT THE MOTOR BELLA & ARM EVENTS

Haven't you
Heard !?

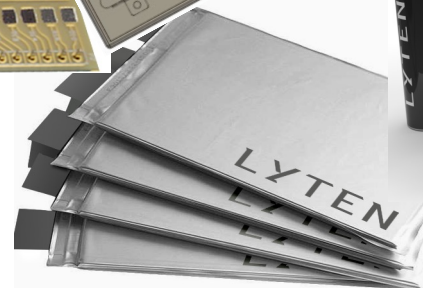


SEPTEMBER 21-26
M1 CONCOURSE | METRO DETROIT/PONTIAC, MI

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- 3X Lithium-Sulfur Battery
- Advance Thermoplastics
- Advance ThermoSets
- Automotive Sensors (Thermal Runaway)



LYTEN, INC.

COMPANY HIGHLIGHTS



- PRIVATELY HELD, SILICON VALLEY COMPANY
- DISCOVERED 3D GRAPHENE IN 2014
- GLOBAL LEADER IN 3D GRAPHENE IP: *>270 PATENTS/PENDING*
- 55,000 Sq. Ft. MANUFACTURING FACILITY, SAN JOSE, CALIF
- > 3M LBS, MULTI-YR THERMOPLASTIC ROTOMOLD CONTRACT
- CARBON INTENSITY NEUTRAL MANUFACTURING PROCESS
- STRATEGIC SUPPLY CHAIN PARTNER: 100% US SOURCEABLE;
- LOW COST INTEGRATION: CUSTOMER CO-LOCATED FABS

#1 Take Away!

Lyten Engineered 3D Graphenes Deliver Disruptive Performance To Polyethylene!

- Delivered matrix resin w/ +30% Flex Modulus
- Engineered matrix resin w/ 40% Flex Modulus
- Line of sight: matrix resin w/ 50% Flex Modulus

#2 Take Away!

Lyten 3D Graphene™ Breaks The Commodity Price Spiral

- Engineer Application Unique Graphenes
- Deliver Customer Specific PE Matrix Resins
- Opening New Applications: Metal Replacement

#3 Take Away!

Taking New Customer Orders for 2022 Delivery

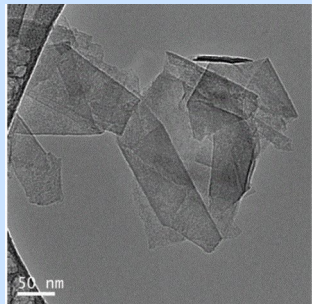
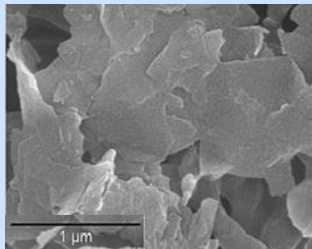
Business Development:
Carlos Montalvo

Carlos.Montalvo@Lyten.com

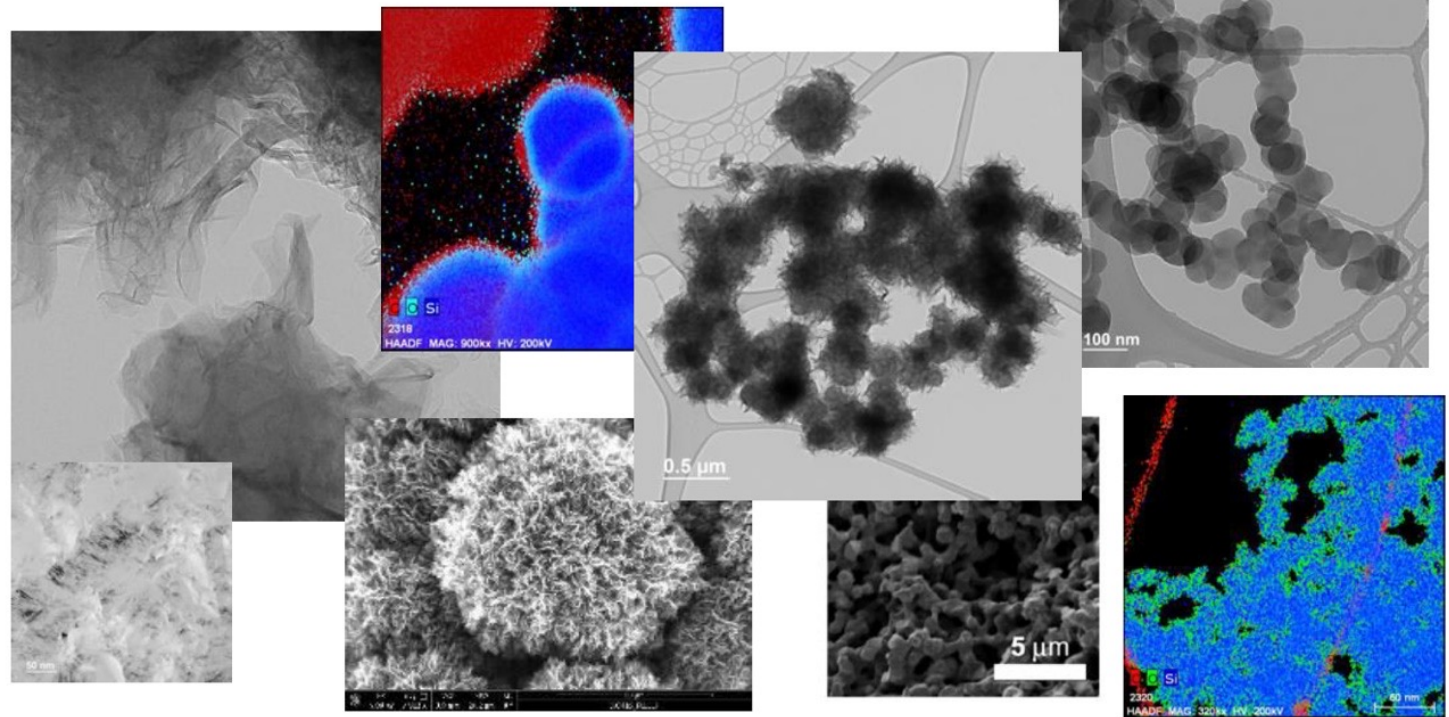
Product Manager:
Bryce H. Anzelmo

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LYTEN 3D GRAPHENE™ ENGINEERED TO EXPRESS UNIQUE ELECTROACTIVE, STRUCTURAL, ADSORPTION AND THERMAL PROPERTIES IN APPLICATION



***Conventional
2D graphene***



***End to End Industrial Process
Novel Forms of Graphene Not found in Nature!***

APPLICATION SPECIFIC MORPHOLOGY DESIGN

TUNING CARBON PROPERTIES AT SCALE

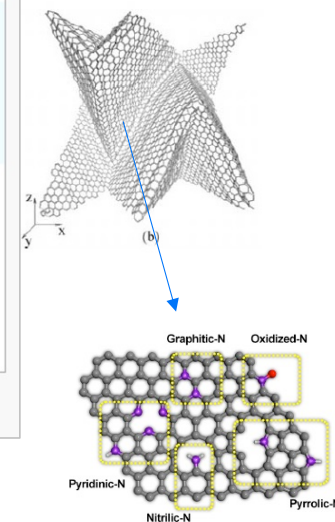
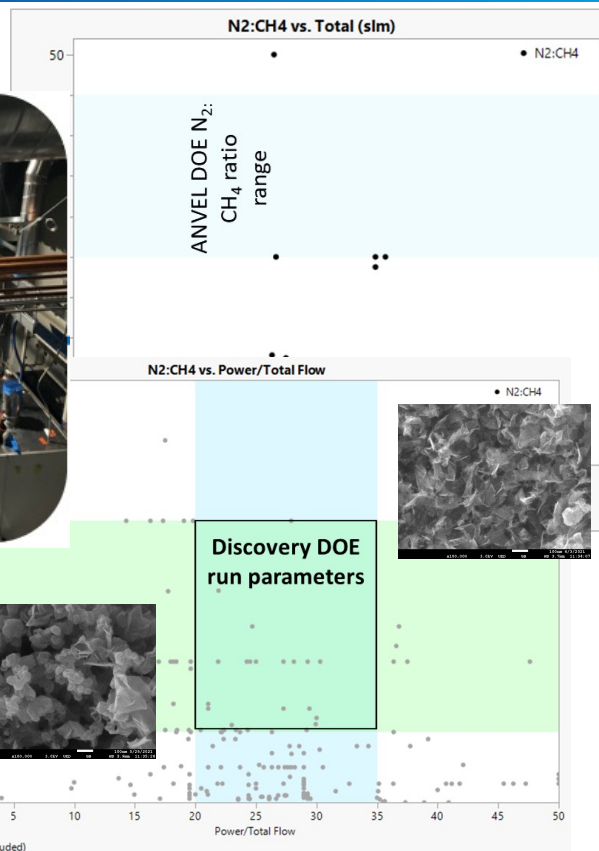
Correlating process to material properties

Process knobs

- Temperature
- Total flow
- Pressure
- Gas composition

Materials Properties

- Surface area
- Pore size distribution
- Flake dimension
- Surface functionality

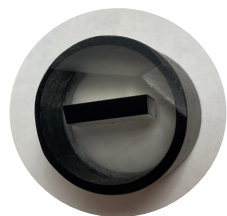
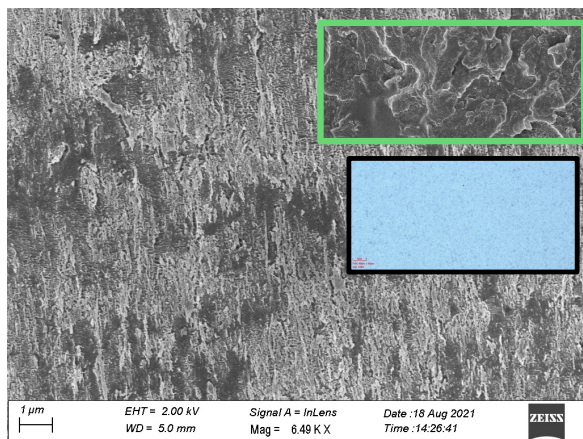


Modulating structure and composition of the 3D graphene

SCALED AND REPEATABLE PROCESSING

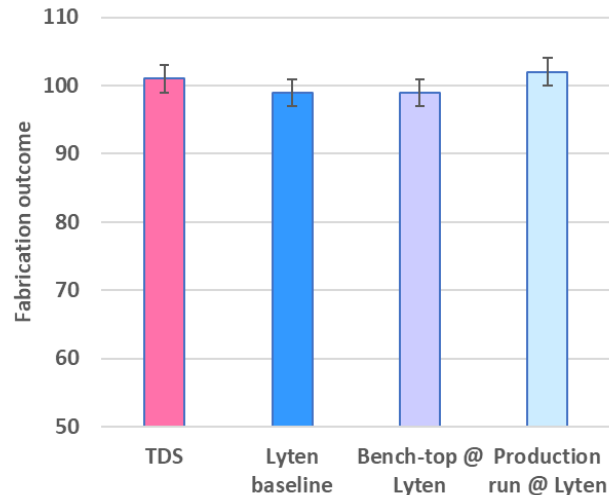
Validation completed via various analysis

Dispersion studies via SEM



5 step sample preparation

Scaled & repeatable processing



Reproducibility confirmed on multiple production runs



Certificate of Analysis

Product Name

Material: Your polymer containing Lyten 3D graphene

Batch/lot number: X1Y2Z3A4

Manufacturing date: 09/23/21

Date of analysis: 09/23/21

Analysis	ASTM	Product specification	Product results
1% secant flexural modulus, psi	D790	TBD	
Melt index, g/10min	D1238	TBD	
Density, g/cm3	D792	TBD	
Additional test protocol	X123	TBD	

Quality control manager

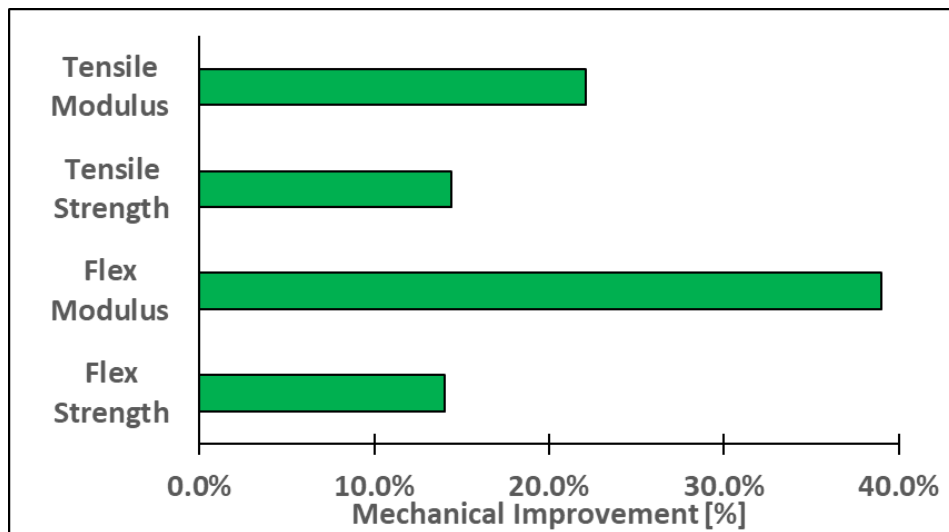
Date

DEMONSTRATED IMPROVEMENT WITHIN PE POLYMER SYSTEMS

+ 50% FLEX MODULUS IMPROVEMENT TARGET

POLYETHYLENE | 3D Graphene

3D graphene material modulus = ~ 150GPa | Incumbent material = ~ 20GPa



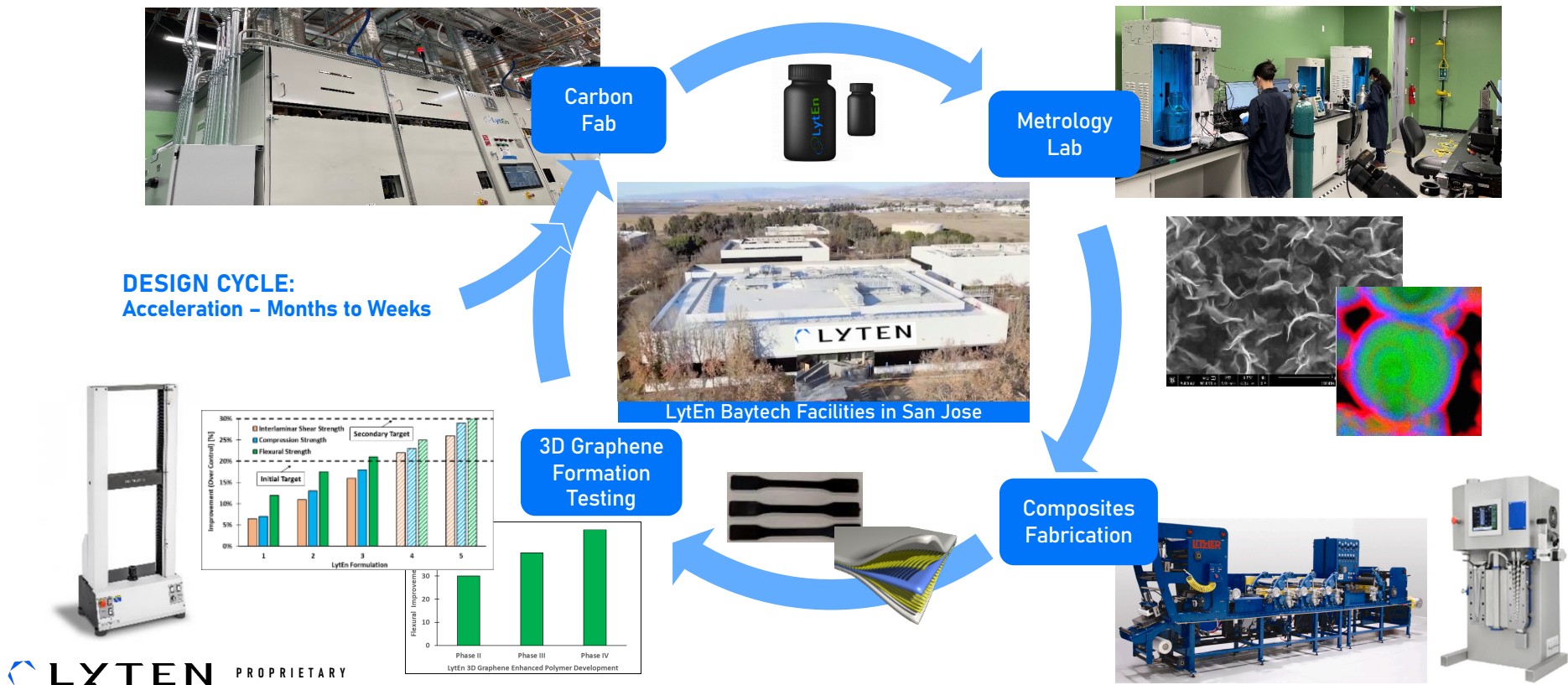
Signed multi-year contract with leading PE Customer

- Delivered 30% strength improvement
- Demonstrated ~40% strength improvement
- Line of sight to 50% improvement (<6 months)

- Short-term objective: **strengthen and reduce weigh** of the composite system
- Medium term-term objective: **multifunctional properties**, i.e., mechanical & thermal
- Long Term objective: Enhanced thermoplastics for **metal replacement**

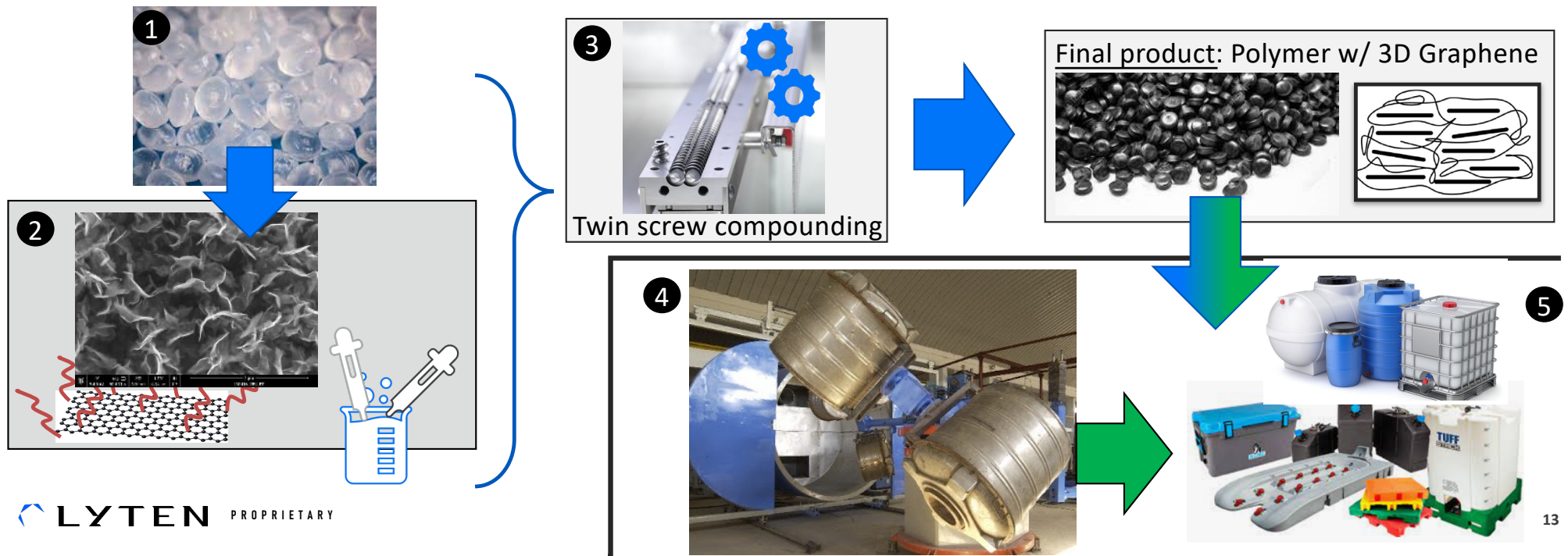
SILICON VALLEY'S FIRST INTEGRATED 3D GRAPHENE AND COMPOSITES FAB

DESIGNED TO DEVELOP BESPOKE 3D GRAPHENE ENHANCED COMPOSITES IN WEEKS



SILICON VALLEY'S FIRST INTEGRATED 3D GRAPHENE AND COMPOSITES FAB

THE DELIVERED PRODUCT, POLYMER WITH 3D GRAPHENE





Advanced Materials and Application Engineering

LYTEN PROPRIETARY

ARM Community's Innovation Partner

- Rotomolders
- Compounders
- Polymer Manufacturers

Business Development:

Carlos Montalvo

Carlos.Montalvo@Lyten.com

Product Management:

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