



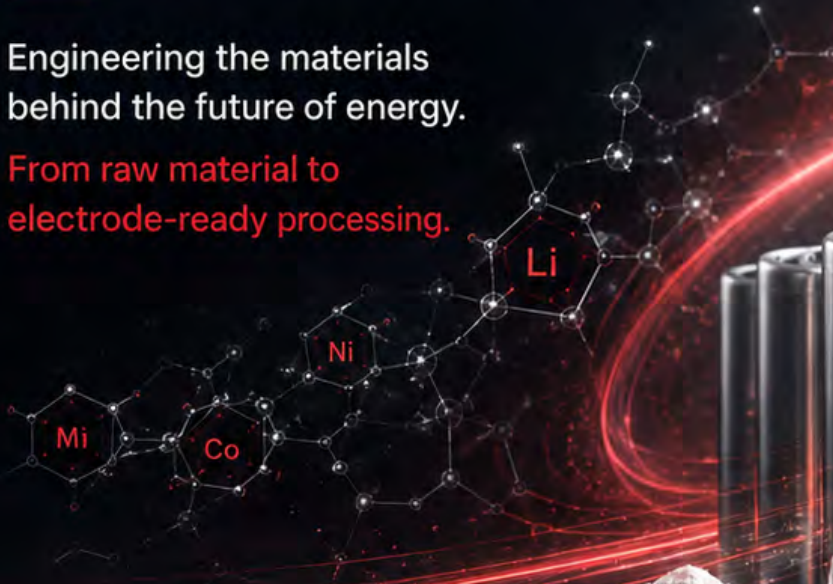
PROC-X MANUFACTURING GROUP INC.

BATTERY & ENERGY MATERIALS

PROCESSING SOLUTIONS

Engineering the materials
behind the future of energy.

From raw material to
electrode-ready processing.



Control
the **Particle**



Control
the **Formulation**



Control
the **Environment**



Control
the **Process**

Integrated technologies from

AIS

DP Mills

QuantumX

EmuXion

FuXion



PROC-X MANUFACTURING GROUP INC.

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BETTER BATTERIES BEGIN BEFORE CELL ASSEMBLY

The performance of every battery starts with the materials. Proc-X engineers systems that prepare, condition, and control those materials before they become the electrode—delivering consistency, purity, and performance at scale.



THE PROC-X PROCESS FLOW



MATERIALS WE HANDLE

- Cathode materials
- Anode materials
- Conductive additives
- Binders
- Carbon materials
- Specialty minerals
- Advanced powders



ENGINEERED FOR WHAT MATTERS



Consistent
Material Quality



Precise Process
Control



Scalable
Performance



Safer, Cleaner
Processing

ONE CONNECTED BATTERY MATERIALS PROCESSING PLATFORM

From raw material to electrode-ready, Proc-X delivers a fully integrated platform of technologies that work seamlessly together. Engineered for accuracy. Built for performance. Designed for scale.



AIS

Material receiving, storage, conveying, precision weighing and automated batching.



DP Mills

Particle size reduction, milling, classification and powder conditioning.



QuantumX

Advanced mixing, binder incorporation, agglomerate reduction, vacuum drying and thermal processing.



EmulXion

High-shear slurry preparation, wetting, dispersion and deaeration.



FuXion

Continuous compounding and advanced material processing.



PROC-X

Process engineering, automation, integration, FAT, commissioning and lifecycle support.



THE COMPLETE PROCESS CHAIN



One Integrated Platform



One Source of Accountability



One Standard of Excellence



One Sustainable Future

ONE PROCESS. ONE PHILOSOPHY. ONE INTEGRATED SOLUTION.

ADVANCED MIXING, BINDER INCORPORATION & THERMAL PROCESSING

QuantumX Solutions for Battery Materials

QuantumX systems deliver precision mixing, homogeneous dispersion, and efficient thermal processing—engineered for the most demanding lithium battery materials.



UNIFORM DISTRIBUTION

Consistent quality in every batch



FAST & EFFICIENT PROCESSING

Shorter cycles. Higher throughput.



GENTLE WHEN IT MATTERS

Protecting particle structure & integrity

PRECISION MIXING & DISPERSION TECHNOLOGIES



PLOUGHSHARE MIXING

High shear and thorough turnover for cohesive powders and slurries. Ideal for cathode & anode blends.



PADDLE MIXING

Fast, efficient mixing with excellent heat transfer and short cycle times.



RIBBON MIXING

Gentle, low shear blending for uniform distribution without compromising particle integrity.



HIGH-SPEED CHOPPERS

Breaks down agglomerates and improves dispersion for superior performance.

BUILT FOR MATERIAL PERFORMANCE



BINDER INCORPORATION

Even binder distribution for strong adhesion and better performance.



CONDUCTIVE ADDITIVE BLENDING

Uniform dispersion for maximum conductivity and efficiency.



AGGLOMERATE REDUCTION

Consistent particle separation for improved electrode quality.



TIGHT PROCESS CONTROL

Repeatable results through advanced process control.

VACUUM MIXER-DRYER TECHNOLOGY



- ✓ Efficient vacuum drying
- ✓ Solvent recovery & recycling
- ✓ Inert atmosphere capability
- ✓ Minimized oxidation & moisture
- ✓ Closed-loop containment
- ✓ Engineered for safety & scalability



BUILT FOR THE DIFFICULT MATERIALS BEHIND NEXT-GENERATION ENERGY STORAGE.



PILOT READY SYSTEMS



SCALED FOR PRODUCTION



ENGINEERED FOR RELIABILITY



DESIGNED FOR CONSISTENCY



BUILT FOR UPTIME



PROVEN IN PRODUCTION

POWDER HANDLING, MILLING & CLASSIFICATION

Controlled preparation of battery materials.
From receiving to precisely milled and
classified powder—ready for the next step.

END-TO-END POWDER PREPARATION

-  **PROTECTED MATERIAL RECEIVING**
Sealed systems to minimize contamination and protect material integrity.
-  **STORAGE SILOS & BINS**
Engineered silos and bins maintain material quality and ensure consistent flow.
-  **PRECISION LOSS-IN-WEIGHT DOSING**
AIS dosing systems deliver accurate, real-time feed with closed-loop control.
-  **AUTOMATED BATCHING**
Recipe-driven automation ensures consistency and full traceability.
-  **CONTAINED TRANSFER**
Sealed, dust-tight transfer maintains cleanliness and protects the process.
-  **PIN MILLING (DP MILLS)**
High-energy pin milling for fine size reduction and deagglomeration.
-  **AIR CLASSIFIER MILLING (DP MILLS)**
Integrated classifier mills deliver precise control of particle size distribution.
-  **PARTICLE SIZE CONTROL**
Tight PSD control to meet demanding electrode performance requirements.
-  **DEAGGLOMERATION**
Breaks soft agglomerates to improve flow, packing, and uniformity.
-  **CLASSIFICATION**
Efficient separation and recirculation ensure target size and quality.



AIS DOSING & HANDLING SYSTEM
Precise. Protected. Production-ready.

DP PIN & AIR CLASSIFIER MILLS
Engineered for precision size reduction and classification.

-  **CONTROL PSD**
Narrow distributions. Consistent performance.
-  **IMPROVE FLOW**
Better powder flow. Better processability.
-  **MINIMIZE CONTAMINATION RISK**
Protected handling. Engineered surfaces.
-  **DUST CONTAINMENT**
Sealed systems. Cleaner environment.
-  **REPEATABLE FEED PREPARATION**
Consistent batches. Reliable performance.

ENGINEERED BENEFITS THAT DRIVE RESULTS

-  **PRECISION**
Accurate dosing. Tight PSD control. Consistent quality.
-  **CLEANLINESS**
Low contamination. Protected transfer. Process integrity.
-  **CONTAINMENT**
Sealed systems. Dust control. Safer operations.
-  **REPEATABILITY**
Recipe consistency. Closed-loop control. Batch after batch.
-  **SCALE-UP**
Proven technologies. Seamless scale-up. Future-ready.

PREPARE THE MATERIAL CORRECTLY
BEFORE IT EVER REACHES THE CELL.

SLURRY PREPARATION & HIGH-SHEAR DISPERSION

ENGINEERED WITH **EmulXion** SYSTEMS

EmulXion high-shear mixers deliver unmatched slurry quality through precision mixing, intense dispersion, and process control.

Control the slurry and you control the coating performance.

THE EMULXION PROCESS ADVANTAGE



POWDER WETTING
Rapid, complete wetting of dry powders.



HIGH-SHEAR MIXING
Intense energy input for fine dispersion.



VISCOSITY CONTROL
Achieve target rheology with confidence.



RECIRCULATION
Continuous flow enhances consistency and throughput.



LIQUID INDUCTION
Efficient incorporation of liquids and binders.



DEAGGLOMERATION
Break down agglomerates to the submicron level.



DEAERATION
Remove entrapped air for defect-free slurries.



UNIFORM SOLIDS DISTRIBUTION
Homogeneous slurries from batch to batch.



REPEATABLE SLURRY RHEOLOGY
Consistent yield, flow, and stability for superior coating performance.



Precision rotor-stator geometry

IDEAL FOR ENERGY MATERIALS

- Cathode Slurries
- Anode Slurries
- Conductive Additive Dispersion
- Binder Solution Preparation
- Lab-to-Production Scale-Up

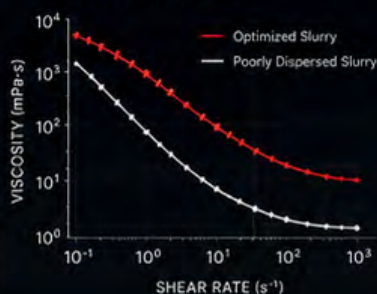
DISPERSION THAT DELIVERS PERFORMANCE



POORLY DISPERSED

PROPERLY DISPERSED

OPTIMIZED RHEOLOGY, BETTER COATING



BUILT FOR SCALE. ENGINEERED FOR CONTROL.



Consistent Quality



Precise Control



Process Stability



Faster Scale-Up

APPLICATIONS ACROSS BATTERY & ENERGY MATERIALS

From active materials to advanced powders, Proc-X delivers the control needed to unlock performance, consistency, and scale.




CATHODE MATERIALS

- NMC, NCA, LFP, LMFP, LCO & more
- Precise particle sizing & distribution
- Moisture & impurity control



ANODE MATERIALS

- Graphite (natural & synthetic)
- Silicon, hard carbon & emerging anodes
- Controlled sizing & surface integrity



CONDUCTIVE ADDITIVES

- Carbon black, CNTs, Graphene & more
- High surface area & purity control
- Uniform dispersion & deagglomeration



BINDERS

- PVDF, CMC, SBR, PAA & more
- Gentle, uniform blending
- Consistent hydration & viscosity



CARBON MATERIALS

- Hard/soft carbon, MCS, acetylene black
- Surface tuning & purity control
- Controlled particle structure



CERAMIC POWDERS

- Al_2O_3 , ZrO_2 , SiO_2 , $Li_4Ti_5O_{12}$ & more
- Tight PSD & morphology control
- Phase purity & traceability



SPECIALTY MINERALS

- Lithium, nickel, cobalt, manganese & more
- Beneficiation & classification
- Low impurities, high consistency



ADVANCED POWDERS

- Metal powders, oxides, sulfides & phosphates
- Narrow PSD & high purity
- Custom handling & passivation



ENERGY STORAGE FORMULATION SUPPORT

- Slurry preparation & optimization
- Rheology & solid loading control
- Pilot-scale to production scale

CONTROL WHERE IT MATTERS MOST



PARTICLE SIZE & DISTRIBUTION
Tight control for performance and consistency



MOISTURE CONTROL
Ultra-low moisture handling & processing



BLENDING & DISPERSION
Uniform mixing, deagglomeration & coating-ready



ATMOSPHERE CONTROL
Inert gas processing for sensitive materials



MATERIAL HANDLING
Closed systems for safety, purity & yield

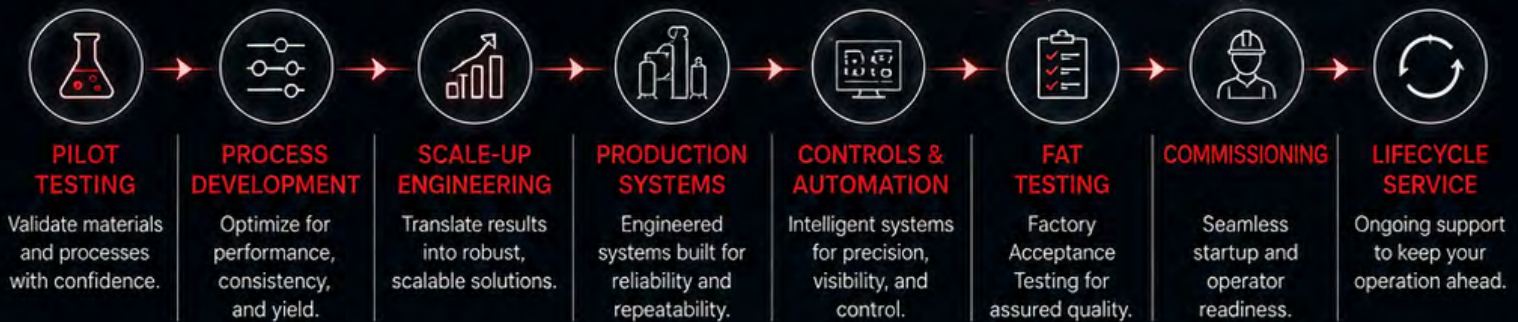


SLURRY PREPARATION
Scalable, repeatable, ready for coating & casting

**NO ONE-SIZE-FITS-ALL SOLUTION —
WE ENGINEER AROUND THE MATERIAL,
THE FORMULATION, AND THE PROCESS.**

YOUR PARTNER FROM DEVELOPMENT TO PRODUCTION

From concept to commercial scale, Proc-X delivers integrated materials processing solutions that accelerate innovation, ensure consistency, and maximize performance.



LAB TO PRODUCTION. BUILT TO SCALE.



WHY PROC-X



LET'S ENGINEER THE FUTURE OF ENERGY MATERIALS TOGETHER.



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