



nEXAR

NEXAR™

**Solid-State Composite Anode Sheet
for Next-Generation Batteries**

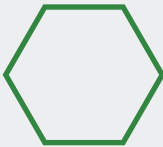
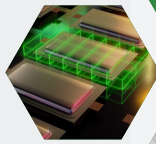
www.nexar-technology.com

NANO
TECHNOLOGY

ADVANCED
INDUSTRIES

R&D
METHODS

MODERN
TECHNOLOGIES



NEXAR is established by Gülhanım Dalan, with the goal of conducting research to improve product quality and production processes in various industries, by using nanotechnology and advanced technologies, and generating value-added results in production.

Our research projects focus on addressing existing problems and needs in the industry; we define our research according to the real needs of industrial and technology companies. We move forward with the principle of ensuring that our research projects are commercially viable.

The nearly quarter-century of business experience of our founder, Gülhanım Dalan, the projects she has carried out, and her consultancy in the field of nanotechnology, guide us in achieving our goals.

With us, Everything is Possible!



In today's world, energy storage is no longer just a necessity — it's the backbone of innovation.

Next-generation batteries must deliver higher capacity, enhanced safety, longer lifespan, and withstand demanding environments.

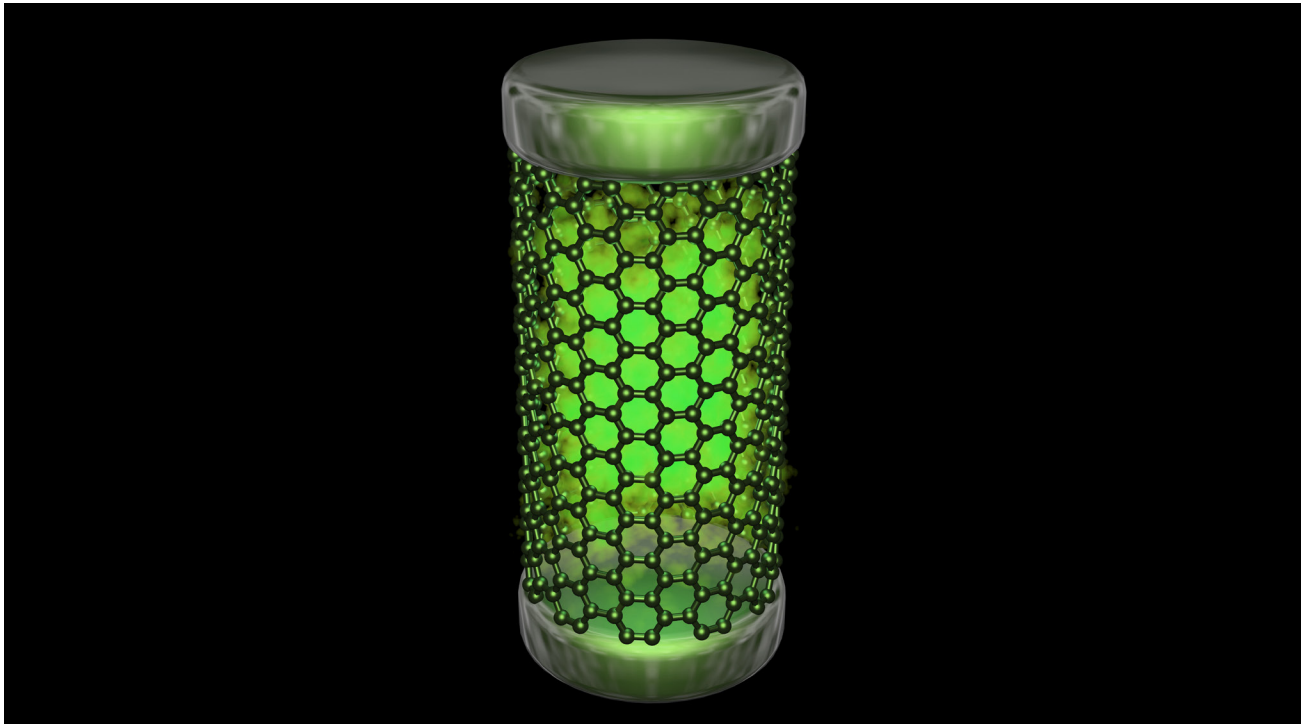
NEXAR™, an engineered composite anode sheet designed for solid-state batteries, is the precise response to these challenges — without requiring changes to existing production lines.

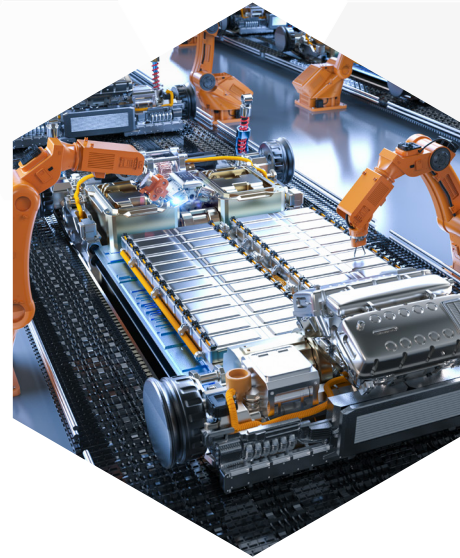
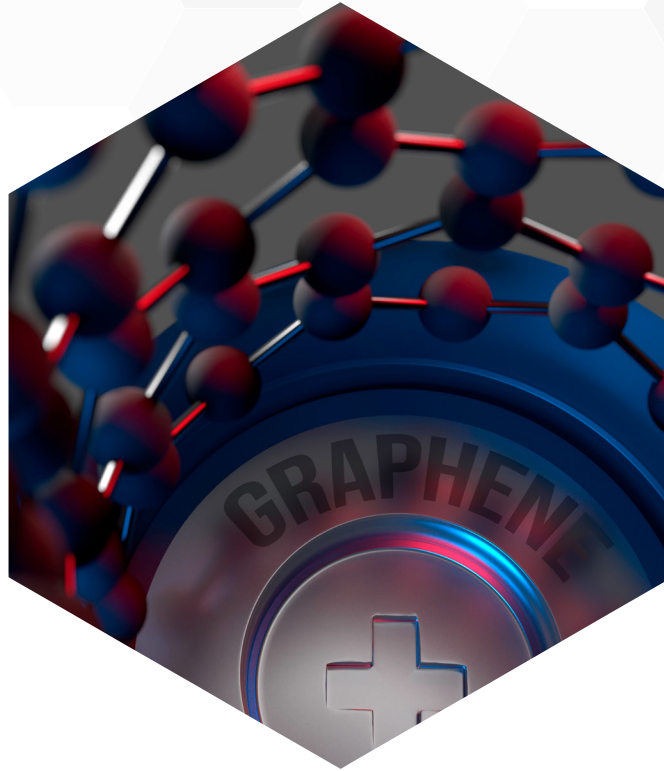
Why is NEXAR™ essential for the future of batteries?

NEXAR™ is not only thin and lightweight, but it also delivers performance that goes far beyond traditional anodes:

- Faster and more stable charging
- Significantly longer battery lifespan
- High thermal safety under elevated temperatures
- Fully compatible with solid-state cell designs
- No need for equipment or process changes

These features make NEXAR™ the wise choice for battery manufacturers from electric vehicles to aerospace, defence, and next-generation portable electronics.





NEXAR™ – SOLID-STATE READY COMPOSITE ANODE SHEET

NEXAR™ is a dry, thin, lightweight, and flexible composite anode sheet, specially designed for direct integration into next-generation solid-state battery cells. Developed using proprietary nanotechnology, this anode offers high thermal stability, safety, and long-term electrochemical performance.

Key Features:

- > Ultra-thin design (100–300 μm) for enhanced energy density**
- > Operates in high-temperature and long-cycle environments**
- > Compatible with various solid-state electrolytes**
- > Dry-format and ready for industrial assembly**
- > Customizable cutting, rolling, or lamination as per client specifications**

The product is engineered for seamless integration into solid-state cell architectures, requiring little to no redesign. Its performance profile makes it ideal for high-demand battery applications in electric vehicles, aerospace systems, defence-grade equipment, and advanced energy storage platforms.

ELECTRODE SPECIFICATIONS TABLE

Our graphene electrodes are designed to directly replace graphite and silicon electrodes. Below are the technical specifications and advantages of each product:

Performance Metric	Our Composite Anode Sheet	Conventional Graphite Anode	Silicon-Based Anode
Thickness	100–300 μm	400–800 μm	500–1000 μm
Density	~0.8 g/cm^3	~1.8 g/cm^3	~2.0 g/cm^3
Specific Capacity (theoretical)	1200–1500 mAh/g	372 mAh/g	3000–3500 mAh/g
Cycle Life (Solid-State Compatible)	3000+ cycles	~1000 cycles	300–500 cycles
Thermal Stability	Up to 200°C	Poor (>60°C degradation)	Poor (>60°C degradation)
Volume Expansion	Minimal Dry Sheet (Roll-to-Roll) Sheet	Low	Very High (~300%)
Mechanical Flexibility	Excellent	Rigid	Brittle
Solid-State Electrolyte Compatibility	Fully Compatible	Not Compatible	Not Compatible
Processing Method	Dry Sheet (Roll-to-Roll)	Slurry-Coated	Slurry-Coated
Environmental Safety	Non-toxic, Solvent-Free	Requires Solvents	High Risk
Assembly Readiness	Plug & Play for Solid-State Platforms	Requires Process Adaptation	Incompatible Without Redesign
Commercial Availability	Prototype-ready, scalable	Widely available	Limited, experimental



TECHNICAL SPECIFICATIONS & COMPATIBILITY

NEXAR™ Technical Specifications

Our NEXAR™ composite anode sheet is delivered in a dry, rollable or cut-sheet format, with specifications tailored for modern solid-state cell production lines.

Parameter	Value
Standard Format	Dry Sheet / Roll
Standard Width	300 mm (custom sizes available)
Thickness	100–300 μm
Bulk Density	~0.8 g/cm ³
Electrical Conductivity	10 ⁴ to 10 ⁵ S/m
Thermal Operating Range	Up to 200°C
Cycle Stability	3000+ cycles (in solid-state cells)
Binder System	Solvent-free / Water-based

Cathode Compatibility with NEXAR

This anode sheet is fully compatible with a wide range of next-generation cathodes commonly used in solid-state battery platforms:

Cathode Type	Compatibility
NMC (LiNiMnCoO ₂)	Highly Compatible
LFP (LiFePO ₄)	Stable Performance
LCO (LiCoO ₂)	Compatible with moderate performance limitations
Li-S (Sulfur-Based)	Conditionally compatible
High-Ni Cathodes (NCA, H-NMC)	Excellent conductivity match



Functional Impact in Battery Systems:



- **Increased volumetric energy density** due to reduced thickness and mass
 - **Improved thermal reliability** under demanding conditions
 - **Extended battery cycle life** when paired with stable cathodes
- **Suppressed dendrite formation risk** through uniform dry structure
 - **Enables thinner or higher-capacity cell designs**

APPLICATIONS & SEAMLESS INTEGRATION INTO EXISTING LINES

Where and how can NEXAR™ be used?

The NEXAR™ composite anode sheet is designed for a wide range of next-generation solid-state battery applications. Its key advantage for manufacturers is this: **Switching to NEXAR™ does not require significant changes to your existing production line.**

Delivered in a dry, thin, and flexible format, NEXAR™ is fully compatible with roll-to-roll, dry lamination, and layer-stacking processes already used in solid-state battery assembly.

Ideal Applications

- ✓ Solid-state EV battery platforms
- ✓ High-density energy storage units
- ✓ Thermal-resistant battery modules
- ✓ Aerospace and defence battery systems (UAVs, drones)
- ✓ Medical and wearable device batteries



NEXAR eliminates the need for wet processing, curing, or coating steps, enabling battery manufacturers to upgrade performance without reinvesting in new equipment or retraining operators.

Why NEXAR™?

5× faster charging speed

3× longer charge retention

3× extended battery lifespan

30% reduction in battery module weight

20% thinner final battery pack

Up to 30% faster module assembly time

15–20% reduction in anode processing costs

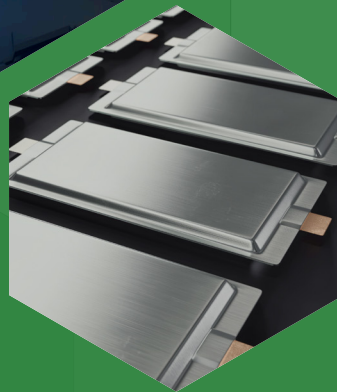
Thermal stability under high operating temperatures



**Pioneering Industrial
Innovation Through
Nanotechnology**



NEXAR



www.nexar-technology.com

info@nexar-technology.com