MATSOLVION PRIVATE LIMITED

MATSOLVION

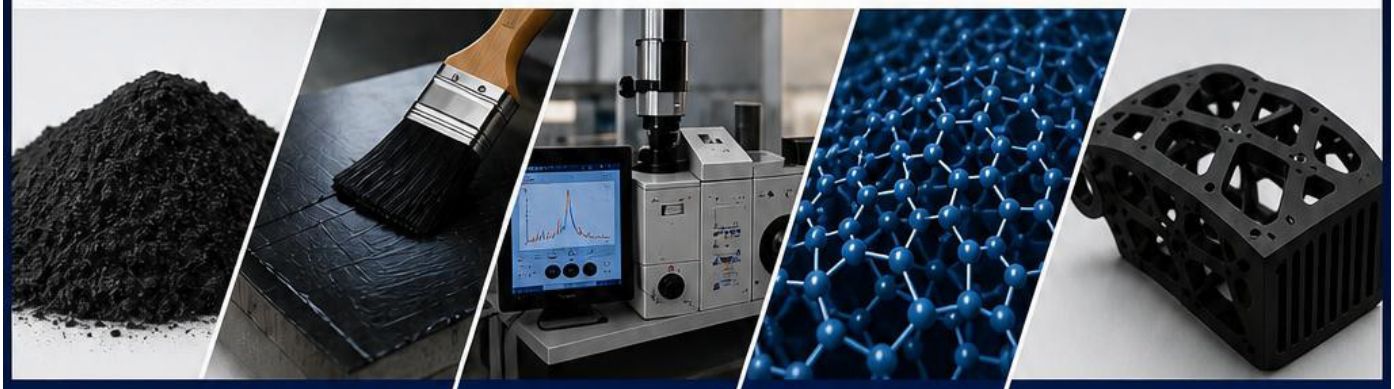
MATERIAL SOLUTION R&D

Version 1.0

PRODUCT & SERVICE CATALOGUE 2026

Advanced Materials for Research, Defence & Industry

"Innovating Materials Sustainably –
Driven by Science, Powered by Purpose."



GRAPHITE & CARBON MATERIALS | FUNCTIONAL COATINGS | MATERIAL CHARACTERISATIONS | ADVANCED NANOMATERIALS | PROTOTYPING & ENGINEERING SERVICES

MADE IN INDIA
Strengthening Self-Reliance

APPLICATION FOCUSED
Solving Real-World Challenges

SUSTAINABLE APPROACH
Responsible Materials & Processes

CUSTOMER CENTRIC
Collaborate. Innovate. Deliver.

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MATSOLVION
MATERIAL SOLUTION R&D

PRODUCT PORTFOLIO OVERVIEW

PRODUCT CATALOGUE 2026

Advanced Materials for
Research, Defence & Industry

Engineered Materials. Measurable Performance. Indian Innovation.

Matsolvion develops high-performance materials and solutions that address real-world challenges across research, defence and industry.

OUR FOCUS

- High purity & performance
- Indigenous development
- Scalable & reproducible
- Application-driven solutions
- Sustainable approach

OUR STRENGTH

- Advanced material design
- In-house R&D capability
- Characterisation & validation
- Customisation & technical support
- Reliable supply & partners

OUR COMMITMENT

- Quality & consistency
- On-time delivery
- Customer centricity
- Confidentiality & integrity
- Long-term partnerships

WHAT YOU'LL FIND IN THIS CATALOGUE

From material selection to application, Matsolvion is your trusted partner for high-performance materials and solutions.

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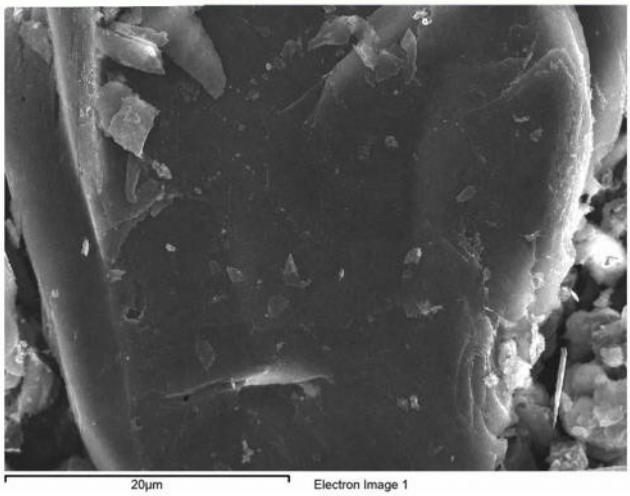
RG1 – RESEARCH GRADE GRAPHITE

03

HIGH PURITY | CONTROLLED MORPHOLOGY | RELIABLE PERFORMANCE

RG1 is a high-purity research grade graphite engineered for reproducible performance in laboratory-scale and engineering applications. It features a lamellar flake morphology, ensuring stable electrical, thermal, and tribological behavior across multiple use cases.

MORPHOLOGY (SEM)



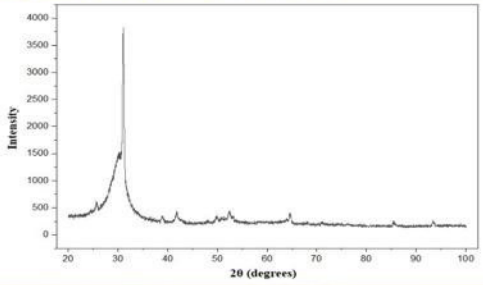
KEY TECHNICAL CHARACTERISTICS

Carbon Content	≥ 99%
Median Particle Size (D50)	~ 24.4 µm
Morphology	Flake / Lamellar
Structure	Layered Graphitic
Surface Condition	Clean, Low Contamination

PERFORMANCE ATTRIBUTES

- Stable electrical conductivity
- Good thermal conductivity
- Consistent dispersion behavior
- Low impurity interference
- Reproducible batch-to-batch performance

XRD ANALYSIS (Co Kα RADIATION)



XRD TEST PARAMETERS – GRAPHITE POWDER (RG1)

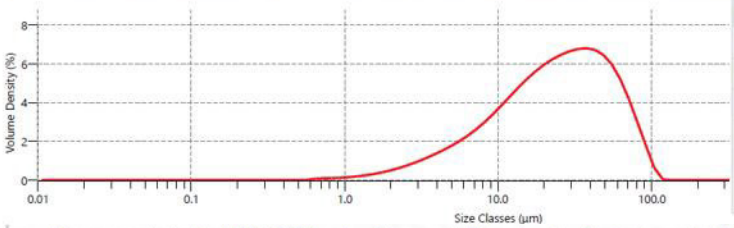
Instrument radiation source	: Co Kα	Scan range	: 20° – 100° (2θ)
Scan mode	: 2θ scan		
Step size	: 0.02°		
Scan rate	: 5°/min		

Prominent (002) peak confirms graphitic structure with high crystallinity and interlayer spacing ~ 3.34 Å.

APPLICATIONS

- Conductive coatings and formulations
- Polymer and composite reinforcement
- EMI shielding materials
- Tribological studies (lubrication, wear)
- Academic and industrial R&D

PARTICLE SIZE DISTRIBUTION (MASTERSIZER – WET MODE, ETHANOL)



KEY PSD PARAMETERS (VOLUME BASIS)	
D10	5.82 µm
D50 (Median)	24.4 µm
D90	63.0 µm
D95	74.6 µm
D99	93.9 µm
D100	111 µm

OTHER VALUES	
Span	2.345
Uniformity	0.721
Specific Surface Area	479.8 m²/kg
Concentration	0.0234 %

Measurement standard: ISO 13320 | Dispersant: Ethanol | Scattering model: Mie | Laser obscuration: 13.70% | Weighted residual: 1.42%

PACKAGING & AVAILABILITY

Pack Size	100 g
Form	Powder
Grade	Research Grade

CERTIFICATE OF ANALYSIS (CoA)

Batch Number	RG1-2601
Date of Analysis	01/04/2026
Carbon Content	~99%
Median Particle Size (D50)	24.4 µm
Structure	Graphitic
Interlayer Spacing (d002)	~3.34 Å
Crystallinity	High

Tested and verified by Matsolvion Quality Control

SELECTION GUIDE

Need fine / nano-level processing	Choose RG2
Need reliable research-grade material	Choose RG1
Need bulk industrial usage	Choose CG1

* For specific application requirements, contact our technical team.

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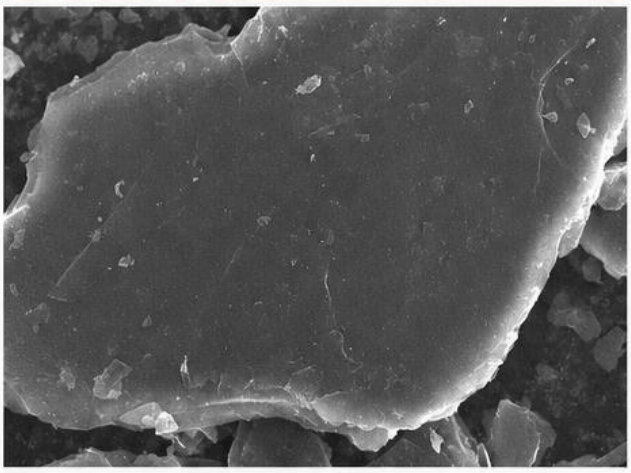
RG2 – PREMIUM RESEARCH GRADE GRAPHITE

04

ULTRA HIGH PURITY | SUPERIOR MORPHOLOGY | ENHANCED PERFORMANCE

RG2 is a premium research grade graphite with ultra-high purity and tightly controlled morphology, engineered for high-performance applications requiring exceptional electrical conductivity, thermal stability, and consistency.

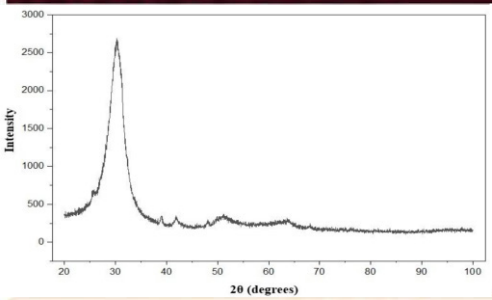
MORPHOLOGY (SEM)



Electron Image 1

High aspect ratio lamellar flakes with smooth surfaces and minimal impurities, ensuring superior conductivity and dispersion.

XRD ANALYSIS (Co Kα RADIATION)



XRD TEST PARAMETERS – GRAPHITE POWDER (RG2)

Instrument radiation source	: Co Kα	Scan range	: 20° – 100° (2θ)
Scan mode	: 2θ scan		
Step size	: 0.02°		
Scan rate	: 5°/min		

Prominent (002) peak confirms highly ordered graphitic structure with crystallite size and interlayer spacing ~ 3.36 Å.

KEY TECHNICAL CHARACTERISTICS

Carbon Content	≥ 99.9%
Median Particle Size (D50)	~ 15.8 µm
Morphology	Flake / Lamellar
Structure	Highly Layered Graphitic
Surface Condition	Ultra Clean, Very Low Contamination

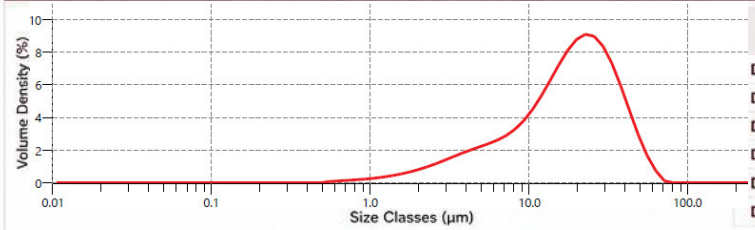
PERFORMANCE ATTRIBUTES

- Ultra high electrical conductivity
- Superior thermal conductivity
- Excellent dispersion and stability
- Extremely low impurity interference
- Batch-to-batch consistency and reproducibility

APPLICATIONS

- Advanced conductive coatings and inks
- High-performance polymer & composite reinforcement
- High-frequency EMI shielding materials
- Tribological coatings (lubrication, wear)
- Energy storage and battery applications
- Advanced research and industrial R&D

PARTICLE SIZE DISTRIBUTION (MASTERSIZER – WET MODE, ETHANOL)



KEY PSD PARAMETERS (VOLUME BASIS)	
D10	3.25 µm
D50 (Median)	15.8 µm
D90	38.2 µm
D95	56.1 µm
D99	72.4 µm
D100	91.0 µm

OTHER VALUES	
Span	2.21
Uniformity	0.708
Specific Surface Area	612.3 m²/kg
Concentration	0.0218 %

Measurement standard: ISO 13320 | Dispersant: Ethanol | Scattering model: Mie | Laser obscuration: 13.70% | Weighted residual: 1.36%

PACKAGING & AVAILABILITY

Pack Size	100 g
Form	Powder
Grade	Premium Research Grade

CERTIFICATE OF ANALYSIS (CoA)

Batch Number	RG2-2601
Date of Analysis	01/04/2026
Carbon Content	≥99 %
Median Particle Size (D50)	15.8 µm
Structure	Highly Layered Graphitic
Interlayer Spacing (d002)	~3.36 Å
Crystallinity	Very High

Tested and verified by Matsolvion Quality Control

SELECTION GUIDE

Need fine / nano-level processing	Choose RG2
Need reliable research-grade material	Choose RG1
Need bulk industrial usage	Choose CG1

* For specific application requirements, contact our technical team.

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CG1 – COMMERCIAL GRADE GRAPHITE

05

COST-EFFECTIVE | CONSISTENT QUALITY | INDUSTRY READY

CG1 is a commercial grade graphite powder designed for cost-sensitive industrial and large-scale applications. It offers consistent particle size distribution and reliable performance, making it suitable for construction, civil engineering, and general industrial usage where economy and availability are critical.

GRAPHITE POWDER – COMMERCIAL GRADE

Cost-Effective • Consistent Quality • Industry Ready

KEY TECHNICAL CHARACTERISTICS

Median Particle Size (D50)	< 75 µm 200 Mesh size
Morphology	Flake / Lamellar
Structure	Layered Graphitic
Surface Condition	Industrial Grade, Process-Dependent

PERFORMANCE ATTRIBUTES

- Reliable electrical behavior (non-critical applications)
- Stable thermal response
- Good dispersion in bulk systems
- Compatible with cementitious and polymer matrices
- Cost-effective for large volume usage

KEY APPLICATIONS

Construction & Civil Industry
- Concrete additives
- Mortar modification
- Cement-based composites

Improves durability and functional properties.

Reinforcement & Composite Fillers
- Cement composites
- Polymer fillers
- Structural reinforcement systems

Enhances mechanical performance.

Pencil & Writing Industry
- Core material for pencil leads
- Provides smooth writing and controlled hardness

Ensures consistent marking quality.

Lubricants & Friction Materials
- Industrial lubricants
- Grease additives
- Wear reduction applications

Reduces friction and improves service life.

Coatings, Paints & Fillers
- Functional filler in coatings
- Paints and sealants
- Industrial surface treatments

Improves thermal stability and conductivity.

General Industrial Applications
- Electrodes
- Gaskets
- Foundry materials
- Refractories

Suitable for a wide range of industrial uses.

TYPICAL PRODUCT INFORMATION

Pack Size	: 1 kg
Form	: Powder
Grade	: Commercial Grade
Availability	: Bulk supply available

Economical graphite solution for bulk industrial applications where cost efficiency and availability are primary requirements.

DISCLAIMER: This is a commercial grade material. Properties are typical and may vary based on batch and application requirements.

PACKAGING & AVAILABILITY

Pack Size	1 kg
Form	Powder
Grade	Commercial Grade
Availability	Bulk supply available

SELECTION GUIDE

Need ultra-fine / high-performance graphite	Choose RG2
Need research-grade material	Choose RG1
Need bulk industrial material	Choose CG1

* For specific application requirements, contact our technical team.

CERTIFICATE OF ANALYSIS (CoA)

Batch Number	:	CG1-2601
Date of Analysis	:	01/04/2026
Median Particle Size (D50)	:	< 75 µm
Morphology	:	Flake / Lamellar
Structure	:	Layered Graphitic
Surface Condition	:	Industrial Grade, Process-Dependent
Availability	:	Bulk (On Request)

Tested and verified by Matsolvion Quality Control

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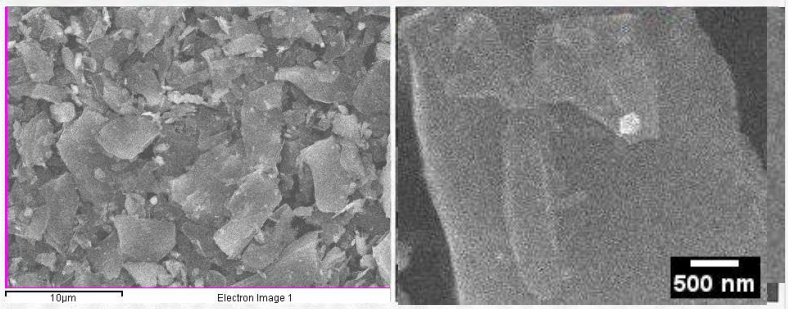
M-GNP – MULTILAYER GRAPHENE–GRAPHITE PLATELET POWDER

High Surface Area | Layered Nanostructure | Advanced Functional Performance

M-GNP is a multilayer graphene–graphite platelet powder produced via a top-down exfoliation process. It exhibits a layered morphology with reduced thickness and increased surface area, enabling enhanced electrical, thermal and interfacial properties for next-generation composite and functional material systems.

MORPHOLOGY (SEM)



Multilayer platelet morphology with reduced thickness and high aspect ratio, indicating exfoliated graphitic structures.

ELEMENTAL ANALYSIS (EDS)

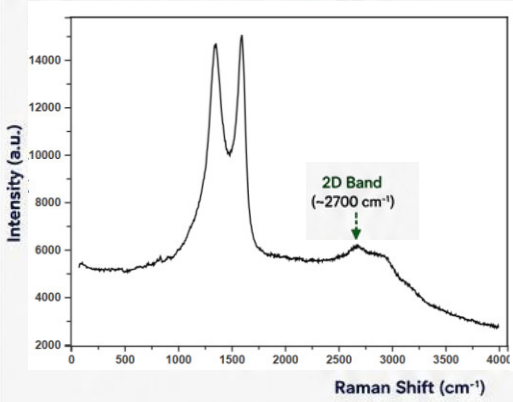
Elemental composition confirms graphitic nature with high carbon content.

Element	Weight %	Atomic %
C	93.67	95.23
O	6.16	4.70
S	0.17	0.07
Totals	100.00	100.00

Interpretation:

High carbon content confirms graphitic composition, while minor oxygen presence indicates surface functionalization or processing-induced oxidation.

RAMAN ANALYSIS (AS-MEASURED)



Measurement Details

Laser Source	:	532 nm
Spectral Range	:	0 – 4000 cm⁻¹
Resolution	:	~2 cm⁻¹
Acquisition Mode	:	As Measured
Baseline	:	None (Raw Data)

Raman spectrum of M-GNP showing prominent D (~1350 cm⁻¹) and G (~1580 cm⁻¹) bands with a broadened 2D band (~2700 cm⁻¹), indicating multilayer graphene nanoplatelet (GnP-type) structure with defect-assisted exfoliation.

Note: Spectrum shown as-measured (no baseline correction applied) to preserve original data points.

KEY TECHNICAL CHARACTERISTICS

Structure
Multilayer Graphene–Graphite Platelets

Morphology
Thin Flake / Platelet

Surface Condition
Partially Functionalized (oxygen presence)

Layer Nature
Few-layer to Multilayer Graphitic Sheets

PERFORMANCE ATTRIBUTES

- Enhanced electrical conductivity pathways
- Improved thermal transport behavior
- High surface area for interaction
- Superior dispersion potential (with processing)
- Improved interfacial bonding in composites

KEY APPLICATIONS

Advanced Composites
- Polymer nanocomposites
- Epoxy reinforcement systems
- Lightweight structural materials

Conductive Systems
- Conductive coatings
- EMI shielding materials
- Antistatic formulations

Energy & Electronics
- Battery additives
- Supercapacitor materials
- Sensor applications

Thermal Management
- Heat dissipation fillers
- Interface materials

R&D & Advanced Materials
- Functional material research
- Surface engineering studies

PRODUCT INFORMATION

Product Code	:	M-GNP
Form	:	Powder (Platelets)
Appearance	:	Black / Dark Grey
Pack Size	:	10 g (Research Pack)
Storage	:	Store in a cool, dry place away from moisture
Shelf Life	:	24 months (sealed)
Grade	:	Research Grade (Advanced Nanomaterial)

POSITIONING

Advanced graphene–graphite platelet material engineered for high-performance applications requiring enhanced surface interaction and conductivity.

SELECTION GUIDE

Need highest performance nanomaterial	→	M-GNP (Advanced GnP)
Need premium graphite	→	RG2
Need research graphite	→	RG1
Need bulk industrial graphite	→	CG1

IMPORTANT DISCLAIMER

Material is characterized based on morphology, elemental composition and Raman analysis.

WHY M-GNP FROM MATSOLVION?

- ✓ Indigenously developed & manufactured
- ✓ Consistent quality & controlled morphology
- ✓ High surface interaction & functional performance
- ✓ Cost-effective, scalable & application-focused

MADE IN INDIA, FOR INDIA, BY INDIA

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FCS – FUNCTIONAL COATING SYSTEMS BETA PHASE

APPLICATION-SPECIFIC COATING VARIANTS UNDER DEVELOPMENT

FCS is a modular coating platform comprising variant-specific formulations developed to deliver performance in targeted functional applications.
Each variant is independently engineered for its primary function.
Combined functionality is formulation-dependent and under evaluation.

BETA PHASE
UNDER DEVELOPMENT

Prototype coating systems | Brush Applied
Customisable Formulations | Application Driven

FCS VARIANTS

		PRIMARY FUNCTION
FCS–T THERMAL COATING SYSTEM	• Thermal protection • Heat exposure resistance • Substrate protection	THERMAL PROTECTION
FCS–C CONDUCTIVE COATING SYSTEM	• Electrical conductivity • Antistatic / ESD behavior • Charge dissipation	ELECTRICAL CONDUCTIVITY
FCS–E EMI SHIELDING COATING SYSTEM	• EMI shielding • Signal interference reduction • Protection of sensitive electronics	EMI SHIELDING

Each FCS variant is independently engineered for its primary functional requirement. Combined functionality is formulation-dependent and currently under evaluation.

KEY FEATURES

- Variant-specific formulation approach
- Customisable based on application requirement
- Brush-applied coating system
- Application-driven performance
- Compatible with metals, composites & engineering substrates
- Beta-phase development (prototype level)

PERFORMANCE HIGHLIGHTS

- Designed for functional coating applications (thermal / conductive / EMI)
- Good substrate compatibility & adhesion potential
- Formulation flexibility for application-specific needs
- Suitable for prototyping and validation studies
- Iterative development with performance optimization

APPLICATION AREAS (EXAMPLES)

FCS–T | THERMAL	FCS–C | CONDUCTIVE	FCS–E | EMI SHIELDING
Thermal protection surfaces	Antistatic coatings	EMI-sensitive systems
Heat-exposed components	Electronic enclosures	Electronic shielding layers
Industrial thermal systems	Conductive surfaces	Defence electronics
Exhaust & engine components	Grounding layers	Communication systems
Furnace & heater components	ESD sensitive components	Radar & sensor housings

VALIDATION & TESTING (IN PROGRESS)

Thermal Performance	Under evaluation
Electrical Conductivity	Under formulation study
EMI Shielding	Early-stage validation
Adhesion & Durability	Under evaluation
Environmental Resistance	Under evaluation

FCS is a modular coating platform with variant-specific functional performance, designed for research, industrial validation and advanced applications.

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MADE IN INDIA
Strengthening Self-Reliance

ENGINEERING DRIVEN
From Lab to Application

SUSTAINABLE APPROACH
Responsible Materials & Processes

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MATERIAL CHARACTERISATIONS & ENGINEERING SERVICES

TESTING | ANALYSIS | PROTOTYPING SUPPORT

Matsolvion provides comprehensive material characterisation, analysis and engineering support services for research, industrial and prototype-scale applications. We deliver reliable data, clear insights and documentation to support informed development and decision-making.

Material analysis and prototype development support

CORE CAPABILITIES

MATERIAL CHARACTERISATION

- Microstructural analysis
- Elemental composition analysis
- Particle size distribution (PSD)
- Structural analysis (crystallinity, phase)

PERFORMANCE EVALUATION

- Thermal behavior assessment
- Mechanical response evaluation
- Coating validation support
- Comparative material studies

ENGINEERING SUPPORT

- Material selection guidance
- Prototype-level validation support
- Data interpretation and reporting
- Application-oriented insights

RAPID PROTOTYPING (FDM-BASED)

- Functional prototypes using FDM 3D printing
- Material options: PLA, PETG, TPU, composites
- Design validation and iteration support
- Integration with material testing workflows

Supports rapid iteration between material development and application validation.

KEY SERVICE ATTRIBUTES

- Application-driven approach
- Research & industry aligned
- Integrated analysis + prototyping capability
- Data-backed reporting
- Flexible for early-stage & advanced R&D

APPLICATION AREAS

RESEARCH & ACADEMIA

- Material validation
- Thesis & experimental support
- Comparative studies

INDUSTRY & MANUFACTURING

- Quality assessment
- Incoming material validation
- Process optimisation

PRODUCT DEVELOPMENT & STARTUPS

- Prototype validation
- Material benchmarking
- Functional component prototyping

TYPICAL WORKFLOW

Sample / Requirement Input → Test & Prototype Planning → Material Analysis / Fabrication → Data Interpretation → Report & Application Guidance

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info@matsolvion.com

We will be happy to understand your requirement and support you.

DISCLAIMER: Services are provided based on in-house capabilities and/or third party laboratory support where required.

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PRODUCT SELECTION SNAPSHOT

Choose the right material for your application.

RESEARCH GRADE | HIGH PERFORMANCE | COST EFFECTIVE | ADVANCED NANO | FUNCTIONAL COATINGS

REQUIREMENT	RECOMMENDED PRODUCT
Academic / Research Grade General laboratory & academic research	**RG1** — **RESEARCH GRADE GRAPHITE** High purity graphite for research applications.
High-Performance / Fine Graphite Advanced research & high-performance composites	**RG2** — **PREMIUM RESEARCH GRADE GRAPHITE** Fine graphite engineered for high surface interaction and advanced applications.
Bulk Industrial / Cost Sensitive Large scale industrial & commercial use	**CG1** — **COMMERCIAL GRADE GRAPHITE** Cost-effective bulk graphite for industrial and commercial use.
Advanced Nanomaterials / Composites Next-generation composites & functional materials	**M-GNP** — **MULTILAYER GRAPHENE–GRAPHITE PLATELET POWDER** Multilayer graphene–graphite platelet powders for next-generation composites.
Thermal / Functional Coating Systems Thermal protection, conductivity & EMI shielding applications	**TRCS (BETA)** — **MULTI-FUNCTIONAL COATING SYSTEM (BETA PHASE)** Thermal protection, electrical conductivity and EMI shielding coatings (under development).

FOR DISTRIBUTORS & PARTNERS

AVAILABLE OFFERINGS

- Research-grade graphite powders (RG1, RG2)
- Commercial bulk graphite (CG1 – 1 kg pack)
- Advanced nanomaterials (M-GNP)
- Multi-functional coating systems (TRCS – Beta Phase)

SUPPORT & DOCUMENTATION

- Certificate of Analysis (CoA)
- Safety Data Sheets (SDS)
- Application Sheet

All documentation is provided upon product request.

COLLABORATION OPPORTUNITIES

- Distribution partnerships (regional / institutional)
- Academic & R&D collaborations
- Custom material development
- Prototype support & performance validation

We welcome motivated distributors, channel partners and institutional collaborators to grow together and deliver advanced material solutions across India.

CONTACT & BUSINESS INFORMATION

COMPANY
MATSOLVION PRIVATE LIMITED
Material Solution R&D

LOCATION
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WEBSITE
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From material selection to application, Matsolvion enables scalable, indigenous advanced material solutions for research, defence, and industry.