ADVANCED & FUNCTIONAL MATERIALS

Supplying the materials that enable Europe's next-generation defence capability

Advanced and functional materials underpin the performance and reliability of every modern defence platform. They enable lightweight structures, enhanced survivability, thermal protection and electronic performance across land, air, naval, space and autonomous systems. As Europe ramps up defence production, primes and OEMs need resilient, compliant materials suppliers who can support both rapid prototyping and serial manufacturing.

Core subcategories

- **Composites & advanced polymers:** thermoplastic and thermoset systems, carbon and aramid fibre, high-temperature and flame-retardant polymers.
- **High-performance metals & alloys :** titanium and aluminium alloys, nickel superalloys, armour-grade steels, corrosion-resistant naval alloys.
- **Functional coatings & surface treatments:** stealth and low-observable coatings, EMI/EMC shielding, thermal barrier, anti-corrosion and anti-fouling finishes.
- **Adhesives, bonding & joining systems:** structural adhesives, electrically/thermally conductive systems, aerospace-grade sealants.
- **Ceramics & engineered materials:** ballistic ceramics (alumina, SiC, B4C), ceramic matrix composites, nano-ceramic and technical ceramics.
- **Foams, cores & structural materials:** honeycomb cores, energy-absorbing foams, lightweight sandwich panel materials.
- **Additive manufacturing powders & feedstock:** metal powders (SLM/DED/EBM), polymer powders and filaments, high-temperature AM materials.

Market outlook

Demand for advanced and functional materials used in defence and aerospace continues to accelerate, driven by rearmament across Europe, platform modernisation and a push for sovereign, resilient supply chains.

Overall, advanced materials supporting next-generation defence platforms represent a market of $25–30B annually, with sustained growth of 6–10% CAGR through 2030.

Key market indicators:

- **Military composites:** ~$5.3B in 2024 : ~$7.5B by 2030 (CAGR ~6%)
- **Armour & ballistic materials:** ~$12–13B in 2024 : ~$17–19B by 2030 (CAGR ~5–6%)
- **High-performance metals & superalloys:** ~$10B+ combined (4–6% annual growth)
- **Military coatings:** ~$2.4B in 2024 : ~$3.6B by 2030 (CAGR ~7%)
- **Ceramics & CMCs:** ~$3.8B in 2024 : ~$6B by 2030 (CAGR ~7–8%)
- **AM materials (defence/aerospace feedstock):** ~$1.4B in 2024 : ~$3.3B by 2030 (CAGR ~15–17%)

Typical defence applications

- UAV fuselages, wings and structural components
- Missile bodies, fins and thermal protection systems
- Anti-corrosion and low-drag coatings for naval and subsea platforms
- Ballistic plates, helmets and armour modules
- Radomes and RF-transparent structures for sensors and communications
- Electromagnetic shielding and thermal management for avionics and power electronics
- Composite brackets, panels and sub-assemblies across land, air and naval platforms

Who should exhibit

- Producers of composite materials and pre-pregs
- Suppliers of high-performance metals, alloys and speciality metals
- Coatings and surface-treatment providers
- Adhesive, bonding and sealing technology suppliers
- Technical and ballistic ceramics manufacturers
- Manufacturers of structural foams, cores and lightweight fillers
- Producers of metal and polymer powders and engineered AM feedstock

What primes & OEMs are looking for

- New and alternative materials suppliers to strengthen supply-chain resilience
- REACH-compliant formulations and secure European sourcing
- Lightweight materials that support platform modernisation and extended range
- High-temperature and high-strength materials for missiles and propulsion systems
- EMI/thermal protection solutions for electronics-heavy platforms
- Certified, repeatable materials suitable for air, land, naval and space systems

Showcase your ADVANCED MATERIALS to defence engineering, procurement and senior executive teams who are ACTIVELY IDENTIFYING and ONBOARDING new suppliers across Europe

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