



Free-Standing Getter Films

Multi-Gas / VOC / Particle Scavenging for Miniaturized Devices

NanoFEA has engineered a range of multifunctional nanomaterials designed to capture a wide spectrum of gases, volatile organic compounds (VOCs), and particulate matter released by specialized electronic devices. NanoFEA's free-standing getter films deliver a breakthrough in contamination control for compact, high-performance systems. Unlike conventional substrate-supported getters, these films are fully active, substrate-free, dielectric, and cut-to-shape, enabling seamless integration into the tightest device architectures.



Free-Standing Film



Integrated Films

Designed for H₂O (moisture), H₂, O₂, CO₂, VOCs, PFAS, and particulate matter removal, NanoFEA getter films provide unmatched flexibility and performance for MEMS, optical modules, medical implants, RF systems, and hermetically sealed packages.

Why Free-Standing Getter Films?

- 100% Active Material — No Substrate
- Entire getter is actively contributing to adsorption
- Higher capacity in smaller footprints
- Flexible, Cut-to-Shape Geometry. Easily punched, cut, or patterned
- Fits into narrow headspaces, curved cavities, and non-planar regions
- Dielectric & Electrically Safe/ No risk of shorts or parasitic capacitance
- Safe for RF, microwave, optical, and implantable systems
- No Activation Required
- Ready to use, direct from the packaging
- Functions across a broad temperature range from -55° C to +200° C

Standard & Custom Sizes

- Standard getter film sheet: 25 × 25 × 0.10 mm up to 100 × 25 × 0.10 mm
- Available shapes:
- Square, circular, elliptic, and rectangular strip
- Customer can cut the film in any sizes

Integration Options

- Direct insertion (no adhesive)
- Low-outgassing epoxy (ASTM E595 qualified)

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Getter Film Product Families

MoistureMAX – Ultra fast moisture removal

- Rapid H₂O adsorption via micropore physisorption + chemisorption
- Ideal for MEMS, optical modules, IR Sensors and power
- Best for application requiring ultra-low humidity and fast response from vacuum systems and hermetic packaging

HyMAX – Hydrogen and moisture getter

- Catalytic dissociation of H₂ with simultaneous moisture removal
- Works best near mild heat sources
- Suitable for RF modules, power devices and hydrogen sensitive assemblies

VOCMAX – VOC, Siloxanes and PFAS removal

- Broad spectrum VOC adsorption
- Enhanced Siloxane capture
- PFAS and persistent organic contaminant removal
- Large surface area preferred due to slower VOC diffusion
- Ideal for optical modules, medical devices and polymer rich environments

PriMAX – Multi-Gas Getter

- Captures H₂, O₂, H₂O, CO₂ and trace contaminants
- Best deployed as distributed tiles
- Ideal for systems requiring uniform multipoint scavenging

AllMAX – Multi-gas and Particle capture

- Removes Polar and non-polar gases, VOC's Siloxanes, and PFAS
- Simultaneously captures magnetic, electric, dielectric and fine dust
- Suitable for vacuum systems, optical assemblies, and mixed gas environments

ParticleMAX – Particulate control

- Captures magnetic, electrostatic, dielectric and fine dust
- Geometry depends on dominant capture mechanism
- Magnetic – near field gradients
- Electrostatic – near charged regions
- Ideal for optical modules, MEMS and precision sensors

Applications

- MEMS & microelectronics
- Optical modules & LiDAR
- Medical implants & sensors
- RF/microwave systems
- Vacuum & hermetic packages
- Battery packs & energy systems

Material Physical Properties:

- Density: 1.1 ± 0.10 g/cm³
- Dielectric constant: 2.4 ± 0.1
- Thermal conductivity: 0.25 ± 0.05 W/m·K
- CTE: 5-7 ppm/°C
- Young's modulus: 5–15 GPa,
- Hardness: Shore D 60-75, or ~2 GPa (Vickers)
- Electric Insulation resistance: 10^{12} – 10^{14} Ω·cm
- Surface energy: 30-50 mJ/m²
- The appearance of the material: Gray to off-white, light black, and black
- Texture: Matte, possibly slightly porous

Reach out today for more information on this exciting Material!