Carbon-Based Thin Film Manufacturing Via Natural Gas Plasma And Cold Spray

Tech ID: 34288 / UC Case 2026-529-0

BRIEF DESCRIPTION

A clean, efficient process to produce high-quality graphene thin films from natural gas for advanced electronics and energy applications.

FULL DESCRIPTION

This innovative technology converts natural gas into tiny, high-quality carbon flakes using hot plasma, then applies them directly onto surfaces via a cold spray method to form graphene-based thin films. This streamlined process reduces harmful emissions, lowers production costs, and produces valuable battery materials along with clean hydrogen, enabling greener and more affordable manufacturing of flexible electronics, optoelectronic components, and energy storage devices.

SUGGESTED USES

- Transparent conductive films for touchscreens, flexible displays, OLEDs, and LCD panels
- High-speed graphene transistors for advanced signal processing
- Photodetectors and optical modulators for cameras, LiDAR, and optical communication
- Flexible solar cells with graphene electrodes for perovskite and organic photovoltaics
- Supercapacitors enabling fast charging wearable electronics
- Graphene-enhanced lithium-ion and lithium–sulfur battery electrode

ADVANTAGES

- Environmentally friendly production with reduced toxic chemicals and emissions
- Cost-effective and energy-saving manufacturing process
- High-quality graphene films offering flexibility, robustness, and superior conductivity
- Direct cold spray application simplifies and accelerates thin film formation
- Produces clean hydrogen as a valuable byproduct

PATENT STATUS

Patent Pending

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OTHER INFORMATION

CATEGORIZED AS

- **Energy**
  - Storage/Battery
- **Materials & Chemicals**
  - Thin Films

RELATED CASES

2026-529-0

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