



# Sensors for Smart Packaging

## FLEXIBLE GRAPHENE-BASED FILMS FOR BACTERIAL DETECTION IN MEAT

### KEY WORDS

SENSORS,  
SMART PACKAGING,  
ESCHERICHIA COLI

### DESCRIPTION

Development of sensors based on graphene-coated polymeric films for the *in situ* detection of *Escherichia coli* in meat and meat products. Sensitivity, limit of detection, stability, and compatibility with flexible packaging are evaluated, considering food safety requirements and technological feasibility for industrial implementation.

### POTENTIAL BENEFITS OR IMPACTS

Early pathogen detection.  
Reduction of health risks and economic losses.  
Innovation in plastic packaging.

### TECHNOLOGY MATURITY LEVEL (TRL)

TRL 4: laboratory validation

### AREA OF APPLICATION

Polymers  
Food safety  
Electrical sensors

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