

## **Electromagnetic Shielding Composition with Improved Microwave Shielding Property**

### **1. Technology:**

University researchers at ceramic composite laboratory have patented a microwave processed high stable electro-ceramic EMI shield with good repeatability and, rapid synthesis. Under this invention a EMI shield made up of multiferroic composite comprising of ferroelectric/ferro magnetic materials. The ceramic EMI shield is prepared based on IEEE standards. The EMI ceramic is synthesized through hybrid microwave sintering (MS). This EMI shield is processed by MS through quenching in normal atmosphere. The invented product performed colossal EMI shield behaviour in X band range.

### **2. Problem Addressed:**

The patented ceramic EMI shield addressed the limitations of existing electromagnetic radiation attenuation solutions, such as the bulkiness and ineffectiveness of metal structures, the chemical instability of polymer-based nano-composites, and the toxicity of quantum dots. This new ME composite ceramic EMI shield aimed to overcome these limitations by developing a modified multiferroic ceramic composition with improved microwave shielding properties, stability, and cost-effectiveness.

### **3. Industrial Applications:**

Industrial ceramic EMI shields have many benefits. They are useful for difficult situations due to their chemical stability, high temperature resistance, and durability.

They are utilised in aircraft, automotive, electronics, and telecommunications. Ceramic shields shield sensitive aeronautical avionics from electromagnetic interference. They protect electrical control modules and avoid communication system interference in vehicles. Ceramic shields protect electronics from electromagnetic noise and improve reliability. In antennas, cables, and other telecom equipment, they increase signal quality and reduce interference.

### **4. Patent Application Number:** 202441031263