FirstLink

Technology Opportunity

Vehicle Stopping Foam

A Stand-off System of Minimum Lethality

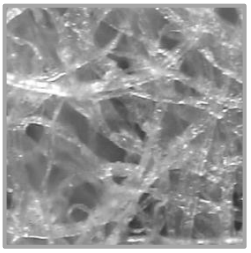
Overview

M2 Technologies' Vehicle Stopping Foam works to provide **a stand-off system of minimum lethality for stopping a vehicle's engine**. When ingested into an automobile's air induction system, the protein-stabilized carbon dioxide (CO_2) foam can simultaneously quench combustion and block pores in the vehicle's air filter. The vehicle can then be rendered inoperable in approximately two seconds. Engine functionality may be restored by replacing the air filter and cleansing the induction system. The prototype foam has no known environmental implications and is equally effective against gas and diesel engines.

M2 Technologies is seeking developmental partners for design and prototype of foam dispensing mechanisms as well as testing and demonstration opportunities.

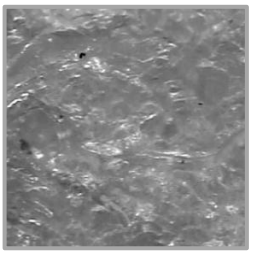
The Technology

Initially developed by the Urban Operations Laboratory located at Kansas State University, the Vehicle Stopping Foam has two modes of operation: **(1) the carbon dioxide completely quenches combustion and (2) the foam residue rapidly blocks the pores in air filter media**. This design is based on the fact that most internal combustion engines require oxygen, a hydrocarbon fuel, and an ignition system. A typical automotive engine requires an air-fuel ratio of about 15:1 to run properly. The Vehicle Stopping Foam effectively alters this ratio as the oxygen concentration is decreased via the protein based CO_2 foam and the foam residue occludes the air filter pores.



New FRAM™ Air Filter

Laboratory experiments on a large-scale apparatus simulating a vehicle's air intake system have demonstrated ingestion of the Vehicle Stopping Foam to completely occlude a full-size FRAM™ air filter within approximately two seconds. When a vehicle is stopped it cannot be restarted until air flow can resume, which equates to replacing the air filter and cleansing the induction system. Beyond air filter replacement and system cleansing, there is no permanent damage to the engine.



Clogged FRAM™ Air Filter

Applications & Features

The Vehicle Stopping Foam may be used in most cases where **a vehicle-based threat would need to be rendered inoperable**. Example applications include: security check points, border patrol, and military and law-enforcement field operations. Of potential applications, security checkpoint deployment has been identified as a primary development initiative.

Opportunity

M2 Technologies is seeking developmental partners for the design and prototype of a dispensing mechanism for the Vehicle Stopping Foam. A CO_2 beverage cylinder has been used to dispense the foam during laboratory tests. Increases in volume and dispenser capacity are desired for checkpoint applications. Demonstration and testing opportunities are also sought.

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