UNIVERSITY OF WYOMING
Wyoming Technology Transfer and Research Products Center

NitroTube

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Patent Status:
Patent Pending

Description of Technology

Forest fires are a devastating event that can destroy an immense amount of property and are generally quite difficult to extinguish. Currently, forest fires are being fought using a number of methods including fire breaks, backfires, and water/chemical drops from aircraft. These methods all have their drawbacks from aircraft being limited by the amount of water or chemicals they can carry to environmental concerns over flame retardant materials.

Researchers at the University of Wyoming have invented a new way to fight forest fires called NitroTube. It integrates coiled tubing and high-capacity pumping technologies from the oil and gas industries as a deployment mechanism for nonflammable gases, such as nitrogen or CO_2, in order to deprive active forest fires of oxygen to extinguish fires. This technology has the potential for delivering large amounts of nonflammable gas over large fire fronts to completely extinguish or significantly suppress the wildfire. NitroTube also has a longer linear extent over which it can be deployed compared to the other firefighting technologies. An aircraft can deploy only a limited amount of water or flame retardant materials before it needs to resupply. NitroTube, which is ground deployed, is a much more efficient and cost-effective fire suppressant system than the other current technologies.

Applications

Forest fires are devastating events and their frequency is increasing. This University of Wyoming technology can be used to combat the ever-present threat of forest fires better than any other technologies available today. With its ability to utilize cryogenic, liquefied nitrogen as a source, the usefulness of the NitroTube increases greatly. With this technology, fire fighters have a greater chance of putting out forest fires more quickly and efficiently, without significant damage to the environment.

Features & Benefits

- Can deliver large amounts of nonflammable gas over large fire fronts
- Longer linear extent over which it can be deployed compared to other methods
- More cost-effective and efficient than air deployed systems.
- Drone based communications network and reconnaissance

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