

Case Study

Rawwater

rawwater

Revolutionary kit for instant Battlefield metal repairs

Idea

The Instant Metal Patch (IMP) back-pack is a man-portable emergency metal spray kit for repairing damage to equipment in the battlefield. The metal spray solidifies instantly over the damaged area to seal holes, cracks, positive & negative pressure leaks, and can also be used to seal leaks from fuel tanks without the necessity to off load fuel.

It is a self-contained unit, requiring minimal user training and can be deployed in the most austere environments to return operationally effective equipment rapidly back into the hands of the user. It uses a proven technique that Rawwater has been developing for the nuclear sector, and has a wide variety of repair applications.

Once the metal spray has been administered, it can be removed just as easily using a heat technique. And, when the equipment is out of the battlefield and back at base, a permanent repair can be implemented.

Chicken & Egg

The metal spray is so delicate that it can coat a chicken's egg without cooking it or breaking it.



Water flows from ruptured steel canister.



Metallic deposition stems the flow.



The canister is sealed.

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Defence and Security
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Case Study

Implementation

The Defence and Security Accelerator (DASA) investment of £245,000 for a 12 month project is funding the development and production of a prototype back-pack for use across the armed forces. The project will culminate in a demonstration to show the quality of repair and value to the military user in the field.

The demonstration will show off the capabilities of the 'IMP' Battle Damage Repair back-pack displaying the quality of its repair applicable across the Armed Forces. In order to understand the variety of potential repairs on the battlefield, Rawwater has had in-depth conversations with representatives from all 3 services.

Impact

The range of potential repairs that the spray will aspire to demonstrate at the end of the project are:

- Repair to metal castings and blocks (gear box and engine casings).
- Electrical conductor repair including battery terminals.
- Controlling/limiting the loss of fluid from:
 - Fuel tanks (vehicle) and tankers.
 - Fuel/water ground pipelines and tanks.
 - Damaged radiators.
 - Hydraulic/ pneumatic systems and pipes.
 - Marine fuel oil leaks

Example: Battlefield Scenario - Fuel Leak

An Improvised Explosive Device (IED) has perforated a fuel tank on an armoured vehicle. Using the 'IMP' back-pack, a soldier could take just a matter of minutes from when the vehicle was hit, to spray a patch over the damage and complete the repair, allowing the armoured vehicle and crew to drive on with their mission.

Rawwater is best known for its expertise in the development and application of molten bismuth alloys as a specialist alternative to cement for sealing within onshore and offshore oil and gas wells. An innovator in metal-to-metal plugging technologies, Rawwater is also creating a range of new alloys to provide secure, high integrity, reversible metal seals for the nuclear industry and other sectors.



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