

Brian O'Shea looks at sensitive decontamination and wonders whether there is a place for it in the modern battlefield

# Super sensitive areas

**S**ensitive decon can easily split into two fields: military and civil. Civil is relatively straightforward; it is hard to see sensitive decon as anything other than the return of mission essential equipment to civilians – car keys, house keys, wallets, etc. Until we move into an age where terrorist CBRN atrocities are the norm, there is unlikely to be the necessary robust attitude that will welcome sensitive ex-slimed articles back. Current technology can provide the solution to this challenge – whether they can do it on a mass scale in an effective timescale is another story, however. For the military it is a different matter – and this is the focus of this article. Often civilian forces accuse the military of “having it easy”; they point to the fact that military use of agents to shape the battlefield offers them the choice of whether to go through the contamination or around it – as opposed to civil forces that have to enter the environment as quickly as possible. Whatever the merits of this argument, sensitive decon is certainly something that does not fit into this “easy” categorisation.

## Strong but sensitive

Sensitive decontamination for the military could loosely be described as fitting into two broad camps – mission critical assets and those that are needed to free up the supply chain. The former are those assets – the force multipliers – that a smart enemy would look to deny to blue force. They are often items that lack safety in numbers, such as headquarters or hospitals, or are vulnerable to the harsh chemicals that are often used in decontamination – aircraft reconnaissance pods, for example. This means there is a need to get them back into the fight as soon as possible. Asymmetric warfare seems to have been stolen by the terrorist, but this need not be the case; anyone faced with overmatch is going to have to deploy some form of asymmetry unless they yearn for one of those conflicts named after the time it took for them to be defeated. For all these assets there is both operational and thorough decontamination, yet some assets are notoriously difficult to

operationally decon. For example, “mobile” command posts, or headquarters, that are housed in ISO containers need to have a different level of comfort factor than a fast jet. The latter is likely to be safe to all concerned when it is on a mission and only needs to be considered for operational decon for the (presumably) short period when it is on the ground. Headquarters will not want to be lumbered with the necessary donning and doffing as staff enter or leave, and even misis-level contamination on a brigadier would have a major impact on operations. Previously, HQs would requisition buildings which, if they were contaminated, could be left behind; this is not an option with self-contained ISO HQs.

The latter factor, the items are needed to free up the supply chain, is a factor of modern military life. In the days of the Cold War, troops – especially logistics troops – were far more numerous, and the tempo of operations more conservative (usually falling back on supply lines). Equally, the change in military procurement and sustainment has moved away from large depots of equipment mouldering away until it is used. The shortage of troops to move non-essential items, such as clothing, and the shortage of those items, has forced armies to look at the decontamination of items which previously would have just been drawn from the depot. This has seen a drive to be able to decontaminate items, perhaps more than once, rather than impose the burden on the supply chain. This has led nations such as Germany to make the decision to decontaminate IPE rather than try and carry the spares.

Layered on top of these two broad camps is the fact that modern operations require Special Forces more than ever before. The type of missions that these forces will undertake is more likely to put them in harm's way of these agents, yet they have no supply chain. This has resulted in a number of sensitive decon procurement tenders that need to be mobile, light and easily sustained; not things that naturally come to decon generally.



*Is decon of equipment like NVG really worth the hassle? ©DoD*

There is a very strong counter argument to all these points, however. In the age of modern, multi-national operations, is there anything that is truly mission-critical any more? In the days when enemies were seeking the tipping point, the denial of a resource might have made the difference. Quantity has a quality all of its own, however, and while some elements of a contingent might be temporarily denied to blue force, there is always more elsewhere – especially if you are fighting with the US. Why try and decontaminate assets in quick-time, especially things like night vision or uniforms, when the outcome is unlikely to be affected by a couple of hours delay to part of the force.

This argument hold a great deal of water if you can have redundancy built

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into the force; that even with key areas detained you can still get within the enemy's decision cycle and force an outcome. The question is how much redundancy there is within specialist military areas. For non-sensitive heavy metal assets, decon really resides in the operational field – until it needs to be repatriated – but for those niche capabilities there is often a severe shortage. Often this is hidden on paper until you scrutinise the units, and then you realise that the same unit that provides that capability to the EU battlegroup also provides it to Nato and maybe even a third force. Suddenly it doesn't seem as if tonnes of agent are what is required; a couple of litres at the right time and in the right place can have an impact far in advance of the volume used.

Yet even though there is a need for sensitive decon, there is still a shortage of practical solutions. Some decontamination solutions, such as Allen Vanguard's Cascad foam, do offer a level of sensitive decon, yet this could not be seen as anything other than operational decon. Equally, decon coatings such as those the UK is working on hold promise for many platforms. These are coatings that can be applied to a surface and, when it is contaminated, can be stripped off

leaving the underside moderately clean. While these would have applicability for things like the headquarters, they won't work on sensors as they tend to be opaque – and a sensor that can't see more than 1cm in front of its nose is worse than one that is blinded.

**The simple solution**  
Simplicity has to be the aim of the game; much of the sensitive equipment is going to need to be decontaminated in the field and is unlikely to be done by specialist troops. The logistics of it also have to be considered and taken down to basics – what can be done with fuel and water (which, along with munitions, form the holy trinity of any military operation). For some nations this has resulted in the use of vacuum ovens, a fairly well-established and well-understood technology. The vacuum oven's basic requirement is power, and will evaporate pretty much everything that can be evaporated at 70 degrees Celsius. It also has the advantage of not harming small scale sensitive equipment such as night vision goggles. There is the problem of time and volume, however; the process can't be rushed and you can't fit too much in.

Currently vacuum ovens offer the best compromise of effectiveness, mobility and ease of use, but there are

other options on the horizon. One of the runners is the possibility of decontamination by radiation – this is already used in the food industry for herbs, for example – and is a great way of neutralising biological agents. Recently Georgia Tech Institute and Stellar Micro Devices unveiled their X-ray and ultra violet decontamination solution that would decontaminate sensitive items in about two hours. The science backs it up, but can it be provided with enough power in the field? Can it be ruggedised enough, and can the average soldier be trusted to use it?

While sceptics will always look at sensitive decon and wonder why the item can't just be thrown away (which it often can), it will be the ability of the clever enemy to slow tempo through the denial of key sectors of the force that will continue the need for sensitive decon. There is a need for technical innovation that is practical, simple and requires little sustainment, but this is an area which will always lack funding because of the pragmatists (just buy another!). While next-generation fast, mobile and effective sensitive decon might be expensive, it will be nothing compared to the other solution – providing enough high-value force multipliers to ensure there is redundancy built in.

*Well, I don't want to start decontaminating it either, but it's not going to do itself... ©DoD*

