

Going fourth

Gwyn Winfield evaluates the 4th International Symposium on NBC Decontamination in Munster, Germany

THE Wehrwissenschaftliches Institut für Schutztechnologien – or WIS to you and me – has quietly been running its Decon conference for eight years. Very much the European partner to the US Decon conference, this is an event aimed at decontamination professionals.

Set at the Panzer School in Munster – the one just north of Hanover rather than Münster – it is *the* thing to do in Munster in October. This is no exaggeration; Munster is a garrison town and as such it is not replete with the attractions of either Hamburg or Hannover, so delegates are not distracted from an early night – and when the bus picks up at 07.00 this is no bad thing either!

The WIS had put together a programme

of more than 30 presentations from a variety of countries – mainly Germany, Italy and the US. In addition to this there were poster sessions and a demonstration of some of the German army's latest decon equipment. The papers were a mix of the strategic, from people such as DTRA's John Weimaster, to the tactical – Genencor's Chris Barnett, with his collection of chemical equations on enzymatic decontamination, springs to mind.

Work in progress

Enzymatic decontamination was one of the major recurrent themes of the conference. The ability to have stable, non-toxic decontaminants has been an attractive proposition for years, and there have been a variety of organisations extolling enzymes' virtues – Genecor, Proteus, WIS, etc. Enzymatic decon would seem to hold a great deal of attraction, mainly for logistics and environmental concerns. In layman's terms, it consists of naturally occurring enzymes, which are stable and harmless, which are then mixed with water (and/or another liquid) which starts a chemical process resulting in a third substance which can be used for decontamination purposes – the most common of which appears to be peracetic acid.

As you might expect from a scientific establishment, these presentations were high on detail and, usually, low on hype. Two factors which played against them, however, were the time frame and the lack of third party testing. WIS had set a particularly punishing time scale of 15 minutes plus five minutes for questions per presentation. This gave presenters the choice of either doing the strategic bit and leaving no time for detail, or detail with no strategy – very much a case of feast or famine. The lack of third party testing was evident in all the enzymatic presentations; either the enzyme was “too new” and had only been tested in the lab – the results of which were always impressive – or had been

tested and the results were classified. While I fully appreciate that not all testers want the details of their test advertised, this was down to a shortage of independent testing, through organisations like TNO, that the companies had undertaken themselves. To be fair, enzymatic decon is still new and this is part of the desire for accurate testing – to be able to benchmark it against conventional methods to see how it measures. But these tests are in the companies' interests, as those that get their results out first (assuming they are worth publishing) will steal a march on their competitors – who seem to be multiplying every month.

As well as enzymatic decon there were also other novel suggestions being offered. Two of these were silver ion decontamination and laser vaporisation decon. The former was presented by Bio Gate and offered a thin coating of either micro or nano-silver. Silver's property as a “pure” metal has long been known about, but there have been suggested side effects of silver ions (the active decon element) of causing a human brain defect, much like Alzheimers. Dr Steinrucke, from Bio Gate, admitted that this was a problem, but suggested that the size of the particles involved, and more importantly the polymer coating that they were contained within, militated against this problem. For the military that are used to the phrase “gold-plating” within their procurement, the side of silver coating cannot be much consolation, but the actual amount of silver needed in the coating to achieve a significant decontamination capability is very small – about one per cent (hopefully small enough to deter squaddies peeling it off and trying to smelt it down).

Up in smoke

Edwin Buchter, from Clean Laser, offered an extremely novel way of decontamination – the vaporisation of the upper layer. Clean

You're booked! Detector paper still has a role to play in training and operations.
© CBRNe World.



Laser have a family of laser systems that have been used extensively by companies as diverse as Audi and Airbus to achieve ultra-clean surfaces (for welding purposes, for example) and are looking to diversify their activities into the CBRN arena. The handheld laser works by vaporising, rather than burning, the top few microns off the surface of the vehicle/area; the agent in that layer is completely destroyed in an instant – along with the paintwork. Clean Laser's contention is that it is a completely safe way of decontaminating platforms and is relatively quick – you don't need to wait for the decon solution to work, as it happens at the speed of light. It is, however, manpower intensive and depends on small areas of contamination; gross contamination would require far more work and time to deal with, and would also require all sensitive equipment to be removed. While it is not perhaps an ideal solution – a delegate suggested to me that he could achieve the same result with a barrel of DS2 in a fraction of the time – it is the sort of novel approach that gets people thinking that would not be available in a generic conference.

As well as novel technology, the latest equipment was being presented, if not demonstrated. Cristianini presented their DDMAS and SX34, Karcher their TEP90 and GDS 2000, and OWR their MDS and skin decontamination cream. The latter was an example of how the testing cat can be put among the competitors' pigeons. OWR's Alldecont was presented in conjunction with the German Army Surgeon's office (Zint San BW) and had been through a battery of tests that showed its efficacy when compared to another European and a North American competitor – some representatives of which were in the audience. Skin decontamination cream is always a slightly contentious topic – not so much whether it works or not, but whether the soldier has a chance to put it on in time. With modern soldiers looking more like a Christmas tree every year they have to make judgements at what gets worn on the webbing and what goes into the Bergen/rucksack. Suffice to say if you get any G agent splashed on you the last thing you want to be doing is looking for your skin decontamination cream, but equally do you really want to wear it instead of extra ammunition, personal role radios or lightweight chemical agent detectors – all of which are likely to save your life many more times than a skin decon product. Unsurprisingly Dr Hemmer from OWR feels that it will be on every soldier's webbing, but these decisions are often made at the squad or even individual soldier level, rather than at a company or higher level, and soldiers keep to hand what they think to be useful – it is hard enough to persuade them to keep respirators close to hand.

The other contentious issue of the conference came through the live agent training debate. This was sparked by the two presentations from Dugway Proving Ground that, since Dugway doesn't offer live agent training, focused on what can be done with simulant. This provoked a storm of questions and opinions from the



Germany's purchase of Karchers TEP90 will get it a multi-role decontamination capability. © CBRNe World

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floor, and later in speakers' presentations, over the value of live agent training versus its cost and environmental hazard. Much of Dr Jiri Matousek's presentation flew in the face of what had been previously said and was fervently in favour of live agent work, and he was ably assisted from the floor by Dr Walter Aue who was also adamant on the need for it. This is going to be even more of an issue as the technology, such as enzymatic decontamination, develops, and the scenarios mature.

Two of the most interesting presentations came from organisations that had been doing field tests with simulants and the side effects that they had encountered. Dr Schneider from WIS gave an interesting presentation on the work that he had done with Intelagard's radiological decontamination solution and how it didn't work well on the simulant they had chosen. Dr Konstantin Volchek, from Environment Canada, also outlined some of the issues they had faced when their simulant reacted with the decontamination liquid to create a more noxious third chemical. These are all lessons which show that, while a range of simulants can be used to mimic the actions of a certain agent, they are no substitute for

the real thing. That live agent testing – even for rad and bio – should be undertaken at the start of the solution's life, rather than at the end, to ascertain whether the technology works against the real thing or just against the simulant. Pragmatists would argue against this in terms of cost and whether we really want areas of the countryside, or even just sample plates, infected with cobalt 60 or anthrax. Yet cost has to be weighed up against efficacy, and for decontamination that should be an easy equation.

One element that was noticeable through its absence in the three day event was the lack of papers from the civil side. The one paper that was focused on the civil responder market didn't show up, and while there were plenty of civil responders in the audience there were none on stage. Some of the participants saw this as purely symptomatic of the lack of effort that is going into civil programmes; that they lack anything new, yet for me it was an oversight. The one skill that civil responders are developing that is far in advance of the military is the ability to do mass decontamination. The military still tend to have the cosy idea that people will make the

orderly lines that they are told to, Fire and other agencies have no such idea and are developing tactics to deal with this contingency. With the World Cup having just finished there must have been some innovative ideas that could have been presented, even if the technology was fairly basic. Equally the base of countries giving papers could have been broader, with no papers from Israel, the UK and the Nordic countries – despite some innovative work being done.

These are minor niggles to an event which presented a wide range of relevant issues from soft issues like the physiological burden of decontamination in a hot environment, by CEB's Dr Warme-Janville and verifying the efficacy of decontamination in training, by the Heer's Major Kuhar, through to hard science, like improved catalytic enzymes, from WIS' Dr Richardt, and reactive nanoparticles, which IFAM's Dr Zollmer asserted would be with us in two years! The next conference is scheduled for 2008 and *CBRNE World* would recommend that rooms in the Deutches Haus hotel (with one of the two bars in Munster) are booked soon!

Vehicle decontamination systems need to be able to deal with high throughput. © CBRNe World

