

Hospital CBRNE Preparedness – Are we Ready?

CBRNE Newsletter Terrorism

Volume 42, 2012

Chem News

www.cbrne-terrorism-newsletter.com

The CBRNE-Terrorism Newsletter is looking for photos of CBRN First Responders in action. The best image submitted will go on the covers of upcoming editions! Images must be your own to publish and must be sent as large hi-res JPEGs. Please include captions.

SCape® CO/CBRN Escape Respirator

Source: <http://www.ilcdoover.com/SCape-CO/CBRN-Escape-Respirator/>



The SCape® platform is the first and only NIOSH approved escape mask that features an integral "instant on" blower. Nothing for the user to remember - just remove it from the package and put it on. The product does the rest.

All the ease of use and superior protection of the SCape® CBRN³⁰, now with carbon monoxide/smoke protection. "Studies have shown that about 75-80% of fire victims die from carbon monoxide poisoning" - Fire Investigator: Principles and Practice to NFPA 921 and 1033 (2012).

With the added capability for protecting against Carbon Monoxide in fire situations, the SCape® CO/CBRN can be used to support a broad range of escape applications including:

- Federal Government
- Corporate Preparedness
- Chemical factories
- Transportation
- High rise building evacuation
- Hospitality events
- Personal preparedness
- Other industrial/commercial activities

System Benefits

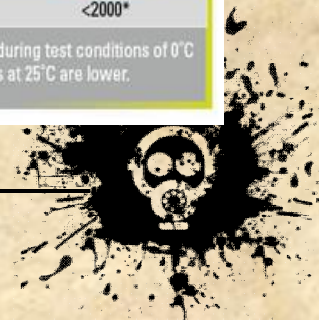
- Integral blower with automatic actuation - increased protection, reduced user stress/burden and easy to use
- Panoramic field of view - increased effectiveness and safety
- 30 minute protection
- No nosecup or mouthbit
- Comfortable neckdam
- No suspension or adjustments required

Maintains baseline performance with the additional benefits:

- TIC/TIM/Agent protection *plus* addition of Carbon Monoxide protection
- Bright color blower with donning photos on the product
- All soft packaging
- Ultra-quiet operation

SCape® CO/CBRN ³⁰ APER Performance Data			
SCape® CO/CBRN ³⁰ System Level Agent (SMARTMAN)			
Test Agent	Challenge Concentration	Service Time	
Mustard (HD) Vapor	50 mg/m ³	>30	
Mustard (HD) Liquid	0.43-0.86 ml	>30	
Sarin (GB) Vapor	210 mg/m ³	>30	
SCape® CO/CBRN ³⁰ Chemical Test Agents (Filter Gas Life)			
Test Agent	Challenge Concentration (ppm) (64 lpm at both 25% and 80% RH)	Allowable Breakthrough (ppm)	Service Time (min)
Ammonia (NH ₃)	1250	25	>30
Cyanogen Chloride (CK)	150	2	>30
Cyclohexane (C ₆ H ₁₂)	1300	10	>30
Formaldehyde (CH ₂ O)	250	10	>30
Hydrogen Cyanide (HCN)	470	10	>30
Hydrogen Sulfide (H ₂ S)	500	30	>30
Nitrogen Dioxide (NO ₂)	100	1	>30
Phosgene (COCl ₂)	125	1.25	>30
Phosphine (PH ₃)	150	0.5	>30
Sulfur Dioxide (SO ₂)	750	5	>30
SCape® CO/CBRN ³⁰ Carbon Monoxide (CO) Penetration Performance			
CO Challenge Concentration	Maximum allowable Peak Excursion (detected CO levels in parts per million) at 30 minute identified service life duration	Resulting Maximum Peak Excursion (detected CO levels in ppm)	
3600 ppm	500 ppm	<200 ppm*	
CO Challenge Concentration	Maximum allowable Concentration Time (Ct) (ppm-minutes) for 30 minute identified service life duration**	Resulting Concentration Time (Ct) (ppm-minutes) at 30 minutes	
3600 ppm	12075	<2000*	

* Maximum peak excursion levels of CO and maximum Ct values occur during test conditions of 0°C and 92% relative humidity. Excursion levels of CO and Ct values at 25°C are lower.



Talibans' unconventional tactics, the use of chlorine bleach

Source: <http://www.ibconsultancy.eu/publications/cer-update/>

According to very recent reports from Afghanistan [1], Taliban may have retaliated for the Koran burning at the US-run Bagram Air Field, by poisoning food at the military Torkham Forward Operation Base near the Pakistan border in the Nangarhar province. The actual situation is not completely clear, but NATO announced that traces of chlorine bleach were found in fruit and coffee delivered for consumption by military personnel, and the Taliban hastened to claim responsibility for that. No soldiers got sick. Commercial household liquid bleach ranges from 5-10% sodium hypochlorite. At low concentrations, such as those used for household bleach,

sodium hypochlorite is a mild to moderate irritant. Ingestion is not expected to cause severe or permanent damage of the gastrointestinal tract and recovery is usually rapid. At higher concentrations (> 10 %) it is corrosive. [2] An investigation is being carried out in order to discover whether or not the bleach was applied intentionally and whether in this case Taliban could have played a role, or whether the contamination occurred as a consequence of spillage from cleaning.

Irrespective of the results of this particular investigation, one should not ignore that since 2009 there has been a tendency for the Taliban and Islamic extremists in Afghanistan to use toxic chemical agents as a method of war. IB Consultancy's 1st Current Events Report (June 2010) focused on a string of presumed attacks with poisonous chemical gas causing dizziness and nausea on Afghan schoolgirls. In April 2010 only, 3 separate gas attacks against girls' schools took place, injuring dozens.

After a 2009 toxic gas attack, victims reported to have smelled a chemical locally known as Mallatin, which farmers sometimes spread on fields to poison foraging birds. Mallatin is a trade name for Malathion, an organophosphate

(OP). Although large doses are needed, Malathion could have caused the symptoms from which the school girls were suffering. In extremely high doses the chemical could even cause a coma. Mallatin can be bought over the counter in major Afghan cities. Since Afghanistan is mainly an agrarian country, this substance can easily be bought in large amounts.



The attacks on Afghan schoolgirls demonstrate that the tactics and weapons used by the Taliban and other Islamist extremists are evolving towards wider reliance upon unconventional weapons and tactics. In this case, the purpose of using chemical agents by

extremists groups was threefold: first, to prohibit and make impossible female education; second, to induce fear among the Afghan people and possibly affect the moral of the Afghan National Army; and, finally, to reduce the military effectiveness of NATO troops in Afghanistan. All these objectives do not necessarily require state of the art chemical weapons – normal commercially available toxic substances would suffice.

Chlorine bleach and hazardous chemical materials such as Malathion are, like in many countries, easy to obtain in Afghanistan. The combination of a willingness to use chemical agents shown by the Taliban and the easy access to chemical substances in Afghanistan may have far-reaching consequences. Since NATO troops are currently scheduled to remain in Afghanistan until the end of 2013, by the beginning of 2014 the bulk of the military power of the coalition forces will be gone. If the Taliban continue to use toxic substances as weapons, the future conflict within Afghanistan, could be even more dreadful than the war that the Afghan people face today.



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If the Taliban's claim to have poisoned the fruit and coffee intended for NATO military is proven, this would mean the increased psychological vulnerability of the coalition forces in the face of the threat of unconventional attacks. As previously mentioned, the symptoms a body shows after the ingestion of chlorine bleach can be irritating and can, after ingesting industrial bleach, even be very painful. However, the consequences of ingesting chlorine bleach are not usually

deadly. Therefore, perhaps, NATO commanders should ask themselves the following questions: What if the food could be poisoned with a substance more toxic than chlorine bleach? And, what is next? Is the Taliban capable of using even more hazardous unconventional substances? And, finally – what should be done to increase preparedness, prevention and protection against such unconventional attacks?

Notes:

[1] <http://edition.cnn.com/2012/02/27/world/asia/afghanistan-burned-qurans/index.html>

[2] http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1194947380553

Sodium hypochlorite - Toxicological overview

Health effects of acute exposure

Source: http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1194947380553

Key Points

- Ingestion of sodium hypochlorite may cause burns to the mouth and throat, gastrointestinal irritation, nausea, vomiting and diarrhea. Inhalation and ocular exposure to chlorine gas, produced when sodium hypochlorite is mixed with acidic or alkaline solutions, results in burning of throat and lungs, eye and nose irritation, chest tightness, coughing and sore throat;
- Exposure to higher concentrations of chlorine may lead to tachypnoea, cyanosis, swelling of the airway, and in severe cases, pulmonary oedema and respiratory failure;
- Sodium hypochlorite is corrosive and may irritate the skin or cause burning pain, inflammation and blisters;
- Ocular exposure may cause irritation, pain, lacrimation, photophobia and retinitis.

Health effects of chronic exposure

- Chronic skin exposure may cause skin irritation, pain, inflammation and blisters. IARC classified sodium hypochlorite in category 3 i.e. not classifiable as to the carcinogenicity to humans;
- Sodium hypochlorite is not considered to be a reproductive toxin.

COMMENT: Household bleach is an aqueous solution of sodium hypochlorite (NaOCl). Calcium hypochloride is a solid used in industrial scrubbers and can be used as a sanitizer in aqueous solution. While a whole lot of debatable stuff get tossed under the rubric "WMD," NaOCl can be considered a toxic industrial chemical (TIC), which is a category of some overlap (e.g., Cl₂) with traditional CW agents.

Fearful of a nuclear Iran? The real WMD nightmare is Syria

Source: <http://thebulletin.org/web-edition/op-eds/fearful-of-nuclear-iran-the-real-wmd-nightmare-syria>

As possible military action against Iran's suspected nuclear weapons program looms large in the public arena, far more international concern should be directed toward Syria and its weapons of mass destruction. When the Syrian uprising began more than a year ago, few predicted the regime of President Bashar al-Assad would ever teeter toward collapse. Now, though, the demise of Damascus's

current leadership appears inevitable, and Syria's revolution will likely be an unpredictable, protracted, and grim affair. Some see similarities with Libya's civil war, during which persistent fears revolved around terrorist seizure of Libyan chemical weapons, or the Qaddafi regime's use of them against insurgents. Those fears turned out to be unfounded.



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But the Libyan chemical stockpile consisted of several tons of aging mustard gas leaking from a half-dozen canisters that would have been impossible to utilize as weapons. Syria likely has one of the largest and most sophisticated chemical weapon programs in the world. Moreover, Syria may also possess an offensive biological weapons capability that Libya did not.

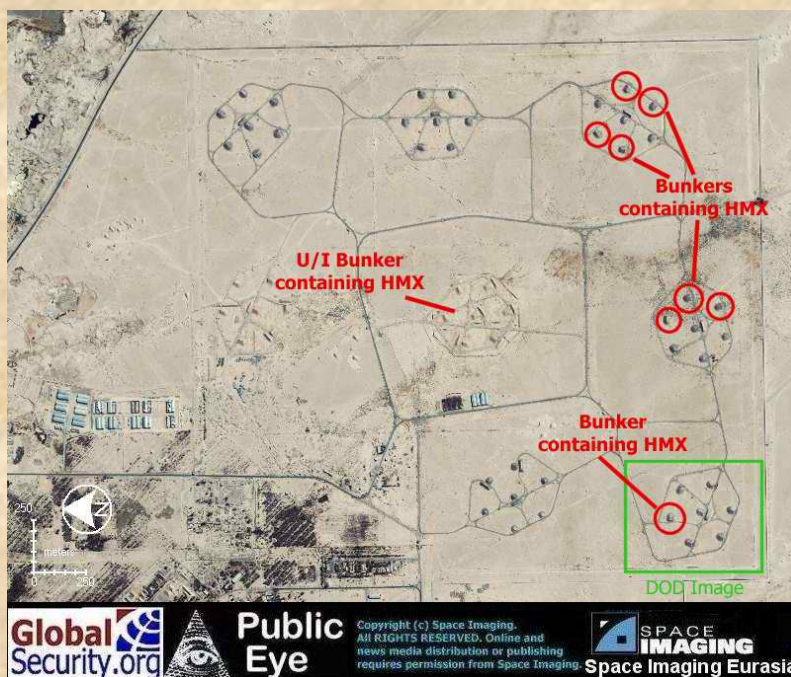
While it is uncertain whether the Syrian regime would consider using WMD against its domestic opponents, Syrian insurgents, unlike many of their Libyan counterparts, are increasingly sectarian and radicalized; indeed, many observers fear the uprising is being "hijacked" by jihadists. Terrorist groups active in the Syrian uprising have already demonstrated little compunction about the acquisition and use of WMD. In short, should Syria devolve into full-blown civil-war, the security of its WMD should be of profound concern, as sectarian insurgents and Islamist terrorist groups may stand poised to seize chemical and perhaps even biological weapons.

An enormous unconventional arsenal

Syria's chemical weapons stockpile is thought to be massive. One of only eight nations that is not a member of the Chemical Weapons Convention -- an arms control agreement that outlaws the production, possession, and use of chemical weapons -- Syria has a chemical arsenal that includes several hundred tons of blistering agents along with likely large stockpiles of deadly nerve agents, including VX, the most toxic of all chemical weapons. At least four large chemical weapon production facilities exist. Additionally, Syria likely stores its deadly chemical weapons at dozens of facilities throughout the fractious country. In contrast to Libya's unusable chemical stockpile, analysts emphasize that Syrian chemical agents are weaponized and deliverable. Insurgents and terrorists with past or present connections to the military might feasibly be able to effectively disseminate chemical agents over large populations. (The Global Security Newswire recently asserted that "[t]he Assad regime is thought to possess between 100 and 200 Scud missiles carrying warheads loaded with sarin nerve agent. The government is also believed to have several hundred tons of sarin agent and mustard gas stockpiled that could be used in air-dropped bombs and artillery shells,

according to information compiled by the James Martin Center.")

Given its robust chemical weapons arsenal and its perceived need to deter Israel, Syria has



long been suspected of having an active biological weapons program. Despite signing the Biological Weapons and Toxins Convention in 1972 (the treaty prohibits the development, production, and stockpiling of biological and toxin weapons), Syria never ratified the treaty. Some experts contend that any Syrian biological weapons program has not moved beyond the research and development phase. Still, Syria's biotechnical infrastructure undoubtedly has the capability to develop numerous biological weapon agents. After Israel destroyed a clandestine Syrian nuclear reactor in September 2007, Damascus may have accelerated its chemical and biological weapons programs.

It's hard to guard WMD when a government collapses

Although the United States and its allies are reportedly monitoring Syria's chemical weapons, recent history warns that securing them from theft or transfer is an extraordinary challenge. For example, during Operation Iraqi Freedom, more than 330 metric tons of military-grade high explosives vanished from Iraq's Al-Qaqaa military installation. Almost 200 tons of the most powerful of Iraq's high-explosives, HMX -- used by some



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states to detonate nuclear weapons -- was under International Atomic Energy Agency seal. Many tons of Al-Qaqa's sealed HMX reportedly went missing in the early days of the war in Iraq. Forensic tests later revealed that some of these military-grade explosives were subsequently employed against US and coalition forces.

Even with a nationwide presence of 200,000 coalition troops, several other sensitive military



sites were also looted, including Iraq's main nuclear complex, Tuwaitha. Should centralized authority crumble in Syria, it seems highly unlikely that the country's 50 chemical storage and manufacturing facilities -- and, possibly, biological weapon repositories -- can be secured. The US Defense Department recently estimated that it would take more than 75,000 US military personnel to guard Syria's chemical weapons. This is, of course, if they could arrive before any WMD were transferred or looted -- a highly unlikely prospect.

Complicating any efforts to secure Syria's WMD, post-Assad, are its porous borders. With Syria's government distracted by internal revolt and US forces now fully out of Iraq, it is plausible that stolen chemical or biological weapons could find their way across the Syrian border into Iraq. Similarly, Syrian WMD could be smuggled into southern Turkey, Jordan, Lebanon, the West Bank, Israel, and, potentially, the United States and Europe.

At least six formal terrorist organizations have long maintained personnel within Syria. Three

of these groups-- Hamas, Hizbollah, and Palestinian Islamic Jihad -- have already attempted to acquire or use chemical or biological agents, or both. Perhaps more troubling, Al Qaeda-affiliated fighters from Iraq have streamed into Syria, acting, in part, on orders from Al Qaeda leader Ayman al-Zawahiri. In the past, Al Qaeda-in-Iraq fighters attempted to use chemical weapons, most notably attacks that sought to release large clouds of chlorine gas. The entry of Al Qaeda and other jihadist groups into the Syrian crisis underscores its increasingly sectarian manifestation. Nearly 40 percent of Syria's population consists of members of minority communities. Syria's ruling Alawite regime, a branch of Shia Islam, is considered heretical by many of Syria's majority Sunni Muslims -- even those who are not jihadists. Alawites, Druze, Kurds, and Christians could all become targets for WMD-armed Sunni jihadists. Similarly, Shiite radicals could conceivably employ WMD agents against Syria's Sunnis.

Religious fanaticism and WMD

Evidence of growing religious fanaticism is also reflected in recent Syrian suicide attacks. Since

last December, at least five suicide attacks occurred in Syria. In the 40 years preceding, only two suicide attacks were recorded. Al Qaeda-linked mujahidin are believed to be responsible for all of these recent attacks. Civil wars are often the most violent and unpredictable manifestations of war. With expanding sectarian divisions, the

use of seized WMD in Syria's uprising is plausible. To the extent that religious extremists believe that they are doing God's bidding, fundamentally any action they undertake is justified, no matter how abhorrent, since the "divine" ends are believed to legitimize the means.

The situation in Syria is unprecedented. Never before has a WMD-armed country fallen into civil war. All states in the region stand poised to lose if these weapons find their way outside

Article Highlights

- Syria has one of the largest and most sophisticated chemical weapons programs in the world and may also possess offensive biological weapons.
- Longstanding terrorist groups and newly arrived Al Qaeda-affiliated fighters from Iraq have been active in Syria during that country's recent insurgency.
- The United States and regional powers -- including Saudi Arabia and Iran -- need to start planning now to keep Syria's WMD out of terrorist hands if the Assad regime falls.



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of Syria. The best possible outcome, in terms of controlling Syria's enormous WMD arsenal, would be for Assad to maintain power, but such an outcome seems increasingly implausible. And there is painfully little evidence that democratic forces are likely to take over in Syria. Even if they do eventually triumph, it will take months or years to consolidate control over the entire country.

If chaos ensues in Syria, the United States cannot go it alone in securing hundreds of tons

of Syrian WMD. Regional leaders -- including some, such as Sunni Saudi Arabia and Shiite Iran, that are now backing the insurgency and the regime, respectively -- must come together and begin planning to avert a dispersion of Syrian chemical or biological weapons that would threaten everyone, of any political or religious persuasion, in the Middle East and around the world.

Syria's arsenal of unconventional weapons must be destroyed (Part I)

Source: <http://blogs.timesofisrael.com/syrias-arsenal-of-unconventional-weapons-must-be-destroyed/>

When I was in the Israeli army's basic training and medics courses we had to endure a simulated chemical weapons attack. We entered a room that suddenly came under (tear) gas attack and we had to quickly don our gas masks and sit for a set period. Later, as medics during Iraq's Scud attacks on Israel, we ran to our ambulances prepared for a gas attack, dressing ourselves in our chemical suits whenever the sirens wailed. Basically, this was our assignment: *If it's bleeding, tie a tourniquet; if it's breathing stick it with an atropine injector.* An Iraqi attack was not the main threat we learned about in basic training. Instead, Syria's unconventional weapons were the doomsday weapons every new Israeli soldier was warned about. A very ominous percent of Syrian artillery shells, bombs, and missile warheads were armed with Sarin, mustard gas, or VX, we were told.

Conventional weapons reduction

Several years ago, in a private capacity, I was invited into a country of the former Soviet Union to survey the vast arsenals left behind when the Soviets departed. The armories were supermarkets of destruction: missiles, bombs, MANPADS (shoulder-fired anti-aircraft missiles), grenades, explosives, mines — you name it. There was little security around the bases and plenty of evidence that weapons had been stolen. At several bases the commanders warned us, "We don't go near that section." It turned out that those sections were the storage areas of radioactive material, and there were cases of smugglers trying to take radioactive material out of the country.

We presented our findings to the US State Department, Pentagon and the Department of Energy's nuclear experts. In some cases base security was improved; in other cases there was intervention to get rid of the stocks.

I met with one international firm that had undertaken the removal and destruction of Libya's radioactive and chemical weapons almost a decade ago — with the agreement and cooperation of the Libyan government. Through the Pakistani AQ Kahn smuggling syndicate and cooperating with North Korea, Libya had secured centrifuges for enriching uranium. It had amassed tons of mustard gas and had acquired long-range Scud missiles, probably intended for delivery of chemical weapons.

In 2003, Libya's dictator Muammar Gaddafi renounced the use of weapons of mass destruction (WMD) and invited western nations to destroy his country's stockpiles. Long-range missiles were destroyed, and chemical and nuclear programs were dismantled. It still took several years before Qaddafi finally shipped his highly enriched uranium out of his country for destruction.

But despite Qaddafi's shedding of WMD, mustard gas stocks were reportedly found after the tyrant's fall. And his armories were ransacked, resulting in MANPADS being smuggled into Gaza in recent months.

What motivated Qaddafi to destroy his WMD? Some analysts believe that he came to the prudent decision when he saw the crushing of Saddam Hussein after Western countries (only) suspected him of developing WMD.



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In Syria, however, no such flash of temporary sanity is likely to dawn on Syrian President Bashar Assad. He is fighting for his survival, and those weapons are his ace in the hole, his “Samson complex” — “if you take me out, I’ll take you all down with me.”

Public reports claim that Syria has hundreds of long-range Scud B, C and D (the Korean No-Dong) missiles, and dozens of launchers — one of the largest ballistic missile forces in the Middle East, according to the CIA. Some of the missiles are equipped with cluster-bomb warheads suitable for dispersion of chemical weapons. The reports list the bases where the missiles are stored as well as those bases where chemical and biological weaponization is carried out. Indeed, some of the chemical warfare activity is done in cooperation with Iran, which provides training and the equipment.

A CIA study released in 2010 stated, “Syria has had a CW [chemical weapons] program for many years and already has a stockpile of CW agents, which can be delivered by aircraft, ballistic missiles and artillery rockets.”

Persistent reports over the last decade suggest that Saddam Hussein smuggled elements of his WMD programs to Syria before he fell.

And, of course, Syria was well-along in building the secret al-Kibar nuclear facility in Deir el Zour when it was destroyed in 2007, by Israeli planes, according to non-Israeli press accounts.

Deir el Zour is a familiar name to anyone keeping tabs on the fighting in Syria. Three weeks ago an oil pipeline was blown up in the province. Rebel forces are constantly skirmishing with Syrian army units in the area.

The fact that heavy fighting has been taking place precisely in the Syrian province of Deir el Zour, home of the secret reactor, underscores the possibility of WMD falling into the hands of

terrorists or radicals, be they members of Hezbollah, the Muslim Brotherhood or al Qaeda.

A recent *Wall Street Journal* analysis by Jay Solomon shows that WMD and missiles are produced and stored in the battle-scarred area around Homs. Satellite pictures of Scud missiles at the Syrian Adra base were published in *Ha’aretz* and *AOL News* two years ago. The base is also a Hezbollah training base. The United States is beginning to pay attention, the *Associated Press* reported last week: “The U.S. and its allies are closely monitoring Syria’s large stockpiles of chemical arms and portable anti-aircraft missiles, a State Department official said Wednesday, amid concerns that the country’s unconventional weapons could fall into the hands of terrorist or militant groups.”

In Libya, the controlled destruction of WMD and missiles was conducted with Qaddafi’s reluctant cooperation. In Syria, the destruction of the stockpiles will only occur if they are obliterated and incinerated by Western missiles, warplanes, and cruise missiles. The blowing up of mustard and nerve gas stocks may result in local “collateral damage,” but the outcome would be far less than a container of Sarin being sprayed in the Washington Metro, VX dropped from a London office building, or an Igla shoulder-fired missile bringing down a passenger plane near Heathrow.

More importantly, the destruction of Assad’s WMD and missile arsenal, which today threaten Turkey, Israel and ships in the eastern Mediterranean, would be a powerful signal to the ayatollah regime in Iran to “cease and desist” its nuclear weaponization program. It would be proof that indeed “all options are on the table” — including wiping Syria’s table clean.

More on Syria’s Weapons of Mass Destruction (Part II)

Source: <http://blogs.timesofisrael.com/more-on-syrias-weapons-of-mass-destruction/>

Publication above of “**Syria’s Arsenal of Weapons of Mass Destruction Must Be Destroyed,**” seems to have grabbed the attention of reporters and officials in the Pentagon and State Department. *Foreign Policy’s* Josh Rogin reported on Friday that the State Department is quietly warning Middle East countries about Syria’s WMD.

CNN has a strange story from the Pentagon this weekend claiming that 75,000 U.S. troops would be needed to secure Syria’s chemical and biological weapons. This appears to be yet another “news” story spun to discourage any new U.S. military engagement in the Middle East.

Actually, the most effective method of destroying these doomsday weapons



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may be from the air by bombing and *incinerating* the chemicals and viruses. Napalm or fuel-air explosives, also known as thermobaric bombs, create widespread and super-hot explosions, hot enough to destroy the chemical agents.

The United States government uses two methods to destroy chemical agents — neutralization of the chemicals or incineration in furnaces. A decade ago the U.S. National Research Council concluded, “Storing chemical weapons poses a greater threat to public safety than destroying them [by incineration]. The NRC recommends completing the destruction process ‘as quickly as possible’ because the

most urgent threat is from an accidental or deliberate release from stored chemical weapons.”

True, the bombing of Syria’s unconventional armory is not the same as a controlled incineration, but what’s the choice?

Foreign Policy’s Rogin quotes an unnamed State Department official that the United States has “long called on the Syrian government to destroy its chemical weapons arsenal and join the Chemical Weapons Convention.”

Syria is much too busy massacring its own people to consider destroying its chemical weapons arsenal. Maybe it’s time for the U.S. and allies to show Bashar Assad how it’s done.

How quickly we forget

The following is an excerpt from a July 2007 *Jane’s Defence Weekly* article:

Dozens of Syrian military officers and Iranian engineers were killed on July 26 in Halab, Syria, as they were attempting to mount a chemical warhead with mustard gas on a Scud-C missile, Jane’s Defence Weekly reported Monday.

An explosion spread lethal chemical agents, including mustard gas, VX gas and sarin nerve gas, killing 15 Syrian officers and dozens of Iranian engineers who were in the facility. Dozens of people were injured.

Lenny Ben-David, a public affairs consultant, was deputy chief of mission of Israel’s embassy in Washington

Re-supply of Fuller’s Earth

By Peter Fray

Source:<http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/TrainingandExercisesPublications/DCBRNC/CbrnNewsletter.htm>

Most servicemen and women who have undergone any form of CBRN training will be



well aware of Fuller’s Earth and its use in

personal decontamination kits (DKP1 & DKP2), which provide operational decontamination against liquid chemical attack. Indeed, mention “Fuller’s Earth” to anyone who has passed through the Defence CBRN Centre (DCBRNC) and they will instantly be thinking “BLOT-BANG-RUB!” Many readers may also be aware that for some time now stocks of Fuller’s Earth have been controlled, and demands screened, in order to preserve the capability while the CBRN Delivery Team (DT) worked towards securing a new source of supply.

The process of cleansing and thickening cloth is known as “Fulling” and a person engaged in its trade and practice is called a “Fuller”. Hence the term derived was “Fuller’s Earth”.



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On the face of it, re-supplying these fairly low-tech, low-value items, which have been around since most of us were in short pants, sounds relatively straightforward. However, with Fuller’s Earth, nothing was ever simple and many myths and misconceptions have been encountered along the way. Chief amongst these is “The World has run out of Fuller’s Earth!” Fuller’s Earth is a claylike material, normally with high magnesium oxide content and comes in two main varieties comprising the minerals montmorillonite or palygorskite (or a mixture of the two). Whilst true that the quarry previously used by the MOD as a source of Fuller’s Earth has long been exhausted, it is not the case that Fuller’s Earth itself is scarce the world over (or even in the UK). By examining Fuller’s Earth powder and Def-Stan 68-142 (the MOD specification for Fuller’s Earth) the CBRN DT, with support from the experts at Defence Science and Technology Laboratory (Dstl), was able to identify the source of the myth: The Def-Stan was actually written based on the characteristics of a sample from the previous quarry. As alluded to above, the number and range of naturally occurring variables possible

whilst still, rightly, calling something “Fuller’s Earth” means, potentially, that any sample from any source could be unique.

A similar historical issue was uncovered with the specifications for Decontamination Kit, Personal, No. 1 (DKP1). Specifically, that the fabric used for the pad itself was a unique utility fabric originally produced during WWII and characterised such that only one company could produce it – that company and the fabric are both now long gone. With these issues understood the DT and Dstl set about developing a detailed requirement, capturing all important scientific qualities which contribute towards the efficacy of Fuller’s Earth as a decontaminant whilst ensuring it could actually be achieved by potential suppliers. This effort has culminated in the recent award of a 3 year contract for the supply of a minimum of some 150,000 items and introducing new, improved DKP1, DKP2, FE Technical and FE Special. This will enable current restrictions on demands to be lifted and ensure a continuous decontamination capability until such time as the Personal Decontamination Project delivers the next generation.


Peter Fray is Business Manager CBRN DT, DNBCC, UK

A worrying future possibility?

Source: http://www.cbrneworld.com/_uploads/download_magazines/Prairie_Dog.pdf
 From: CBRNe World (Feb 2012, p72)

CBRNE WORLD

Governor Gabriel Cinomis, a Prairie Dog, gives his opinion of CBRN matters from his unique perspective



Prairie Dog

In other news, one of my colleagues from across the Ocean, Sir Archibald Lemming, MP, paid a visit to the Mayoral Den and we discussed some recent policy maneuvers by Sir Archibald’s government. Evidently, the Chemical Weapons Convention is causing some chaffing for some and there is a move to reclassify or expand incapacitating agents. Currently, the CWC allows for the use of ‘riot control agents’ for police use only – not in warfare. Some nations have very distinct delineations in law on what constitutes a ‘warfighter’ versus a ‘police officer’. For several years, Sir Archibald’s government has been moving to increase the scope of riot control agents, possibly to include such things as gaseous fentanyl derivatives. Such a gas of this type was used by Marxist bear ‘police’ forces to storm a theatre where terrorists had at least 100 individuals held hostage. The ‘incapacitating’ agent worked as planned, incapacitating some permanently.



Fentanyl, also known as fentanil, is potent pain medication, approximately 100 times more potent than morphine. This is a medication dispensed in the microgram range, with transdermal patches in various microgram, per hour dosages. Because of its potency and narrow range between analgesic to anesthetic to respiratory depressant (even worse than heroin), delivering such a medication is done very carefully, whether in patch, intravenous, or (I kid not) lolly form. There are derivatives, such as carfentanil, which is 10,000 times more potent than morphine with as little as 1 microgram having effect in humans. Carfentanil, also known as wildnil, is used to tranquilise elephants and, lest not good things go to waste for bad applications, the 'hostage rescue' described above and others have been used as agents of assassination.

The thought of police forces of any nation having canisters of fentanyl-derivative gas to be used on a nicely varied and medically unknown civilian population is not something this Mayor wishes to contemplate! Despite being widely prescribed, the pharmacodynamics of fentanyl, in certain populations, are not well understood. While the recent Occupy movement has at times been unruly and subject to police crackdown, I could certainly envision a Senior Member thinking putting those fellows to sleep and removing them would be a prettier solution for everyone. That would be true if not for all the resulting corpses. One can simply not deliver a substance so potent in aerosol form, somehow achieving just the right dosage, to a group of individuals without risking an overdose.

In 2013, there will be a CWC review conference. These new agents must be on the agenda for discussion and incorporation into the CWC. If not, I suspect a run on protective masks by future protestors [as long as they are Fair Trade! Ed].

'Till next I poke my head up.
Gabriel Cinomis



Responder Decon Kit

Source: <http://www.firstlinetech.com/products/decon/Dry-Decon/Responder-Decon-Kit/>

The Responder Decon Kit should be a must-have for HazMat, EMS, and pResublic works personnel. Each kit includes both Fibertect (a three-layer, inert, flexible, drapable, nonwoven composite substrate for absorbing and adsorbing chemical warfare agents (CWAs), toxic industrial chemicals (TICs), and pesticides) and RSDL (Reactive Skin Decontamination Lotion that removes or neutralizes all known CWAs including GA (Tabun), GB (Sarin), GD



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(Soman), GF (Cyclohexyl Sarin), VX (nerve agent), HD (mustard), and T-2 (toxin)). With RSDL and Fibertect combined, this kit is the one to have in preparation for CBRN events.

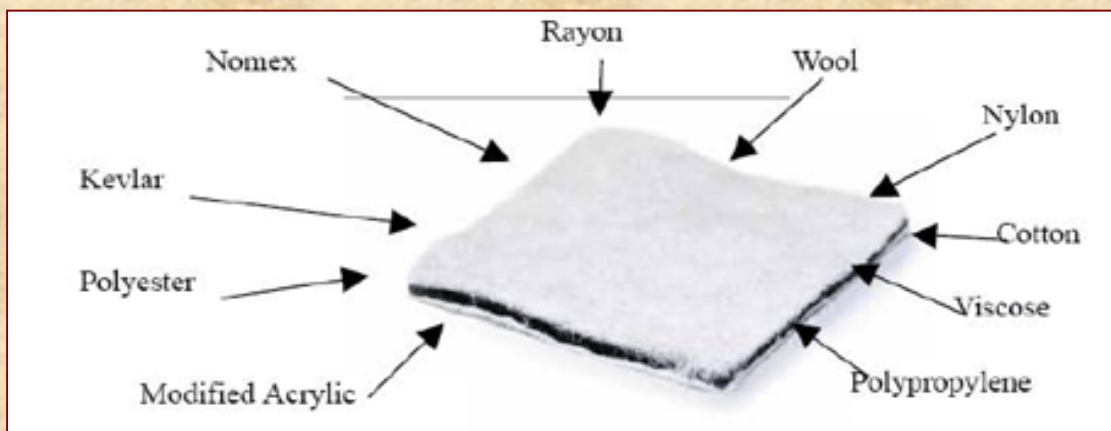
Users: First Responders/Receivers, HazMat Technicians, Law Enforcement Officers, Military Personnel, Healthcare Providers.

Fibertect

Variations

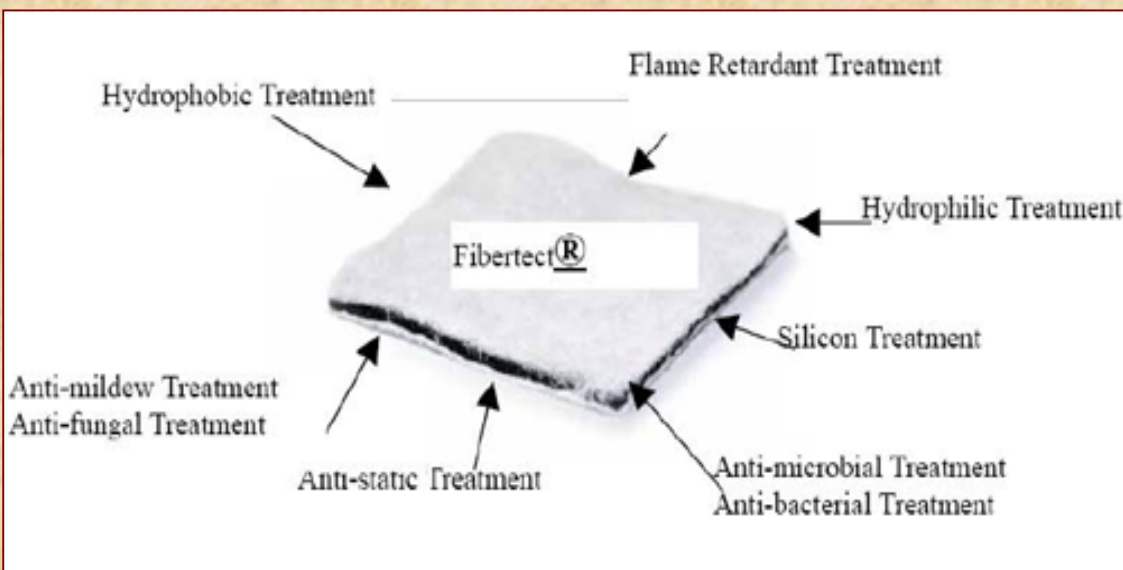
Fibertect® can be in different forms, including sheets, cut pads, continuous roll or a mitt that can be worn over gloves. Additionally, it can be produced with various final densities, thicknesses, and tensile strengths depending on the specification and customer requirements by varying the needle punching methodologies (needle penetration per square inch, NPPI) used to mechanically entangle the fibers of the composite. Fibertect® allows for easy clean-up of bulk chemicals on people, weapons and sensitive equipment.

The following depicts the multiple possible outer layer materials that could be used to tailor Fibertect® to specific applications:



Inert Three Layer Composite with Activated Carbon Nonwoven Felt Inner Layer

Once fabricated, Fibertect® may be coated with additional treatments to further enhance its effectiveness. Possible treatments include:



ZOMBIE APOCALYPSE

ARE YOUR
RESPONDERS
PREPARED?

WHAT ABOUT...
MASS CASUALTY INCIDENT?
HOSTAGE NEGOTIATION?
SUICIDE BOMBER?
ACTIVE SHOOTER?
PROTEST MARCH?
HAZMAT SPILL?
BOMB THREAT?



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SWEDE Infant Protective Pod (IPP)

Source: <http://www.firstlinetech.com/products/ppe/PPE-Kits/SWEDE-Infant-Protective-Pod-IPP/>

The SWEDE Infant Protective Pod (IPP) is a fully integrated, reusable WMD/CBRN kit that provides high levels of full body and respiratory protection against all known Chemical and Biological agents plus alpha and beta radioactive particles for small children and infants. The SWEDE PAPP creates a safe breathing environment for an infant by creating a constant overpressure of clean breathing air inside the pod. Inward leakage hazards are reduced with butyl taped seams and a gas tight zipper. Audible tones for low voltage and air flow inform a caregiver the respiratory system requires attention. Butyl gloves have been integrated into the design to allow for feeding, diaper changes, and cuddling of infants. The IPP can be worn as a backpack, cradled, or carried like a hand bag. The SWEDE IPP is designed to provide an extremely high-level of protection for six or more hours under certain conditions.



Users: Escape, Decontamination, First Responders/Receivers, Medical, Day Care Centers, Corporate, Government, HazMat, Fire Fighters, Bomb Squads, Law Enforcement, Military, Emergency Management, Industry

Note: SWEDE APRs require an oxygen rich environment (IDLH) or at least 19.5% oxygen for safe operation

SeaWorld’s Disastrous Chemical Use Sent Employees to the Hospital in the Past, Alerted Homeland Security, and Poses Health Risks to the Animals

Source: <http://blog.seattlepi.com/candacewhiting/2012/03/06/seaworld-disasterous-chemical-use-sent-employees-to-the-hospital-in-the-past-alerted-homeland-security-and-poses-health-risks-to-the-animals/>



SeaWorld not only uses strong chemicals to keep the orcas’ pools sparkly clean, they store the products all over their facilities – including next to fish and supplements that are then fed to the whales. These chemicals are easily made into rudimentary bombs – which has Homeland Security worried at one point, and an accidental mixing of chemicals resulted in SeaWorld employees being hospitalized. More recently, The Orca Project (see below) exposed the continued carelessness of SeaWorld’s handling of the chemicals. But

SeaWorld is stuck using harsh chemicals in the pools, unless they train their animals to get out of the water for potty breaks.



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[Orlando Sentinel \(2008\)](#)

SeaWorld Orlando could become a target for terrorists trying to obtain chemicals, according to a preliminary review of businesses, universities and other facilities across the country by the federal government.

The finding by the U.S. Department of Homeland Security is tentative.

The 200-acre theme park is one of about 7,000 locations nationwide that Homeland Security identified this year as sites with potentially dangerous chemicals that could be vulnerable to attack or theft by terrorists.

The continuing review is part of Homeland Security's year-old Chemical Facility Anti-Terrorism Standards, which are aimed at tightening oversight at locations where large amounts of one or more of more than 300 dangerous chemicals are stored.

The parks do not have large stockpiles of dangerous chemicals in any one location, but they do have many scattered throughout their sprawling resorts for use in everything from disinfectants to fireworks.

[Orlando Sentinel \(2001\)](#)

Six SeaWorld Orlando employees exposed to noxious fumes of chlorine gas were treated at a hospital after a contractor mistakenly mixed two potent chemicals Wednesday morning, authorities said. A SeaWorld spokesman said a worker "inadvertently mixed the chemicals [liquid alum and chlorine bleach] together" while delivering the pool-cleaning substances to a back area of Discovery Cove. The cloud of chlorine gas soon spread and sickened the six Discovery Cove employees. Activities at the park were not affected.

[Investigation Finds Hazardous Chemicals with Killer Whale Food Supply at SeaWorld \(2012\)](#)

Through the Freedom of Information Act, The Orca Project acquired 71 photos taken at the scene during OSHA's investigation. Three of the pictures taken from inside a food storage area of the Fish House at Shamu Stadium depict shelving lined with boxes of Knox brand gelatin, a product widely used for enrichment, supplemental hydration, and for delivery of vitamins and medication to the killer whales. Stored on the same shelves with the unopened boxes of gelatin appear to be containers of two known harmful chemicals— bleach and a previously opened bottle of compressor oil.

Top US danger rating for Syrian chemical-biological missiles - ahead even of Iran

Source: <http://www.debka.com/article/21801/>

US military officials said on Wednesday, March 7, that contrary to the prevailing impression, President Barack Obama and Prime Minister Benjamin Netanyahu discussed not only their dispute over an attack on Iran at their White House meeting on March 5, but devoted considerable attention to the Syrian crisis, focusing on the hundreds of surface-to-surface missiles armed with chemical and biological warheads possessed by Syria. The peril of the Assad regime launching them now tops America's chart of the threats looming over Israel and Turkey, those sources told debkafille. The US president accordingly prevailed upon his Israeli guest to hurry up and patch up relations with Turkey, which he was willing to assist, because it would take a combined US-Turkish-Israeli military effort to ward off an attack by Syria's poisoned missiles. Indeed, if the Syrian conflict is not solved, America might

be forced to turn its missile shield against Bashar Assad's missiles before they are needed against an Iranian attack.

The hazard could be accelerated by three elements, say American sources:

1. Assad might decide to respond with extreme violence to foreign military intervention in Syria, even an operation confined only to drawing the civilian population into security zones safe from the attacks of his security services.

On Tuesday, March 6, Turkish Prime Minister Tayyip Erdogan reverted to his call for security zones, and last week, Israeli Foreign Minister Avigdor Lieberman offered humanitarian aid to Syria's beleaguered civilian population. Both such actions, say the American sources, might well be taken by Assad as provocations deserving of reprisal by missiles – first those carrying



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chemical warheads, then biological ones.

Turkey would have to pitch in with military

Minister of Home Front Defense Matan Vilnai said Tuesday when he dedicated **14 public shelters** at the two largest Druze communities in the **Carmel district, Daliat al-Carmel and Usufiya**, that “the Haifa district of the Home Front command is expected to be very important in the next war and we anticipate that hundreds of missiles will be fired at the home front.” **These shelters can accommodate 3,000 people.**



2. Assad might respond to an Iranian request to take part in a preemptive strike launched by Tehran or Iranian retaliation for attacks on its nuclear facilities by the US or Israel.

3. Assad might transfer the unconventional missions to Iran’s Lebanese surrogate, the Hizballah - in which case, the US, Turkey and Israel would have no option but to smash them.

resources to destroy them completely.

That arsenal is being closely watched by US surveillance drones after the lessons from the Libyan war when at least 5,000 advanced anti-aircraft missiles were spirited out of Qaddafi’s weapons stores, some of them smuggled into Gaza for Hamas and other Palestinian terrorist organizations.



Testifying to the US Senate Foreign Relations Committee Wednesday, the Chairman of the Joint US Chiefs of Staff, Gen. Martin Dempsey said the Assad regime had “approximately five times more sophisticated air defenses than existed in Libya covering one-fifth of the terrain” and “about ten times more than we experienced in Serbia.” He also has chemical and biological weapons.

US military sources say that although Israel possesses a strong air force and Special Forces able to sabotage Assad’s chemical and biological missiles, the United States and

senior American generals. Marine Gen. James Mattis, head of the US Central Command which covers the Middle East and Gulf region, said: “Syria has a ‘substantial chemical and biological



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weapons capability and thousands of shoulder-launched missiles.”

Admiral William McRaven, head of the US Special Operations Command, also spoke to the committee about Syria’s weapons of mass destruction and American preparations to deal with this menace.

Those briefings were the first assessments of Syrian chemical and biological weapons capabilities to be given publicly by the heads of America’s armed forces. This was the direct result, US sources say, of the candid and open conversation on the subject between President Obama and Prime Minister Netanyahu Tuesday.

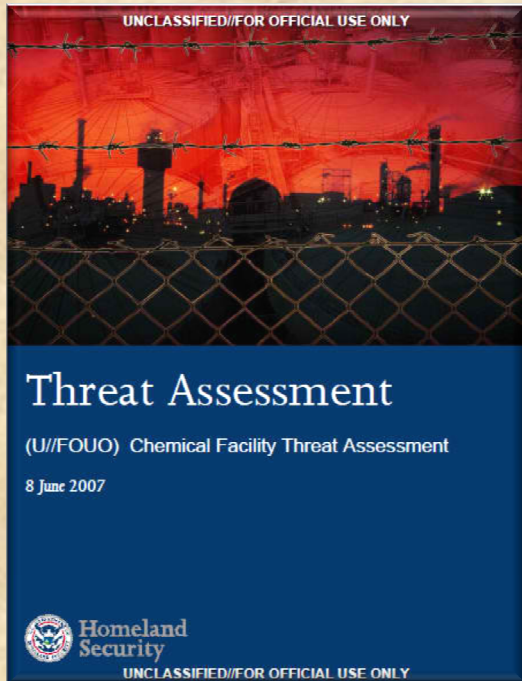
DHS Chemical Facilities Threat Assessment

Homeland Infrastructure Threat and Risk Analysis Center

Source: <http://publicintelligence.net/ufouo-dhs-chemical-facilities-threat-assessment/>

The DHS Homeland Infrastructure Threat and Risk Analysis Center produced this threat

facilities—based on DHS’ knowledge of terrorist intentions and capabilities—are included to aid industry security personnel in implementing security measures at their facilities.



assessment to support implementation of 6 Code of Federal Regulations Part 27, “Chemical Facility Anti-Terrorism Standards (CFATS).” This assessment describes the potential terrorist threat to the chemical and petroleum facilities regulated under CFATS and determined to be high risk by the Secretary of Homeland Security. It does not address facilities that may hold threshold quantities of the chemicals listed in CFATS that fall outside its scope, such as public water facilities or facilities regulated under the Maritime Transportation Security Act of 2002. Nor does it address the transportation of chemicals, which is regulated under other authorities. Potential terrorist tactics against such

... Intelligence reporting indicates al-Qa’ida, affiliated Sunni extremist groups, and other like-minded extremists continue to engage in operational planning with the intent to attack the Homeland.

— None of the reporting to date has revealed any specific or credible threats targeting facilities in the nation’s chemical sector.

— DHS has received general information on threats to U.S. petroleum infrastructure—including refineries and petrochemical plants—but has seen no credible or specific intelligence indicating an imminent terrorist threat to the sector.

The tactics terrorists are most likely to use against the nation’s chemical and petroleum infrastructure include aircraft as a weapon and vehicle-borne improvised explosive devices (VBIEDs). Many facilities also are vulnerable to cyber attacks against their supervisory control and data acquisition or business systems. Any of these tactics could include the use of insiders with access to and knowledge of sensitive facilities and systems.

Chemical and petroleum facilities are potentially attractive targets for terrorists.

— An attack on a chemical sector facility containing large quantities of toxic industrial chemicals could cause fatalities, extensive injuries, and panic, and could generate heavy media attention.

— Petroleum facilities appeal to al-Qa’ida and its affiliates because they



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symbolize what Usama Bin Ladin has referred to as “Western theft of the Muslim world’s oil resources.” Islamic extremists have attacked overseas petroleum facilities, especially in the Arabian Peninsula and Iraq.

...

Traditional Domestic Extremists

Traditional domestic extremists pose a limited threat to homeland chemical and petroleum infrastructure. Most domestic, right-wing extremists focus their ire on government entities or racial minorities. Groups such as white supremacists, neo-Nazis, and the modern-day “militias” have not yet demonstrated particular interest in chemical or petroleum infrastructure.

(Traditional domestic extremist groups, however—such as radical animal rights and environmental groups—have emerged as the most active domestic extremist threat. A primary objective of animal rights and environmental extremists is to attack corporations and other entities whose activities they perceive as contrary to their personal beliefs and ideological cause. Animal rights extremists oppose any experimentation on or euthanasia of animals; the environmental extremists target companies engaged in practices they believe degrade the environment. Animal rights extremists have targeted chemical and pharmaceutical companies, and environmental extremists opposed to oil drilling and some uses of petroleum products have targeted petroleum companies.

(So-called “lone wolves”—such as individuals who have targeted the Trans-Alaska Pipeline

and a California man who threatened to attack a refinery where he had worked—also pose threats to chemical and petroleum infrastructure.

...

Cyber Attack

Chemical and petroleum facilities use computers to monitor and process data such as flow, temperature, and pressure through supervisory control and data acquisition networks. Computers manage enterprise resource process systems and conduct automated measurement readings, while central or local control stations send signals to remote valves, opening and closing them to regulate flow or pressure or to seal them tight in an emergency. These capabilities improve the efficiency of the facility, but also expose the control systems to manipulation or disruption by malicious operatives, including terrorists.

Control systems are vulnerable to cyber attacks from inside and outside the control system network. The most elaborate boundary control program of firewalls, intrusion detection, and virus filtering will be of little help if an intruder or untrustworthy insider is able to gain physical access to servers, networks, or sensitive information.

Members of single-issue groups also may harness cyber capabilities to threaten and harass chemical and petroleum companies, although their goals are not likely to include physical destruction affecting the population and environment outside the targeted facility.

Researcher develops highly sensitive, nanomaterial gas detector

Source: <http://www.homelandsecuritynewswire.com/srdetect20120312-researcher-develops-highly-sensitive-nanomaterial-gas-detector>

A doctoral student at the Rensselaer Polytechnic Institute has developed a new sensor to detect extremely small quantities of hazardous gas. Using grapheme, one of the world’s thinnest materials, Fazel Yavari has created a device that is durable, inexpensive, and highly sensitive.

Physorg.com reports that Yavari’s sensor has created a range of new gas detectors for bomb squads, law enforcement officials, the military, and industry.

Conventional gas detectors are relatively large and bulky, and in the past efforts to shrink the devices and boost sensitivity have stalled as sensors often required high temperatures to detect gases, which in turn requires large amounts of power.

Nanomaterials, which are highly sensitive, have long been a sought after for gas detection, however constructing single nanostructures have proven to be costly and highly complex. In



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addition nanostructures are very fragile, prone to failure, and result in poor performance.

To overcome these challenges, Yavari used a device that combined the sensitivity of nanomaterials with the durability, low cost, and ease of use of a macroscopic device. The grapheme foam sensor that Yavari

created is roughly the size of a postage stamp and as thick of felt. It functions at room temperature and is relatively inexpensive to produce.



The device is able to detect gas by reading changes in the grapheme foam’s electrical conductivity when gas particles stick to the foam’s surface. Furthermore, the foam is reusable as these chemicals can be unstuck by applying an electric current.

So far the grapheme sensor is capable of detecting gases like ammonia and nitrogen dioxide, and other gases can be configured as well.

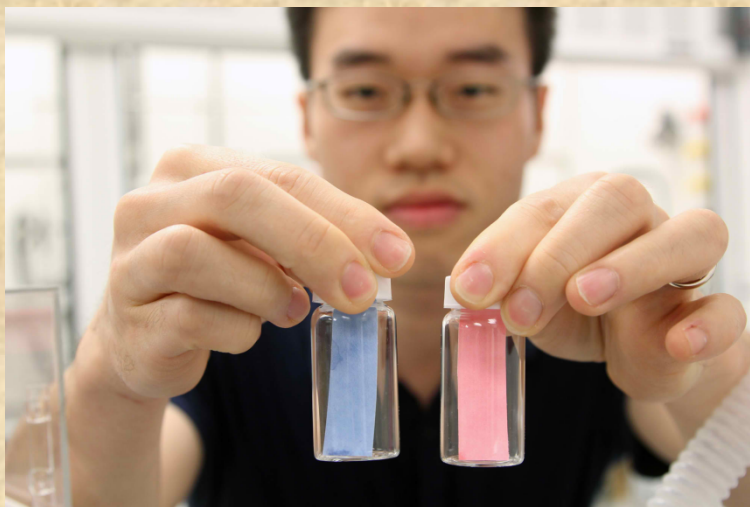
Yavari’s work earned him \$30,000 and top honors at the Lemelson-MIT Rensselaer Student competition.

New paper gas detectors developed

Source:<http://www.homelandsecuritynewswire.com/srdetect20120312-new-paper-gas-detectors-developed>

Researchers at the University of Michigan, Ann Arbor, have developed a quick and simple way to detect the presence of nerve gases.

an equipment-free, motion-free, highly sensitive technology that uses just our bare eyes.”



Troops currently deployed downrange lack an effective way to detect the fatal yet colorless, odorless, and tasteless gas. To help save lives by providing valuable advanced warning, researchers have designed paper strips that change color within thirty seconds of exposure to trace amounts of nerve gas.

“To detect these agents now, we rely on huge, expensive machines that are hard to carry and hard to operate,” explained Jinsang Kim, an associate professor of Materials Science and Engineering, Chemical Engineering, and Biomedical Engineering at the University of Michigan, Ann Arbor. “We wanted to develop

The paper sensors rely on a group of atoms from a nerve gas antidote and a molecule that changes color when it is subjected to mechanical stress. In the presence of nerve gas, the antidote’s molecules bind with the nerve gas and the reaction causes the molecule to change color – blue to pink in this case.

In a laboratory setting, researchers tested their sensors using a less toxic nerve agent simulant related to Sarin gas. **In their tests the**

sensors were able to detect as little gas as 160 parts per billion, an amount five times less than what is needed to kill a monkey.

Kim believes in real-world applications, the sensors will be even more sensitive.

“We believe these paper strips would detect real and potent nerve gases faster and in even lower concentrations considering their high vapor pressure and more volatile properties,” Kim said.

The researchers are currently filing for a patent on their technology and seeking commercial partners to bring the technology to market.



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Terror attack 999 training in Leeds city centre

Source: <http://www.yorkshireeveningpost.co.uk/news/latest-news/top-stories/terror-attack-999-training-in-leeds-city-centre-1-4360535#>

A masked terrorist spraying terrified shoppers across a ladder which straddled the two



with a noxious chemical was the scenario for an emergency services training exercise in Leeds city centre.

The staged 'attack' on 30 people in the Headrow yesterday morning (March 18) prompted a massive response from more than 100 police officers, firefighters and paramedics waiting nearby.

Volunteers acting as victims had to pretend to shed their clothes to get rid of the majority of the 'deadly' liquid they had been sprayed with. They were dressed in orange boiler suits before being led to an emergency contamination unit on nearby Cookridge Street. The unit was made up of two fire engines parked side by side with a tarpaulin draped

engines.

The volunteers played out showering in the unit to rinse away any remaining liquids before being dressed in green boiler suits to indicate they had been decontaminated.

They were then ushered into a makeshift survivor reception centre inside Leeds Town Hall for medical checks.

It was one of a series of national exercises aimed at ensuring cities across the UK are prepared in the event of an attack involving a chemical, biological, radiological or nuclear element.

Roads were closed and dozens of emergency service vehicles drafted into Leeds city centre for the exercise.



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Nigel Craven, group manager of West

“They then made a call to their control and all



Yorkshire Fire and Rescue Service, was in charge of coordinating the event, which involved around 120 firefighters, police, paramedics and Leeds City Council workers.

Mr Craven said: “We had 30 volunteers and they had been sprayed with an unknown chemical by a member of a rogue terrorist group.

“They screamed and they were confused.

“There were two police officers close to the scene who calmed the people down and controlled them.

the other services attended.”

He added: “It could happen anytime.

“Terrorism as a whole is high on the agenda, we do prepare a lot for it.

“It (the training exercise) went really well. We picked up lots of learning points, which we knew we would.

“If it happened tomorrow we are happy we are in a position to deal with it effectively and safely.”

WATCH THE VIDEO:

http://www.youtube.com/watch?v=xu9xqo_pRQc&list=UUW12VdlF6rtDO3s0B0Hm6nQ&index=1&feature=plcp

EDITOR’S COMMENTS: Not been physically present but by observing the above video, here are some comments that might be useful to Leeds’ First Responders:

- The attack took place in a shopping area of the city. This means that it happened in the open, where oxygen levels were normal, distribution of the agent released, high and concentrations low. Consequently, there was no need to deploy responders in Level-A PPE. Level-C would do the job.
- Responders in Level-A do not carry stretchers and victims. They go in, have a first estimate, take samples, perform detection and make a report to incident commander. That’s all given the fact that from donning to doffing they have only 30-40 operational minutes. And even if they have to carry someone – i.e. a contaminated/wounded member of their team, why should they carry him all the way to the decon area and not place the stretcher to a wheeled-base and push him to the point? Details like these reveals that planners have never been to Level-A gear themselves, ever.
- HART personnel in Level-C PPE were present but seemed that they were only observers, not actively participated in the casualties’ handling.
- Corridor police personnel were in plain uniforms.
- Finally, fire service personnel preparing the decon area and water curtains were acting in “normal speeds”. In real events, speed is life! Also, there was no obvious provision for contaminated waste



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management that is mandatory for small scale incidents.

- And of course, the drill ended once the decontamination of the victims was done. What about a near-by hospital that would accept contaminated walking victims escaped from the incident site?

One might say that it was just a drill. I will say that if you cannot do it properly during drills then when the real incident happens, everything will be a mess.

In support of this opinion of mine, here is what Gwyn Winfield, Editor of the top CBRNe World journal wrote (Autumn 2010 issue) following his participation as an observer at the “Exercise Milo” that took place in East London in June 29th, 2010: “... *As a generalization, the British have a “muddle through” attitude that is almost revered in some parts – abjuring the painful, precise processes you would see in a German or Czech exercise for a “we’ll short it out when it happens” approach. Too much of the exercise, in my opinion, was taken for granted and too much was lax – perhaps informed by a sober threat assessment. Yet if you cannot do it in exercise and get it right, there is little chance it can be done “on the day”. “B”, London. Good effort but must try harder!*”

ChemProDM module provides comprehensive CWA and TIC detection for vehicles, robots and OEMs

Source: www.EnvirionicsUSA.com

The new ChemProDM (ChemPro Detector Module) is a compact module for the detection and classification of Toxic Industrial Chemicals (TICs) and Chemical Warfare Agents (CWAs) vapors. Its



multi-sensor detection array has 10 sensing channels, with our unique open loop Ion Mobility Spectroscopy (IMS) sensor at its heart, to provide CWA sensitivity below military action levels, quick response and industry-leading false alarm rejection even to low vapor pressure threats like VX. The ChemProDM's compact package includes mounting flanges for vehicle, robot mounting or incorporation into OEM systems. The ChemProDM does not have its own display. If the vehicle or robot has a digital backbone the digital output of the ChemProDM can be directly integrated into the vehicle's displays. If a digital backbone is not available the optional Remote Alarm Unit (RAU) can be mounted away from the ChemProDM module. The RAU fully emulates the proven intuitive display of the ChemPro100i. An optional Vehicle Radiation Detector allows the ChemProDM



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and RAU to simultaneously provide both vapor and gamma radiation detection for CRN protection with a very compact footprint. For situations where customers wish to have the possibility of dismounting a detector for chemical recon away from the vehicle the field-proven, handheld ChemPro100i still remains our unit of choice. Both the ChemProDM and the ChemPro100i have the **ability to detect more than 40 TICs and CWAs.**

Al-Qaeda plotting cyanide attack at Games

By Simon Hughes (Chief Investigative Reporter)

Source:<http://www.thesun.co.uk/sol/homepage/news/4218929/Al-Qaeda-plotting-cyanide-attack-at-London-Olympics.html>

Extremists on a website with links to the terror group have posted detailed instructions on how to cause carnage at this summer's Games.

The chilling online plot was uncovered as two convicted al-Qaeda terrorists were released early from jail and put back on the streets ahead of the Olympics.

And the specific nature of the "cyanide slaughter" web posts suggest they should be taken seriously by the security services.

An extremist who called himself Abu Hija Ansari said the poison should be mixed with a handcream that would enable it to be absorbed through the skin.

[Menacing ... extremist web post next to London 2012 Olympics logo – ARABIC ONLINE BLOG](#)



He wrote in Arabic: "Through skin: 1 — cyanide, 2 — skin cream. Mix the ingredients. The skin cream will open the pores in the skin and speed up the absorption and effectiveness of the poison."

He said plotters should wear "medical gloves" when producing the lethal mixture.

A second extremist said on the website: "It is a good idea and you need to plan well."



She added chillingly under a logo of the 2012 Games: "It's time to prepare for the event, as once again they are interfering with innocent Muslims."

Our investigator used a false identity to access the website which has 17,000 members worldwide and known links to six al-Qaeda terrorists.

He said: "There is a contingent using this site who want to strike at the Games. The explicit nature of what is being said would indicate more than just sabre-



rattling but a wish to do real harm to the event and the people at it."

Tory MP Bernard Jenkin, chairman of the all-party homeland security group, said: "I hope the individuals are identified so action can be taken. Those who believe there is no terrorist threat are living in cloud cuckoo land."



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Britain's security services are on high alert to counter any attack on the Olympics, which start on July 27 in the main stadium.

They will not be helped by the early release of fanatics Nabeel Hussain and Tariq al-Daour.

Hussain, 28, was given eight years in 2009 for being part of a plot to bomb 19 jets flying from Heathrow to America. Al-Daour, 26, got ten years after he was found guilty of inciting murder online in 2007. They have both been freed to London bail hostels.

Freed ... al-Daour

Their release boosts to more than 100 the number of convicted terrorists likely to be on Britain's streets before the Olympics.

Are we nearer to an unconventional terrorism attack?

By Ely Karmon

Source: <http://www.jpost.com/Opinion/Op-EdContributors/Article.aspx?id=263536>

Since the sarin attacks by the Aum Shinrikyo cult in Japan in 1994-1995, the anthrax attack in the United States in October 2001 and the chlorine attacks by al-Qaida elements in Iraq in 2006-2007, there was no serious chemical,

The OPCW inspectors visited Libya in mid-January 2012 and found stocks of mustard agent. Libya now has until April 29, 2012, to submit a detailed plan and a date by which the destruction of the materials would be completed.



However, no one is sure such agents could not have been disseminated to terrorist elements, as heavy weapons, ground-to-air and antitank missiles have found their way to jihadists in the Gaza Strip and possibly to al-Qaida in Islamic Maghreb elements in the Sahara region. For instance, in February 2012, 43 SA-24 anti-aircraft missiles and the shoulder-

biological, radiological or nuclear (CBRN) incident worldwide. Although limited in their scope and lethal results, these attacks materialized, albeit tardily, the potential CBRN threat perceived since the early 1970s.

Present events in the Greater Middle East and Pakistan have raised the specter of a far greater and more present danger. After the fall of the Gaddafi regime it became known that he had secretly kept some of his chemical weapons arsenal, in spite of his international obligations. Two sites containing chemical weapons were found in Libya and the Organization for the Prohibition of Chemical Weapons (OPCW) and the United States were notified.

fired SAM-7 were found in a cache in the town of In Amenas in southern Algeria, near the Libyan border.

This scenario could be repeated with the chemical (nerve and blister agents), biological and even radiological weapons and agents found in the hands of the beleaguered Assad regime in Syria. Already in May 2011, in a CNN interview, US Defense Secretary Robert Gates warned about the possibility that Hezbollah is armed with more missiles and rockets than most states, possibly with chemical or biological warheads.

In the event of a power vacuum in Syria there is the possibility of



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weapons proliferation to Hezbollah or other regional militant groups.

Damascus has already provided ballistic missiles to Hezbollah. An Israeli defense official threatened that Israel will not tolerate any transfer of Syrian chemical weapons to Hezbollah in Lebanon.

The future status of Syrian chemical weapons has become a major worry also for the United States, which is pressing nations bordering Syria to be attentive for unconventional arms that might be smuggled into their territories. It was reported that the US and some Middle East allies are intensifying satellites surveillance of Syria's chemical and biological sites. According to Arab and US officials, Jordan and the United States are preparing a strategy for securing Syria's considerable arsenal of chemical and possibly biological weapons. In the event an Arab peacekeeping force is approved to enter Syria, Jordanian special forces teams would be assigned to find and protect close to 12 WMD-related facilities located at al-Safira, Hama, Homs and Latakia.

The 2008 US Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism centered its findings on several areas where the risks to the United States were increasing, and mainly at "the crossroads of terrorism and proliferation in the poorly governed parts of Pakistan," described as "the most likely source of WMD acquisition."

It should be remembered that Pakistani nuclear scientist Bashiruddin Mahmood, former chief of Pakistan's Khushab plutonium reactor, had close ties to al-Qaida and the Taliban.

Together with other scientists and military and intelligence officers he created the Pakistani humanitarian NGO Umma Tameer e Nau (UTN).

Former Director General of Pakistani Interservices Intelligence Directorate (ISID) Hamid Gul was among the board members and patrons of UTN.

Before 9/11 Mahmood offered to construct chemical, biological and nuclear weapons programs for al Qaida. After 9/11 he was detained with other associates by Pakistan Intelligence at the request of the US government, but was later liberated.

Rolf Mowatt-Larssen, senior fellow at the Belfer Center for Science and International Affairs at Harvard and former director of intelligence and counterintelligence at the US Department of Energy, mentioned several scenarios of

"nuclear nightmares that keep [him] up at night": Pakistan loses control of its bomb; the burgeoning Pakistani nuclear arsenal (more places where something can go wrong); increased extremism; the perilous military-civilian relationship.

Pakistan is seen indeed by international officials and experts as the main threat in this field.

The US has implemented a \$100 million program to secure Pakistan's nuclear laboratories and weapons (for example, by separating warheads from missiles) while "US officials remain concerned about foreign-trained scientists who support radical Islamic causes infiltrating Pakistan's nuclear establishment and, more broadly, about the remote (but not unthinkable) possibility of an acute regime-threatening political crisis during which nuclear security is breached and a warhead falls into the hands of Islamic extremists."

In a February 20, 2011, editorial, significantly titled "Pakistan's Nuclear Folly," The New York Times warned that Pakistan, which has between 95 and over 110 deployed nuclear weapons, had manufactured enough fuel for 40 to 100 additional weapons. "The ultimate nightmare is that the extremists will topple Pakistan's government and get their hands on the nuclear weapons," claimed the editorial. A more realistic scenario is the Islamist radical terrorists attack some nuclear facility and provoke a major nuclear incident, or get their hands on some fissile material.

Eight people were killed in a 2007 suicide bombing at a nuclear missile holding site south of the Pakistani capital. Suicide bombers in 2008 attacked entry points at Pakistan's Kamra air base – a suspected nuclear weapons holding site – and the Wah Cantonment facility, thought to be involved in putting nuclear weapons together.

Two high-profile attacks by terrorists on highly secure military bases in Pakistan, the General Headquarters of the Pakistan Army in Rawalpindi in October 2009 and the naval aviation base at PNS Mehran near Karachi in May 2011, have renewed anxiety about the safety of Pakistan's nuclear arsenal. Some terrorists learned their tactics from the Pakistan Army's elite commandos, the Special Service Group, which had trained earlier generations of Pakistani/ Kashmiri militants in similar



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tactics for operations against India. In light of the revolutionary events and the growing instability in much of the Greater Middle East and South Asia and the growing threat of failing states losing control on their

chemical, biological and nuclear assets, an international effort to monitor, control and foil CBRN terrorist attacks is vital for the security of the international community.

Ely Karmon is a senior research scholar at The International Institute for Counter-Terrorism and a fellow at the Institute for Policy and Strategy at the Interdisciplinary Center, Herzliya.

All-Hazards Type 3 Incident Management Teams Are Catching On

By Jim McKay

Source:<http://www.emergencymgmt.com/disaster/All-Hazards-Type-3-Incident-Management-Teams.html>

Having already proven their worth in various parts of the country, All-Hazard Type 3 Incident Management Teams (IMT) are now catching on in other areas — and their growth within the last five years is punctuated by the creation of the All-Hazards Incident Management Teams Association, incorporated in December 2010.

Incident management teams are nothing new, but the All-Hazards IMTs were derived from the National Incident Management System (NIMS) and the Incident Command System (ICS), both of which started principally after the breakdowns in the response and recovery efforts to hurricanes Katrina and Rita.

The concept is to assemble a trained team that can immediately respond to a major, widespread emergency or catastrophic event anywhere in the nation, and help manage any incident that would extend to multiple days. That could include a tornado, flood, terrorist event or a planned mass gathering.

After Katrina and Rita, there was a sense of urgency to develop All-Hazards teams — but not necessarily the Type 1 and 2 teams developed for wildland firefighting. The credentials and experience for Type 1 and 2 teams take decades to develop, according to Steve Grainer, president of the All-Hazards Incident Management Teams Association.

“Basically DHS and FEMA said, ‘We don’t think we want to wait that long, so we’re going to foster the development of the All-Hazard [Type 3] IMTs.’ It doesn’t matter whether it’s a so-

called All-Hazards Type 1 or 2, it’s a function of experience and practice,” Grainer said.

All hazards basically means any incident or event, and that the teams are composed of individuals from various disciplines, including police, fire, public health, public works, emergency medical and even lifeguards in Southern California.

“Basically it’s all discipline as opposed to all hazards,” Grainer said. “An IMT can manage any kind of hazard if it’s a well prepared team.”

FEMA National Incident Management Assistance Team Leader Mike Byrne said the agency is working toward developing more Type 1 teams to deploy to

large, catastrophic events, but for now, the growth is in Type 3 teams. The development of the All-Hazards association, he says, is indicative of the value of the All-Hazard Type 3 teams. “People realize they are multipurpose project-execution-capable and we don’t have to reinvent the wheel every time we want a job done,” he said. “You need that core structure to be in place.”

What’s in a Team?

According to the U.S. Fire Administration, the Type 1 IMT is a self-contained team of 35 to 50 people that require decades of experience and training. Type 2 is a self-contained, All-Hazard or wildland teams, ranging from 20 to 35 individuals and are deployed to manage regional incidents like wildfires. And Type 3 teams typically



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have 10 to 20 trained personnel.

“A reasonable, well constituted All-Hazards Type 3 team is going to consist of 30 to 50 individuals. I’ve seen some organizations that call themselves a team of a dozen folks,” Grainer said. “That’s good for a day or two. Optimally a well developed team is at least three deep in every one of the key command and general staff and significant unit level positions.”

At a minimum, a Type 3 team should consist of: an incident commander; operations section chief; plans section chief; finance section chief; and logistics section chief. It also can include a communications unit leader; food unit leader; medical unit leader; supply unit leader; public information officer; liaison officer and safety officer.

Grainer, who also is the chief of Incident Management Programs for the Virginia Department of Fire Programs, said the number of teams around the country is unknown, but the association is planning to send out a survey this year to get an idea. “We’ve got folks all over the place,” he said. “Here, in Virginia, I’ve got probably seven or eight jurisdictions that say they have a team, but ask them what their team is composed of and what their qualifications are, and they start backtracking. Are there a lot of teams? Yes. But what are their qualifications? That starts to trim the numbers back a little. Some are very good.”

There are many teams in the Southwest, and Texas teams have been managing wildfires, floods and events for several years. Some of those teams have recently managed incidents like the Texas wildfires in 2011, the Alabama tornadoes and the storms in Indiana, to name a few.

Patrick Repman, who heads the Permian Basin Type 3 IMT in Texas, said the team was created to help manage the influx of refugees after Katrina and Rita. Since then, the team has been used to assist a neighboring community during a refinery explosion; aided a community facing potentially catastrophic flooding; and help when a plane carrying both Mexican and United States officials crashed during a reconnaissance flight over the Mexican border.

Teams generally manage resources brought in for the incident and more, including:

- maintenance and upkeep of assets, including food, water, sanitary needs, fuel and equipment;

- tracking costs and other data related to the use of resources;
- provides orderly and manageable systems for the supervision of assets or span of control;
- providing information sharing and management;
- provides a systemic approach to ensuring safety of the resources and the public; and
- provides basic and detailed planning for operational needs, forecasting trends and probabilities and recording the incident scenario as it progresses.

Guidelines or Standards?

There are guidelines for the necessary training and experience someone needs to join a team, but to a large extent, it’s hypothesis, according to Grainer. Candidates are encouraged to complete certain core ICS and NIMS courses, and to take a course detailed to one of the various positions in a team. A candidate should also initiate a position task book, which is a mechanism whereby a person is evaluated and his or her capabilities and understanding are documented during real operating conditions. The problem so far with the task book is that there aren’t enough people with the proper experience and qualifications to evaluate others.

“This is one of the challenges — standardization,” Grainer said. “When we say standardization, we also have to acknowledge the fact that we’re not going to be able to adopt a national standard until we know where we want that standard to take us.”

Byrne said standardization is already happening. “We’re saying, if you join one of these teams, here’s a core set of things you need to know to be able to certify or qualify for say, plan session chief. That means you have to have a certain experience that’s been demonstrated and you have to have gone through a certain amount of training. What can you imagine is more NIMS compliant than that?”

The core courses provide standardization across the country, Byrne said, so anyone who has received certification can travel to an incident and know where they fit in and what to expect.

Catching Up

California, with its history of wildfires, has developed a number of efficient Type 1 and 2 teams, but is behind the



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curve on developing Type 3 teams, according to Brian Fennessy, assistant fire chief of the San Diego Fire-Rescue Department.

Fennessy said developing a Type 3 team has come with certain hurdles, namely credentialing and qualifications. “Incident management teams have for so long been fire-based, and the qualifications and standards really kind of surround the wildland fire community qualifications. It’s difficult to get a law enforcement officer to meet what the fire community views as say, operations chief qualifications.”

Once candidates complete the classroom training, they join Fennessy’s team during a real incident to acquire hands-on training and experience. Last year, the team worked the Texas wildfires and brought with it individuals who shadowed experienced team members. Although it’s called “shadowing,” there are hands-on activities, such as giving briefings to large groups. The hands-on experience during a real incident helps individuals apply what they’ve learned in the classroom.

“The light goes on and they say, ‘Oh, the ICS training,’” Fennessy said. But those field mentorship assignments, as they’re called, are expensive (salaries and overtime are paid

through grant funding), and it’s difficult to find a number of people available at the same time. Fennessy said he called 40 to 50 people on his team to respond to the Texas wildfires, but only 12 could go.

At some point, he said, there’s going to be a very large incident in Southern California — whether an earthquake, tsunami or wildfire — and they’ll have to rally the entire group to support the region. “And the locals are going to have to take care of themselves, so I think you’ll see more of these teams develop throughout the state.”

Byrne said he hopes the All-Hazards Type 3 teams continue to gain momentum nationally. “We’re at a tipping point,” he said. “The planets are lined up, there’s been a lot of effort, we have the association. We’re at that point where it will become part of the way we talk about emergency management. It will be foundational in every community.”

He also desires expansion to include the whole community. “I hope to see the use of these types of structures go beyond just government organizations — that [nongovernmental organizations] start to reflect the creation of this structure and that private-sector organizations follow suit, because it’s that important.”

Jim McKay is the editor of Emergency Management magazine.

New plastics mimic human skin: they “bleed” when scratched, then heal

Source: <http://www.homelandsecuritynewswire.com/dr20120327-new-plastics-mimic-human-skin-they-bleed-when-scratched-then-heal>

A new genre of plastics that mimic the human skin’s ability to heal scratches and cuts offers the promise of endowing cell phones, laptops, cars, and other products with self-repairing surfaces, scientists reported yesterday. The team’s lead researcher described the plastics, which change color to warn of wounds and heal themselves when exposed to light, yesterday at the 243rd National Meeting of the American Chemical Society, held at the San Diego Convention Center.

“Mother Nature has endowed all kinds of biological systems with the ability to repair themselves,” explained Professor Marek W. Urban, Ph.D., who reported on the research. “Some we can see, like the skin healing and new bark forming in cuts on a tree trunk. Some are invisible, but help keep us alive and

healthy, like the self-repair system that DNA uses to fix genetic damage to genes. Our new plastic tries to mimic nature, issuing a red signal when damaged and then renewing itself when exposed to visible light, temperature or pH changes.”

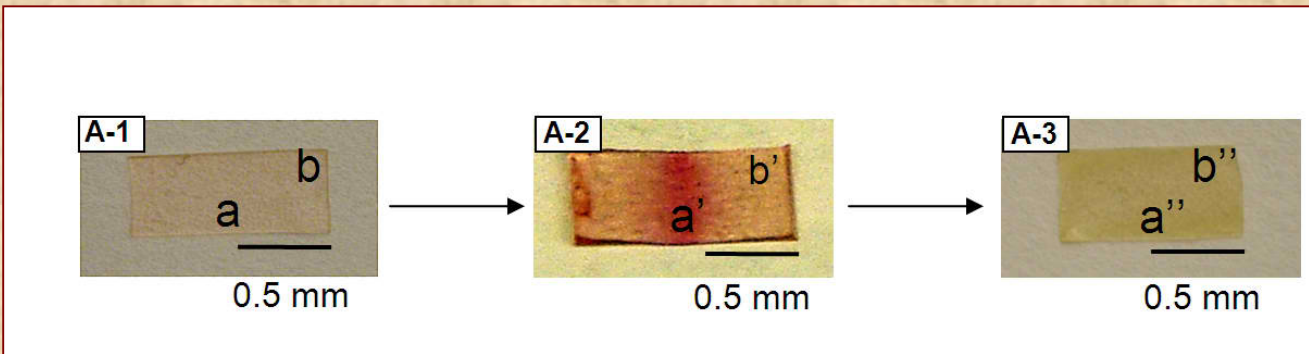
An American Chemical Society release reports that Urban, who is with the University of Southern Mississippi in Hattiesburg foresees a wide range of potential applications for plastic with warn-and-self-repair capabilities. Scratches in automobile fenders, for instance, might be repaired by simply exposing the fender to intense light. Critical structural parts in aircraft might warn of damage by turning red along cracks so that engineers could decide whether to shine the light and heal the damage



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or undertake a complete replacement of the component. And there could be a range of applications in battlefield weapons systems.

Urban’s group developed plastics with small molecular links or “bridges” that span the long chains of chemicals that compose plastic.



New plastics turn red when damaged, then heal themselves when exposed to light.

Plastics have become so common, replacing steel, aluminum, glass, paper, and other traditional materials because they combine desirable properties such as strength, light weight, and corrosion resistance. Hundreds of scientists around the world have been working, however, to remedy one of the downsides of these ubiquitous materials: Once many plastics get scratched or cracked, repairs can be difficult or impossible.

Self-healing plastics have become a Holy Grail of materials science. One approach to that goal involves seeding plastics with capsules that break open when cracked or scratched and release repairing compounds that heal scratches or cuts. Another is to make plastics that respond to an outside stimulus — like light, heat or a chemical agent — by repairing themselves.

When plastic is scratched or cracked, these links break and change shape. Urban tweaked them so that changes in shape produce a visible color change — a red splotch that forms around the defect. In the presence of ordinary sunlight or visible light from a light bulb, pH changes or temperature, the bridges reform, healing the damage and erasing the red mark. Urban cited other advantages of the new plastic. Unlike self-healing plastics that rely on embedded healing compounds that can self-repair only once, this plastic can heal itself over and over again.

The material also is more environmentally friendly than many other plastics, with the process for producing the plastic water-based, rather than relying on potentially toxic ingredients. His team now is working on incorporating the technology into plastics that can withstand high temperatures.

Using the Clean Air Act to Protect Americans from Chemical Accidents

Source: <http://www.ombwatch.org/node/12034>

In March, a U.S. Environmental Protection Agency (EPA) advisory panel recommended that the agency use its authority under the Clean Air Act to protect Americans against chemical disasters. Using safer chemicals could reduce or eliminate the threats and dangers that chemical plants pose to millions of people living downwind.

Americans at Risk

More than four hundred chemical plants in the United States pose a significant risk to the



communities in which they operate, each one putting at least 100,000 Americans at risk of a chemical disaster. In addition, several thousand



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plants use, store, and ship poisonous gases, such as chlorine and anhydrous ammonia, creating more risks of accidents and exposure. For instance, in March 2011, two workers were killed, two more injured, and about 130 employees were out of work after a chemical plant exploded in Rubbertown, KY. In January 2005, nine people died and at least 529 were injured when a freight train pulling three tankers full of liquidized chlorine and one tanker of sodium hydroxide crashed into a parked train in Graniteville, SC, releasing 11,500 gallons of chlorine gas.

However, there are many safer alternatives that industry can use to replace these dangerous chemicals and better protect Americans in the process. In fact, some communities no longer face risks of dangerous chemical exposures because the plants have switched to safer chemicals and processes. Ninety days after the Sept. 11th terrorist attacks in 2001, the Blue Plains Wastewater Treatment Facility in Washington, DC, voluntarily switched from using a deadly chlorine gas in the treatment of wastewater to a potentially safer alternative. In 2009, the Clorox Company announced its replacement of bulk quantities of chlorine gas with safer chemicals. Though more than 220 chemical facilities have switched to safer and more secure chemicals and processes since 2001, risky chemical plants have been slow to voluntarily convert to safer alternatives.

In 2006, Congress sought to address chemical plant security with passage of the Chemical Facility Anti-Terrorism Standards (CFATS), a law that required vulnerability assessments to be submitted to the Department of Homeland Security (DHS). However, CFATS specifically prohibited DHS from requiring any specific security measures, including the use of safer chemicals and processes that could eliminate the catastrophic hazards posed by poison gas. Provisions of the law also exempt thousands of chemical facilities, including about 2,400 water treatment facilities and the majority of U.S. petroleum refineries, from oversight and fail to involve employees in the development of a plant's security plans. CFATS operates under such excessive secrecy that the public is unable to evaluate if the program is working and cannot hold the government or facilities accountable.

On several occasions, the Department of Homeland Security (DHS) has asked Congress

for the authority to require the highest risk plants to switch to safer alternatives. However, Congress has been unwilling to act on these requests. In recent years, legislation has been proposed in the Senate to close these gaps but has been unable to move past committees. Congressional Republicans, with support from the chemical industry, have locked in the security gaps and loopholes in CFATS.

EPA Authority

Despite congressional inaction on the issue, many believe that existing authority at the EPA could be used to require safer chemical plants. In a March 14 letter to the EPA, the National Environmental Justice Advisory Council (NEJAC) formally recommended that the EPA use the "general duty clause" of the 1990 Clean Air Act Amendments to prevent chemical disasters. This clause is also known as the "Bhopal amendment," as it refers to the 1984 chemical explosion in Bhopal, India, which killed thousands. The clause, section 112(r) of the Clean Air Act, obligates chemical facilities to prevent catastrophic chemical releases.

Using this authority, the EPA could require plants to use safer chemicals in order to reduce or eliminate the threats that the plants pose to communities. Historically, these communities have included significant low-income, minority, and indigenous populations. For instance, of the people living within one mile of the chemical plant that exploded in Rubbertown, KY, more than 70 percent are people of color, and 22 percent live below the poverty line.

In its March 14 letter, NEJAC stated that the general duty clause has never been fully implemented, despite a 2002 EPA proposal that would have required chemical plants to use safer chemicals and processes. "Unfortunately, the agency's efforts were scuttled and environmental justice communities, and indeed all communities, remain vulnerable to the dire threat of hazardous chemical releases, explosions, and spills." The letter was generated after the council received testimony from environmental justice leaders during a public comment session in October 2011.

Public Interest Reaction and Campaign

Public interest advocates welcomed the letter and urged the administration to mandate that safer chemicals be required. "[T]hese chemical facilities



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are a huge threat to disadvantaged communities, and the EPA must do everything it can to protect us from the risk of a poison gas disaster," said Juan Parras of Texas Environmental Justice Advocacy Services (TEJAS). According to Parras, Texas leads the nation with 106 chemical facilities; Houston has 21 facilities that each put one million or more people at risk.

Public interest organizations have long advocated that more needs to be done to protect communities near chemical facilities. In June 2011, a coalition of more than 100 local and national organizations, including OMB Watch, urged President Obama and the EPA to reduce or eliminate chemical risks to Americans by using the Clean Air Act to protect communities against chemical disasters with the safest chemicals available.

In May 2011, public interest organizations submitted a report with extensive recommendations for improving public access and participation on environmental issues, which included the use of safer chemicals. Specifically, the report recommended that the Obama administration require emergency plans in chemical facilities to include an assessment of safer chemical alternatives. In *An Agenda to Strengthen Our Right to Know*, organizations noted that "by requiring an alternatives assessment during the emergency planning process, the threat to countless communities could be greatly reduced or even eliminated as facilities discover and convert to safer technologies that other facilities are already using."

Draeger Introduces New Gas Detection App

Source:http://www.domesticpreparedness.com/Industry/Industry_Updates/Draeger_Introduces_New_Gas_Detection_App/

Draeger Safety Inc. is introducing the new Draeger Gas Detection App for Apple mobile devices including the iPad, iPhone and iPod touch. This breakthrough application provides a general overview of gas and vapor measurement technology. It includes the basic principles of the Draeger-Tubes and Chip Measurement Systems (CMS), portable gas monitors and sensors, including the relevant measurement parameters.



The new Gas Detection App provides safety professionals with convenient and immediate access to current information on all Draeger portable gas detection products within a lightweight, portable device. Providing the latest up-to-date product information on all Draeger-Tubes, CMS chips and sensors for industrial applications, it is easily accessible

and replaces bulky printed handbooks and catalogs.

The Gas Detection App also includes an introduction to portable monitors, including electrochemical, catalytic and infrared sensor technology. With searchable content, the Gas Detection App is easy to use with an intuitive interface. By instantly providing the most current information in a portable electronic device, the App helps improve safety and efficiency in environments where it is necessary to monitor for toxic gases. Note that Apple products including iPad, iPhone and iPod touch do not have Intrinsic Safety (IS) approval and are not to be used in areas requiring IS approval.

To learn more about the Draeger Gas Detection App or to download it to an Apple mobile device, visit the App Store and search for 'Draeger Gas Detection'.

Protecting Subway Riders from a Chemical Attack

By **Joselito S. Ignacio**

Source:http://www.domesticpreparedness.com/Infrastructure/Transportation/Protecting_Subway_Riders_from_a_Chemical_Attack/

In 2010, New York City had the fourth highest annual subway ridership in the world – more than 1.6 billion people, according to the

Metropolitan Transportation Authority. In that same year, a much smaller number of passengers – 713 million –



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boarded airplanes across the United States, according to FAA (Federal Aviation Administration) statistics. Despite this significant difference, the nation’s subway systems have not imposed strict passenger or baggage screening requirements similar to those used in civil aviation.

In other words, there is no passenger vetting, similar to what is used to compile the aviation industry’s “no-fly” lists, to prevent someone identified as a potential terrorist from boarding a subway car – or, for that matter, any of the nation’s trains and buses.

The Vulnerabilities of Subway Systems

Literally millions of Americans (and foreign visitors) ride subways every day. One of the most important challenges facing those responsible for the safety of these transit systems, therefore, is to protect them against chemical terrorism – i.e., the use of chemical agents by persons seeking to kill or injure others, intentionally harm the environment, and/or adversely affect the nation’s economy. The two principal categories of chemical

spectrum of commercial products – including plastics, fuels, fiberglass, and household cleaners – that are readily available for purchase in supermarkets and many other stores throughout the country.

Enclosed spaces such as subway systems are particularly susceptible to attacks using TICs because most chemical agents can be released simply by attaching an explosive device to a canister of some type that is being used to contain the agent. The heat and pressure produced by the explosion may not substantially degrade the toxic characteristics of the agent, which means that it may still cause significant harm. In addition, the “push/pull” airflow created by incoming and outgoing railcars that are traveling, usually at high speed, through subway tunnels can rapidly disperse chemicals from their source of release toward unsuspecting passengers – those already aboard the train as well as those waiting in the station. Further complicating the problem, and exacerbating the danger, is that the typically limited egress from many stations hampers a rapid evacuation, and that



weapons or devices typically used by terrorists are chemical warfare agents (CWAs) and toxic industrial chemicals (TICs). Most CWAs, which are designed primarily to disrupt enemy assaults on the battlefield, are produced in mass quantities. Most TICs are manufactured by private-sector companies to create a broad

secondary problem also could cause crushing injuries, and additional deaths, as people stampede to the nearest exit.

To detect and warn patrons and authorities – and potentially save lives – transportation planners must design a system for integrating, into current



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and future subway systems, chemical detection systems and devices that can work in any of the stations in any given subway system. What follows are six key steps – partially developed and strongly recommended by planners in the DHS Office of Health Affairs' Chemical Defense Program – to help protect subway riders from a chemical attack:

1. *Develop the risk assessment methodology* needed to: (a) characterize specific chemical threats; and (b) carry out a vulnerability assessment of a subway system that can be used to protect against those same threats. Chemical detection systems are designed specifically to save lives – but will be able to do so only if the detectors procured and installed detect and warn against the presence of the agents used in an attack.

2. *Establish detection performance specifications*, based on the vulnerability assessment, to determine the detection technology requirements. In addition to developing these specifications, the target agents should be tested, to validate the performance claims made by the vendors of detection equipment, by using a set of Acute Exposure Guideline Levels (AEGLs) – a task managed by the U.S. Environmental Protection Agency – and/or a NIOSH (National Institute for Occupational Safety and Health) list of “Immediately Dangerous to Life and Health” (IDLH) values. The AEGL list defines the threshold exposure limits of specific hazardous chemicals, under emergency conditions, whereby – at or above those levels – harmful health effects are most likely to occur. AEGL values apply to first responders as well as to the general public. The IDLH values also define exposure limits, and are generally higher than the AEGL values. At IDLH levels, which apply to first responders only, escape from the immediate area within 30 minutes is critical, or permanent disability or death may result. Moreover, performance specifications must include a list of chemicals commonly present and/or used in a subway system for cleaning or maintenance, and – to minimize false positive alarm rates – should require that such chemicals *not* be able to trigger an alarm by the chemical detectors. Rigorous and effective performance specifications are essential to determine the appropriate detection technology that should be used.

3. *Evaluate the information available about the various types of detection technologies* that are being considered for use as stationary, autonomous detection systems. Single detection technologies involving one type of process typically have a fast detection response and are relatively small in size. Orthogonal detection technologies involving two or more types of in-series detection processes usually have a longer detection response time than single detection technology detectors but, because of their ability to separate the chemical constituents present in an air sample mixture, possess greater sensitivity. In addition, orthogonal detectors often have lower false positive alarm rates than those that are characteristic of detectors with only a single detection technology. Evaluating different types of technology is key to success in this area, because detection technology systems are not “one size fits all” products, and the use of more than one type of technology may in many situations not only be advisable but mandatory.

4. *Use a detector placement method*, primarily through the use of dispersion modeling and field studies to determine the optimal number and placement of detectors needed to provide the full range of detection response capabilities needed. There are a number of different ways to use both methods to predict the downwind spread of chemical vapors and gas through a subway system – while also taking into account the need, if and when possible, to continue routine subway system operations. To determine the number of detectors needed for a particular system, computational modeling can identify the appropriate detector placement locations, and thus the number of units required to best detect a chemical agent immediately after its release – from either a single source or multiple sources. A methodological approach to detector placement is particularly important to ensure adequate and effective system-wide coverage.

5. *Develop a concept of operations (CONOPS)* to coordinate all elements of the system's detect-to-warn-to-response capabilities. Integration of the system's new chemical detection system should, in fact, be the principal factor used in developing a



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response plan specifically designed to protect against chemical agents.

6. *Create and implement a training and exercise program* to help first responders familiarize themselves with the actions that they must take after a detector has signaled a release. A key component of this program should focus on “patron awareness” of the detect-to-warn capabilities of the new system. This step could also provide valuable feedback from users to identify gaps – in the detector systems or in the response plans – that may have been overlooked during the initial design and development processes. Continued training and a broad spectrum of exercises are needed to ensure that all personnel involved not only know their individual, and collective, roles and responsibilities but also are able to carry them out both fast and efficiently.

To briefly summarize, a properly planned and implemented chemical detection architecture

can assist immensely in the design and implementation of the effective chemical-protection capabilities needed in the subway transit environment. The key steps described above – risk assessment methods, establishment of performance specifications, review of current detection technologies, detector placement, CONOPS development, and training and exercise programs – are the essential building blocks needed to help transit authorities, and subway system personnel, evaluate and install the detection products that best meet their needs.

A deliberate approach, as proposed here, will help transit authorities and homeland security professionals minimize casualties in the event of a chemical agent release in a subway system. The sooner such a framework is implemented, the better prepared they will be should such an attack occur at any time in the foreseeable future.

Captain Joselito S. Ignacio, M.A., M.P.H., is a U.S. Public Health Service Officer now serving as Acting Director of the Chemical Defense Branch in the U.S. Department of Homeland Security’s Office of Health Affairs. He previously served as Deputy Director of the Chemical Defense Branch, which he joined in 2010. He has, among other responsibilities, overseen a two-year demonstration project in Baltimore on how to protect the city’s subway system in the event of a chemical attack. He holds a master’s degree in public health from the University of California at Los Angeles as well as a master’s degree in homeland defense and security from the Naval Postgraduate School.



AVON PROTECTION SYSTEMS

The ST53 mask can cope with multiple threat environments

GERMANY

German forces upgrade CBRN protection gear

Three German police forces have updated the masks and breathing equipment used by their SWAT teams as part of a major CBRN upgrade programme.

The three forces in Munich, Nuremberg and Hildesheim sought to combine a light-weight self-contained breathing apparatus (SCBA) system with a powered air-purifying respirator (PAPR) hybrid system for specialist police operations.

The ST53 was chosen for its combination of an Avon Protection Systems’ FM53 mask with new and innovative modular technology.

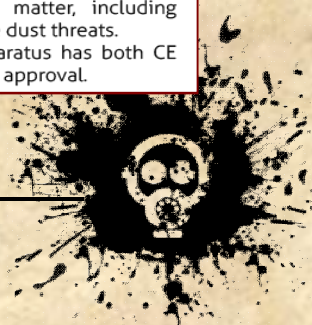
The FM53 has been designed to protect users against multiple threats. This is due to the patented twin exhalation valve that provides end users with the capability to use the

mask as a negative or a positive pressure respirator. This enables the user to enter different threat environments without the need to change their equipment.

The FM53 is available with a variety of features, such as panoramic optically correct flexible visors; voice projection units and interchangeable nose cups for maximum comfort and fit. Finally, the FM53 is interoperable with a variety of communications systems.

Both the FM53, and the ST53, provide protection against traditional chemical and biological warfare agents, select Toxic Industrial Materials (TIMs) and particulate matter, including radioactive dust threats.

The apparatus has both CE and NIOSH approval.



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Riots may be controlled with chemicals

Source: <http://www.guardian.co.uk/uk/2012/apr/09/riot-control-chemicals-plastic-bullets>

Future riots could be quelled by projectiles containing chemical irritants fired by police using new weapons that are now in the final stages of development.

The **Discriminating Irritant Projectile (Dip)** has been under development by the Home Office's centre for applied science and technology (Cast) as a potential replacement for plastic bullets.

Documents obtained by the Guardian reveal that last summer's riots in England provided a major impetus to Home Office research into new-generation riot control technology, ranging from the Dip to even more curious weaponry described by Cast technicians as "skunk oil".

The briefing by Cast for the Police Service of Northern Ireland says that last year's disorder sparked a surge of ideas to the Home Office

Ireland, the Police Federation, the Serious Organised Crime Agency (Soca) and the Ministry of Defence's Defence Science and Technology Laboratory.

"No ideas too stupid or 'off the wall' to consider," the briefing notes record.

The November briefing, The Development of New Less Lethal Technologies, suggests that the Dips would be loaded into guns used to fire the existing generation of plastic bullets. They would be intended to be accurate at a range of up to 65 metres.

It is understood that the Dip, which was originally supposed to have been introduced in 2010, would be loaded with CS gas, pepper spray or another irritant.

Other parts of the briefing, released under the Freedom of Information Act, refer to a need in



Medium calibre variants (of different mass and aerodynamic properties) of 37 mm DIP concepts, showing the carrier body and irritant payload in the nose, within a frangible cap.



from the public as well as companies manufacturing police technology. To capitalise on the interest, Cast convened a "brainstorming" event in October. Participants included police from London and Northern

the short term by police to develop "counter laser dazzle" technology to protect officers from being dazzled by people using lasers like those used in recent Greek riots.



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Large sections of the briefing were redacted by the Home Office, which designated them as "commercially sensitive". However, the Guardian understands that the "less lethal" technology discussed included heat rays and sound weapons. One weapon that particularly interested police officers was something Cast technicians referred to as "skunk oil".

The system would involve pellets containing foul-smelling liquids being fired from weapons similar to paintball guns. Such would be the smell that individuals hit by the pellets would want to go home to change their clothes, while associates would be reluctant to stay close to

nevertheless spend more than £53,000 stocking up on AEPs in the last three years.

Gloucestershire police, whose territory was the scene of one of the more surprising outbreaks of rioting last summer, decided to considerably boost its AEP stocks last year. It spent £32,060 doing so, more than double its combined spending in 2009 and 2010. Elsewhere, Greater Manchester said it had sufficient supplies last year after spending more than £76,000 in the previous two years, while Nottinghamshire has spent £74,000 in the past three years.

A number of forces, including Merseyside and



them.

The Guardian has also obtained figures illustrating the extent of recent spending by police forces around the country on the existing generation of plastic bullets, now referred to as attenuating energy projectiles (AEPs).

Some forces appear to have decided to considerably boost their stocks. Leicestershire constabulary spent £19,630 buying AEPs in 2010-11, doubling its spending on the previous year. So far in 2011-12 it has spent more than £10,000. Even a relatively small force, Avon and Somerset, which faced serious disorder in Bristol last year during the English riots and on a previous occasion amid anger over a controversial Tesco store, has spent more than £70,000 in the last three years. It also currently possesses 28 AEP launchers. That is 16 more than the larger West Midlands police, which still

West Yorkshire, declined to provide information. Merseyside used the Home Office's claim that terrorism remains a "substantial" threat as a reason for not providing the information.

A final response has not been provided by the Metropolitan police. The Met commissioner, Bernard Hogan-Howe, told a meeting of the Metropolitan police authority last November that the force authorised the deployment of plastic bullets on at least 22 different dates last year.

Another freedom of information request from the Guardian found that the Home Office supplied £4.4m worth of AEPs between 2007 and March last year to police forces across England and Wales. The projectiles are supplied to the Home Office by the Ministry of Defence for police use.



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While the Home Office invoiced forces for £700,000 worth in 2007-08, this rose to £1.2m

in each of the following years and to £1.3m in 2010-11.

‘Al-Qaeda Airlines’: New Terrorist Magazine Extols Benefits of Chloroform

Source: <http://www.theblaze.com/stories/al-qaeda-airlines-new-terrorist-magazine-extols-benefits-of-chloroform/>



The Middle East Media Research Institute (MEMRI) recently revealed that a new magazine has been started for Islamic extremists. The name of the magazine? “Al-Qaeda Airlines.”

The first issue, which is 73 pages, is reportedly dedicated almost exclusively to the benefits of chloroform, and how to manufacture it on your own.



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The author, a bomb-making expert, said he “chose to write about [chloroform] for a number of reasons, including to introduce ‘variety’ on the forum’s military section, which focuses primarily on explosives, and to share knowledge about the chemical’s various applications in jihadi operations: manufacturing



poisons and deadly gases, assassinating enemy targets, and supplementing explosives.

The author explains that individuals “can obtain chloroform in two ways: by purchasing it from veterinary clinics, biology labs, or hospitals, or by manufacturing it themselves.”



After providing step-by-step instructions for making it at home, he then urges readers to “go and obtain a rabbit or a frog” to test whether the animal “faints or dies” from exposure to the final product.



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Chloroform is best to “put it in the enemy’s food or drink, due to its relatively sweet odor and flavor,” the radical author continues, but is useful in assassination purposes for a number of reasons, as it can be lethal or have a sedative effect.

House Homeland Security Committee head Pete King (R-L.I.), said that the new publication “underscores the growing threat from radicalization within the Muslim-American community and ‘lone wolf’ terrorism,” which he has “repeatedly argued pose one of the gravest threats to U.S. national security.”

MEMRI estimates that the magazine has already been disseminated among countless jihadis.

Chemical Weapons in Sri Lanka

By Gulbin Sultana

Source: http://www.idsa.in/cbwmagazine/ChemicalWeaponsinSriLanka_gulbin

During the Eelam Wars in Sri Lanka, there was considerable concern about the use of chemical weapons. Allegedly, both the LTTE and Sri Lankan army had possessed such weapons. However, no strong evidence of the use of chemical weapons during the war has been found yet.

Possession and Use of Chemical Weapons by the LTTE

According to Prof. Peter Chalk, a leading expert on Tamil Tiger’s strategies, LTTE is the first known terrorist group to use chemical weapons. ¹ The then Sri Lankan Prime Minister Ratnasiri Wickramanayaka said in 2007 that his Government had evidence that the LTTE had plans to use chemical weapons against the Sri Lankan security forces. ² Sri Lankan Foreign Secretary Palitha Kohona also confirmed that the government had found evidence that the LTTE were seeking to buy thermobaric weapons and launchers. In addition, during the Eelam wars, Sri Lankan security forces detected that the tigers were transporting large quantities of acid. The Sri Lankan Military had also reported capture of a large stock of gas masks and chemical resistant costumes from an LTTE camp at Udayarkattukulam in the Mullaithivu district in the north. ³

While the Sri Lankan Government and security forces have confirmed the possession of chemical weapons by the LTTE, it is very difficult to verify the actual use of such weapons. However, there are occasional media reports available of LTTE’s chemical attack. It was reported that LTTE used locally manufactured chemicals to attack Sri Lankan Army’s Kiran camp at Trincomalee in 1990. ⁴ However, the Sri Lankan Government in power during that period did not take the issue



seriously and also did not make any effort to inform the international community. Allegedly, the LTTE again used thermobaric rockets in a 2005 attack that killed thirteen sailors, leaving bodies burned beyond recognition.

The chemical weapons possessed by the LTTE were locally manufactured as well as acquired from foreign countries. Reportedly, LTTE had a toxicological laboratory housed in two floor underground in the jungles of Vanni. The underground laboratory was protected by three storied building above-ground. “Pro-LTTE Sri Lankan chemical experts and engineers who worked in Western countries are said to be the brains behind the building of the lab as well as the toxicological products”.⁵

It was also suspected that a West European country closely aligned with the LTTE might have provided the chemical weapons to the LTTE via another East European country under a bi-lateral agreement with that country with special secret instructions for onward shipment to Vanni. It is interesting that according to a media report of November 2005, the foreign power which provided the chemical weapons to the LTTE had obtained an assurance from the Tigers that they would not use these weapons against the Sri Lankan Armed Forces. ⁶ They were basically meant for destroying the cadres of the breakaway rebel group led by Colonel Karuna in Eastern Sri Lanka. ⁷

Minimum loss to its cadres was the main objective of the LTTE to use the chemical weapons. After the LTTE was thrown out of Jaffna in 1995, it was planning to launch a major assault on Jaffna. Anticipating a heavy loss of manpower, LTTE adopted a new strategy of immobilising the Sri Lankan forces



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through chemical weapons before a counter-offensive could be launched. But there are examples when this technique backfired as according to Prof. Peter Chalk, the LTTE used a chemical weapon to attack an army camp in one of its early offensive, but it backfired because the winds brought most of it back and deposited the chemical on the LTTE side.⁸

Possession and Use of Chemical Weapons by the Sri Lankan Army

There are serious apprehensions that thermobaric bomb - a bomb that uses a fuel-air explosive capable of creating overpressures equal to an atomic bomb – was used by the Sri Lankan Army during the Eelam War 4. ⁹ Sri Lankan army reportedly had acquired the Russian RPO-A rockets in 2001 via a British company, Gladstone Industrial Holdings.

A petition, which was sent to Mr. Ban Ki Moon, UN Secretary General; Respected Ms Navi Pillay, UN High Commissioner for Human Rights; Dr. Manmohan Singh, Prime Minister of India and Heads of Government of South Asian Countries, sought independent verification of the use of such weapons. The petition said,

“it is very important that the truth about the actual use of these ‘weapons of mass destruction’ including thermobaric bombs be independently verified and its source of supply identified. If indeed these horrific weapons have been used, the international community should immediately initiate prosecution of the highest functionaries of the Sri Lankan state and the Government of the country that supplied these bombs for commission of war crimes and crimes against humanity.” ¹⁰

UN Expert Panel Report on Accountability in Sri Lanka had also presented the allegation of Sri Lankan Army using cluster bomb munitions or white phosphorous or other chemical substances against civilians during the war. Since the panel was not able to reach to any conclusion regarding their credibility, it recommended further investigation into this allegation. ¹¹ The Sri Lankan Government refused to conduct any such investigation and on the contrary, it regularly tries to silent anybody who wants to initiate any independent investigation into this matter. According to the wife of Prageeth Ekneligoda, the political columnist and cartoonist who has been missing since 24 January, 2010, the main reason for his disappearance is an investigation he

carried out on the alleged use of chemical weapons by the Sri Lanka forces in 2008. ¹²

It is very difficult to validate the media reports on either LTTE or the Sri Lankan Armed forces. As a party to the chemical Weapons Convention¹³, Sri Lankan Government has officially denied having such weapons. It is noteworthy that in a chemical warfare, user also needs to adopt precautionary measures. Precautionary measures adopted by the Sri Lankan Army when they came to know about the possession of such weapons by the LTTE were as follows;

- Alerted regional and international intelligence agencies and media
- Used more camouflage for constructing bunkers etc. to avoid detection
- Frontline troops (especially attacking troops) were equipped with Oxygen gas masks.
- Advance dressing stations (ADS), front most medical installation were provided medical drugs etc. for burning injuries etc.

LTTE's reactions to the Possession of Chemical Weapons by the Sri Lankan Army were;

- Warned the Chandrika Kumaratunga government of disastrous consequences if it inducted the recently acquired weapons with chemical warheads into the north-eastern theatre of war. ¹⁴
- Called upon the concerned nations of the international community, particularly the United States, Britain, European Union and India to condemn Sri Lanka for the acquisition of weapons with chemical warheads and to impress upon the Sinhala Government the detrimental effects of their use in the Tamil homeland.

Conclusion

It can be argued that despite the possibility of occasional use of chemical weapons, Sri Lanka is not assuming a high threat from chemical weapons. The weapons reportedly used during the Eelam wars were very primary. According to Sri Lankan Army, most of the chemical weapons found from the LTTE have already been destroyed. The remaining ones are in Army's armouries for which army maintain several strict regulations and procedures to keep account of them so that they don't fall in the wrong hands.



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NBC Weapons: How free is Africa of the scourge?

By Ruchita Beri

Source: http://www.idsa.in/cbwmagazine/NBCWeaponsHowfreeisAfricaofthescourge_rberi

The entry into force of the Africa's Nuclear Weapon Free Zone Treaty or the Treaty of Pelindaba in July 2009 and the first conference of parties on November 4, 2010 is a big step towards making the African continent free of the scourge of nuclear weapons. The Treaty of Pelindaba aims "to ensure that nuclear weapons are not developed, produced, tested or otherwise acquired or stationed anywhere on the African continent or its associated islands"¹. At the same time the treaty provides

for the promotion of cooperation in the peaceful uses of nuclear energy on the African continent. Though Sub Saharan Africa is free of nuclear weapons programmes, many African countries have peaceful nuclear facilities and radioactive sources. Furthermore, there are serious concerns about the adequate protection and management of materials that are present and utilised in the commercial and biological industries and research laboratories



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in the region. In particular South Africa maintains an extensive animal vaccine production and pharmaceutical industry, according to the UNSC Resolution 1540 Database. It also has a “very advanced chemical and microbiological research and development capacity”.²

NBC Status

At present if one follows the IAEA records, four Sub Saharan countries have nuclear facilities-Democratic Republic of Congo (DRC), Ghana, Nigeria and South Africa.³ The DRC has Triga II research reactor at the University of Kinshasa. Ghana obtained a slowpoke type reactor from China with the assistance of IAEA according to the UNSC Resolution 1540 Database. Nigeria has a tank in pool type Miniature Source Reactor (NIRR-1) that uses 90 percent enriched Uranium as fuel. It also has plans to purchase a slow poke type type reactor from China through the IAEA.⁴ Of the countries in the region South Africa has the most advanced nuclear programme on the continent with two power reactors and a tank in pool research reactor.⁵ South Africa aims for the expansion of nuclear energy production from 6 percent to 30 percent by 2020. A number of sub Saharan countries also possess uranium reserves. According to the UNSC Resolution 1540 Database, the major producers are South Africa, Namibia, Niger and Gabon. Others like Republic of Congo, Central African Republic, Guinea, Malawi and Zambia possess minor reserves. Though Sub Saharan countries are free of any nuclear weapons several states have peaceful nuclear programmes and radioactive material sources. Hence protection of these programmes is an issue of concern.

Similarly the African countries have to take care of the protection and management of materials utilised in commercial chemical and biological industries in the region. South Africa and Nigeria are the main African countries involved in such research. Currently dismantled, South Africa had an active chemical and biological warfare programme during Apartheid era called “Project Coast”. It was headed by infamous Dr.Wouter Basson, nicknamed “Dr. Death’ for his role in killing political dissidents through this programme. South Africa’s Truth and Reconciliation Commission investigated Basson’s role in the project, however he was later acquitted of all

criminal charges, in part, due to a general amnesty.

Adherence to Treaties and Agreements

Sub Saharan African countries’ record in terms of adherence to various non proliferation regimes is somewhat mixed. All countries are party to the NPT and majority are party to the Chemical Weapons Convention (CWC). The CWC was signed in 1993 and entered into force in 1997. The CWC is of unlimited duration and obliges state parties not to develop, produce, acquire, stockpile, transfer, use or prepare to use chemical weapons. Currently 46 states in the region are party to the CWC. With 100 percent destruction of CW in the region the Organisation for the Prohibition of Chemical Weapons (OPCW) is at present involved in Africa primarily on capacity building in areas of peaceful application of chemistry through an exchange programme. On the other hand it was only thirteen years after its existence that the Pelindaba treaty entered into force in 2009. As of now 29 states have ratified the treaty. However some of the blame also lies on the Nuclear Weapon States (NWS). At present of the five NWS it has been ratified only by France, China and UK. The reticence of US and Russia is linked to the atoll Diego Garcia in the Indian Ocean. While UK and US insist that Diego Garcia is not geographically part of Africa, African Union (AU) insists that Diego Garcia is part of Mauritius, which is turn in an AU member and therefore should be included in the treaty.

The Biological and Toxin Weapons Convention (BTWC) opened for signature in 1972 and entered into force in 1975. It prohibits the development, production, acquisition, transfer, retention and stockpiling of biological weapons and toxins.⁶ Thirty African states are party to the BTCW at present. The problem with biological agents is that all materials are dual use goods which mean they are hard to detect. Misuse of biological agents could take a much greater toll on any population by way of increased illnesses, long term disability and/or death. These concerns have grown in recent years with the realization that deadly diseases like Ebola, Marburg, and anthrax are prevalent in Africa. These pathogens can be made into weapons and is a threat that cannot be ignored. Apparently Soviet scientists used pathogens from Africa to make biological weapons during



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the Cold War.⁷ With the knowledge that Al-Qaeda and other terrorist groups are active in Africa, it becomes imperative that the deadly pathogens stored in labs in countries such as Uganda and Kenya are secure.

However a cursory survey within Africa shows that national legislations incorporating CWC and BTCW are lacking within most of the countries in the region. According to a recent study, there is no information available on the status of implementation legislation in 15 of the 30 CTCW state parties in Africa.⁸ The remaining 15 state parties: Cape Verde, Democratic Republic of Congo, Equatorial Guinea, Ethiopia, Ghana, Kenya, Libya, Mauritius, Nigeria, Senegal, Seychelles, South Africa, Tunisia and Zimbabwe have some measures or legislation that partly implements the BTCW have been adapted.⁹ Similarly Nigeria recently reiterated that it is committed to the Biological Weapons Convention and has produced draft bills for the national implementation of BWC and CWC.¹⁰ There is no doubt that African countries need to address

the deficiencies in the existence and scope of national implementation legislation on priority basis not only to comply with the obligation under BTWC but also avoid the development of biological weapons in the country. With the seventh BTCW Review conference scheduled in 2011, the African countries have no time to waste.

In conclusion, it appears that physical protection and safeguarding of NBC materials must remain top priority within Africa. African countries must work at both national and regional level to assure the adequate protection and management of materials that are present in the region. However it needs to be understood that most African countries have more urgent matters to deal with. Genocide, food security, health issues such as spread of HIV/AIDS, conflict resolution and other pressing concerns have affected ability and desire to implement national legislation for non proliferation regimes. As a result nuclear biological and chemical weapons non proliferation remains a low priority for Africans.

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Leftover WW II Chemical Weapons Reported Discovered in Australia

Source: http://www.globalsecuritynewswire.org/gsn/nw_20091109_3847.php



An apparently forgotten stockpile of mustard blister agent has been discovered in southwest Queensland, Australia, the country's *Sunday Mail* newspaper reported on October 1, 2009. Australia's Defense Department said that 144 undetonated shells were found in the Darling Downs region by a company preparing a mine. The potentially lethal liquid chemical called Mustard H is believed to be carried in some of the shells. The location was formerly the site of a U.S.



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weapons facility during World War II. Mustard agent was used during World War I and at times



afterward.

PRESS RELEASE: HZS Offers New Certified Course on EOD/IED

Source: http://www.army-technology.com/contractors/nbc/hotzone-solutions/presshzs-certified-course-eod-ied.html?WT.mc_id=DN_PR



Hotzone Solutions (HZS) recently signed a partnership agreement with **Asymmetric Threat Response (ATR)**, a UK-based company.

This partnership will allow us to increase our capabilities in specific areas of our business.

At the moment, HZS is working on new courses to offer to those interested in our industry.

The courses we are working on include introduction to improvised explosive devices (IED), IED threat assessment training, introduction to hazardous device, introduction to unexploded ordnance, introduction to threat analysis, bomb / technician / EOD, IED search training and introduction to vulnerability analysis.

Generating Explosive Vapor Standards

Source: <http://www.owlstone.co.uk>

If you are considering improving your own chemical sensor testing capability, you may be interested in the Owlstone OVG-4 Calibration Gas Generator, which can **generate over 500 calibration gases** using replaceable permeation tubes.



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The OVG-4 is a compact, cost effective laboratory calibration gas system, which can generate pure, precise, repeatable and accurate trace concentrations of hundreds of chemicals and calibration gas standards. Multiple OVG-4 units can be combined with our OHG Humidity Generator to create flexible test mixtures for applications ranging from chemical sensor testing to corrosion chamber atmospheres.

A Short History of Testing Chemical Sensors at Owlstone Nanotech Inc.

Owlstone Nanotech Inc, spun out of Cambridge University to develop MEMS based gas sensors. During the sensor development we found it difficult to generate traceable calibration standards, especially for explosives and chemical warfare simulants.

As a result they developed the **OVG-4 Calibration Gas Generator**, which is suitable for testing all MEMS / NEMS and standard gas sensors.

The key features are:

- Calibration Standards from Gas, Liquid and Solid;
- Using Permeation Tubes to Generate >500 Test Standards;
- Ensuring NIST Traceability;
- Safe Working with Toxic and Corrosive Gases (including Warfare Simulants and Explosives).

Universities and research groups all over the world are using the OVG-4; so are the main government test labs including US Army, Airforce, DSTL and Home Office.



Afghan schoolgirls poisoned by contaminated water

Source: <http://www.guardian.co.uk/world/2012/apr/17/afghan-schoolgirls-poisoned-contaminated-water>

About 150 Afghan schoolgirls were poisoned on Tuesday after drinking contaminated water



at a high school in the north of the country, officials said, blaming it on conservative radicals opposed to female education.

Since the 2001 toppling of the Taliban, which banned education for women and girls, females have returned to schools, especially in Kabul.

Periodic attacks still occur against girls, teachers and school buildings, usually in the

more conservative south and east of the country, from where the Taliban insurgency draws most support.

"We are 100% sure that the water they drank inside their classes was poisoned. This is either the work of those who are against girls' education or irresponsible armed individuals," said Jan Mohammad Nabizada, a spokesman for the education department in northern Takhar province.

Some of the 150 girls, who suffered from headaches and vomiting, were in critical condition, while others were able to go home after treatment in hospital, the officials said. They said they knew the water had

been poisoned because a larger tank used to fill the water jugs involved was not contaminated.

"This is not a natural illness. It's an intentional act to poison schoolgirls," said Haffizullah Safi, the head of Takhar's public health department.



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None of the officials blamed any particular group for the attack, fearing retribution from anyone named.

The Afghan government said last year that the Taliban, which has been trying to adopt a more moderate face to advance exploratory peace talks, had dropped its opposition to female education.

But the insurgency has never stated that explicitly and in the past acid has been thrown in the faces of women and girls walking to school by hardline Islamists.

Education for women was outlawed by the Taliban government from 1996-2001 as un-Islamic.



Company profile: Terrogeance







Source: <http://www.terrogeance.com/>

Terrogeance combines a unique set of intelligence professionals and capabilities under one roof; our cross-functional web-intelligence collection, translation and analysis teams deliver the highest levels of intelligence production catering to our clients' collection lists. Our experienced intelligence-systems and database developers have served our internal intelligence production processes for years, culminating in a robust suite of intelligence tools and solutions.

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Terrogeance employs skilled intelligence collection professionals, all possessing an extensive background in the field of intelligence collection. As all of our information is collected and indexed in its original language, all collectors are multi-lingual and have a profound understanding of the various web-platforms, alongside focused data collection methodologies. Our collection teams support intelligence collection in many languages, including Arabic, Farsi, Urdu, Turkish, French, Spanish, Portuguese, Russian, Hebrew and English.

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Driven by an unconditional culture of excellence, rooted in the appreciation of the sensitive and consequential nature of our products, Terrogeance researchers are all highly trained, experienced professionals with extensive backgrounds in the various disciplines of intelligence analysis and research. Fusing hundreds of intelligence items into coherent conclusions and reports, the analysis and research department consistently provides our



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customers with reliable and relevant intelligence.

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In order to generate focused analysis and assessments, Terrogeance employs subject matter experts in various fields, some of which are:

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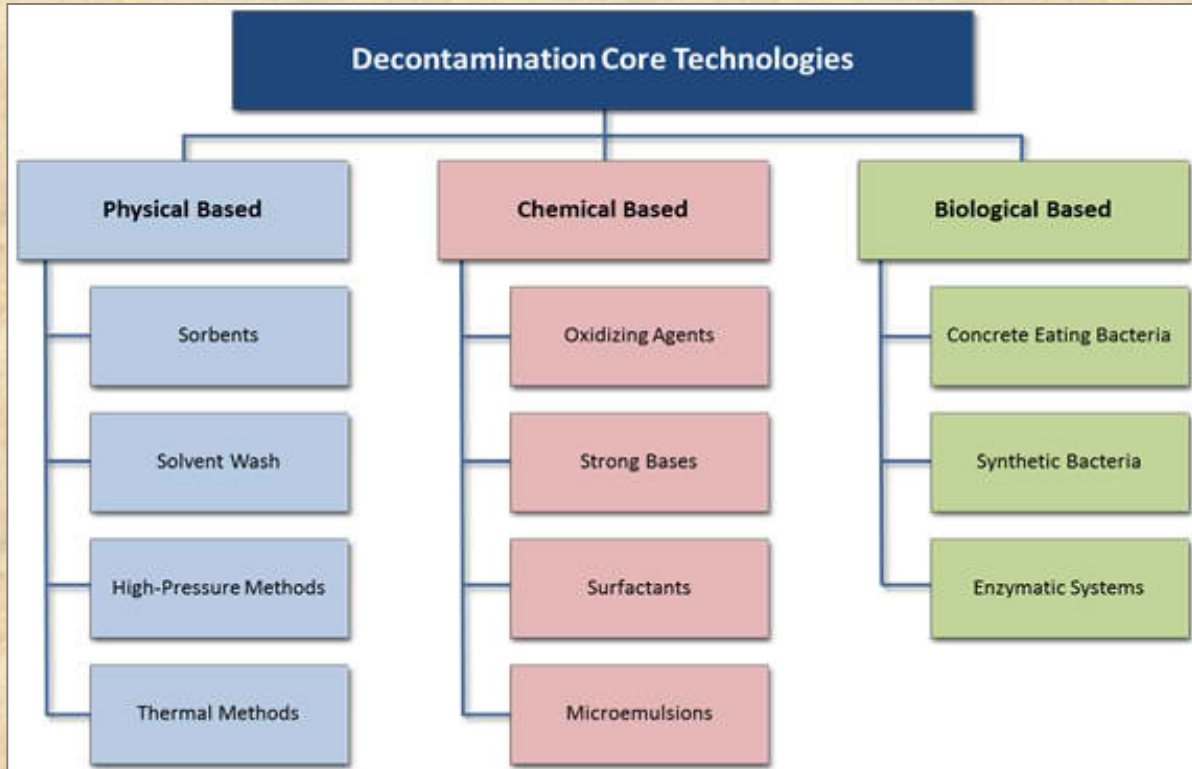
AVON PROTECTION



CBRN & HAZMAT Incidents Decontamination: Technologies and Global Market – 2012 Edition

Source:http://www.homelandsecurityresearch.com/2012/04/cbrn-hazmat-incidents-decontamination-technologies-and-global-market-2012-dition/?utm_source=rss&utm_medium=rss&utm_campaign=cbrn-hazmat-incidents-decontamination-technologies-and-global-market-2012-edition

Decontamination Core Technologies



The threat of CBRN terrorism and HAZMAT incidences was demonstrated by the Fukushima 3/11 reactors meltdown, which left nearly 8% of the Japanese mainland contaminated and is expected to cost more than \$40 billion to decontaminate.

Global public outcry drove governments to impose strict safety regulations and accident recovery funding, which will raise the market for decontamination equipment and materials.

HSRC forecasts that the global market for CBRN terror & Hazmat decontamination systems and equipment maintenance will reach \$5.4 billion by 2016.

Our new market report is the most comprehensive review of the multibillion global decontamination market available today.

The report reveals more than twenty business opportunities, created, on the one hand, by the increasing recognition of the threat presented by HAZMAT accidents and CBRN terrorism, and on the other hand, by a growing environmental consciousness that is impacting public and political attitudes. Meeting both of these challenges has sparked a host of new, pipeline technologies and opportunities that have the decontamination markets poised for considerable growth. Following the accident at the Fukushima nuclear power plants and the BP oil spill in the Gulf of Mexico (total liability could amount to as much as US \$100 Billion), new governmental legislation and federal funding of post CBRN attack and accidents are only three of the many factors driving the decontamination equipment and reagents market growth.

The report, segmented into **30 submarkets**, offers for each submarket 2010 and 2011 data, funding and market size, as well as 2012-2016 forecasts and analysis. In 245 pages and 114 tables and figures, the report analyses and projects the 2012-2016 market and technologies from several perspectives, including:



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- **Market and technology forecast by modality:** e.g., people decontamination, facility decontamination, indoor , outdoor decontamination and other decontamination equipment
- **Regional markets:** e.g., USA, UK, Germany, France, Italy, Spain, China, Taiwan, Japan, India, Middle East
- **Equipment sales and post warranty service & upgrade business**
- **Guidelines for decontamination equipment procurement**
- **Product comparison tables** - hundreds of decontamination products including pricing and performance information
- **Competitive environment:** 90 vendors and their products
- **Business environment:** e.g., competitive analysis, SWOT analysis
- **Current and pipeline decontamination technologies**
- **Business opportunities and challenges**

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Naturally occurring enzyme to defend against chemical terrorism

Source: <http://www.homelandsecuritynewswire.com/dr20120420-naturally-occurring-enzyme-to-defend-against-chemical-terrorism>

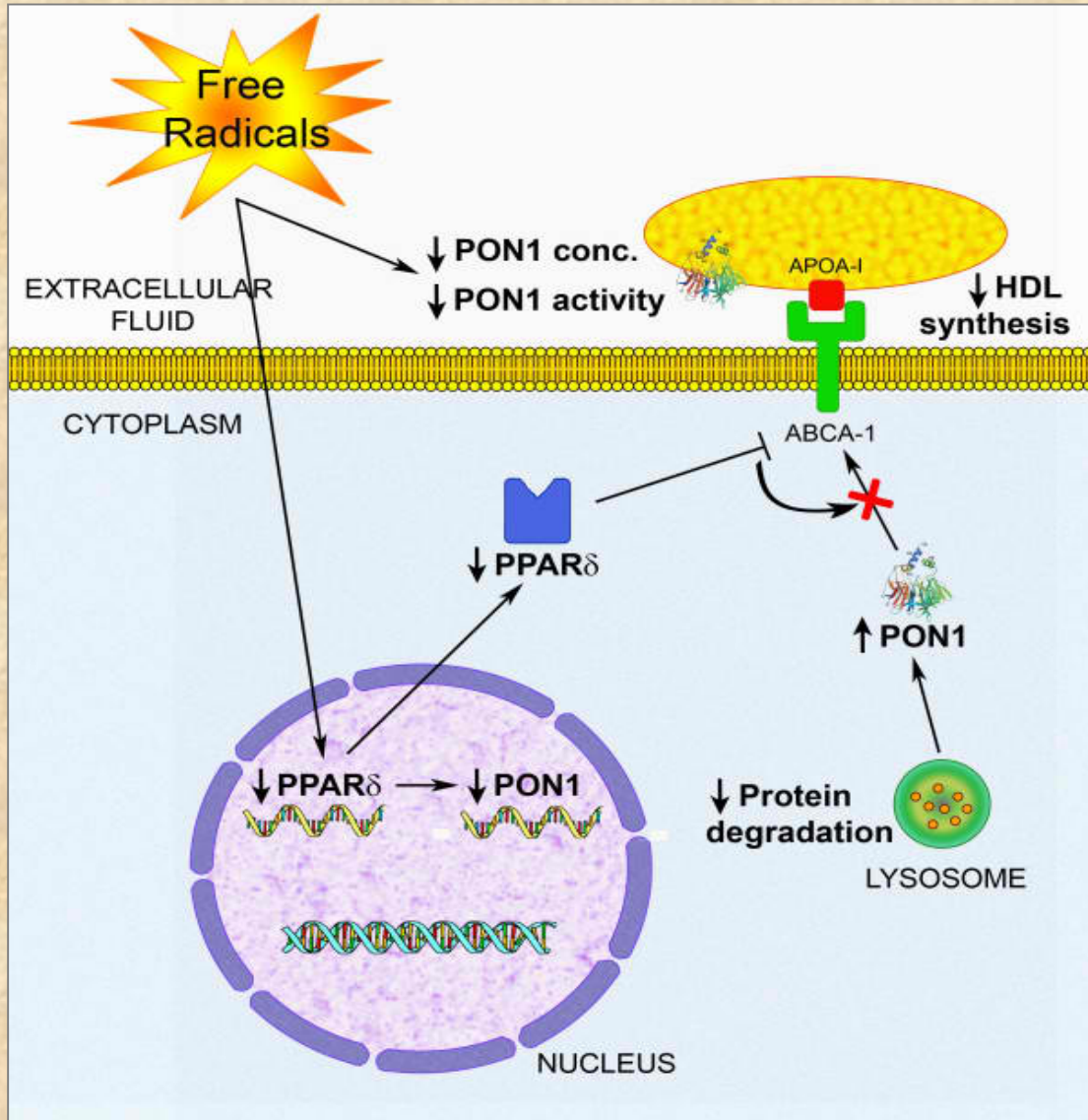
Today, protection against nerve agents relies primarily on physical barriers such as gas masks and protective suits that can easily be

breached; following exposure, people are treated with drugs that help with the symptoms but do not eliminate the nerve agent; researchers hope to change this, relying on the principles of evolution to produce a more efficient version of an enzyme that occurs naturally in all of us

Researchers may have found a way to protect people against otherwise deadly chemical attacks, such as the subway sarin terrorist attack in Tokyo that left thirteen people dead and thousands more injured or with temporary vision problems. The method is based on a new and improved version of

a detoxifying enzyme produced naturally by our livers, according to the report in the April 2012 issue of *Chemistry & Biology*, a Cell Press publication.

“The sarin attack in Tokyo in 1995 demonstrated that both the raw materials and know-how of producing deadly nerve agents are available to people outside government or military institutions,” said Moshe Goldsmith of the Weizmann Institute of Science in Israel. “We hope that our work would provide a



prophylactic drug that will effectively protect the medical, police, and other teams that will have to act in a contaminated area following such an attack and would also provide these teams with a drug that could be administered on-site to intoxicated individuals to greatly improve their chances of survival.”

A Cell press release quotes Goldsmith to say that today, protection against nerve agents relies primarily on physical barriers such as gas masks and protective suits that can easily be breached. Following exposure, people are treated with



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drugs that help with the symptoms but do not eliminate the nerve agent.

Goldsmith and the study's senior author Dan Tawfik hope to change this, relying on the principles of evolution to produce a more efficient version of an enzyme that occurs naturally in all of us.

Known as **paraoxonase 1 (PON1)**, this enzyme was originally named for its ability to assist in the breakdown of the insecticide paraoxon. It is also involved in drug metabolism and detoxification.

PON1 normally does counteract G-type nerve agents, including sarin, tabun, soman, and cyclosarin, but not well enough. Tawfik's lab specializes in a technique called "directed enzyme evolution," in which they artificially introduce mutations into the gene encoding a target enzyme, in this case PON1. The mutated versions of the gene are then put back into bacteria, which produce the enzymes for testing. The goal was to end up with enzymes capable of detoxifying G-type nerve agents before those nerve agents could reach their

target and cause harm. Those that passed the initial test went on to further rounds of evolution and testing.

After four rounds of evolution, the researchers obtained PON1 variants that worked up to 340 times better than those produced previously. Overall, the researchers reported that the PON1 variants showed 40- to 3,400-fold higher efficiency than the normal enzyme in metabolizing the three most toxic G-type nerve agents.

The release notes that these new and improved PON1 enzymes have become promising candidates for use as preventive and postexposure treatments in the event of a terrorist attack.

"We hope that our enzymes would be able to act together with currently available drugs to improve survival rates following intoxication," Goldsmith said. More broadly, the findings show the power of laboratory evolution to completely reshape existing enzymes for a variety of uses.

— *Read more in Moshe Goldsmith et al., "Evolved Stereoselective Hydrolases for Broad-Spectrum G-Type Nerve Agent Detoxification," [Chemistry & Biology](#) 19, no. 4 (20 April 2012): 456-66*

Summary

A preferred strategy for preventing nerve agents intoxication is catalytic scavenging by enzymes that hydrolyze them before they reach their targets. Using directed evolution, we simultaneously enhanced the activity of a previously described serum paraoxonase 1 (PON1) variant for hydrolysis of the toxic S_P isomers of the most threatening G-type nerve agents. The evolved variants show ≤ 340 -fold increased rates and catalytic efficiencies of $0.2\text{-}5 \times 10^7 \text{ M}^{-1} \text{ min}^{-1}$. Our selection for prevention of acetylcholinesterase inhibition also resulted in the complete reversion of PON1's stereospecificity, from an enantiomeric ratio (E) $< 6.3 \times 10^{-4}$ in favor of the R_P isomer of a cyclosarin analog in wild-type PON1, to E $> 2,500$ for the S_P isomer in an evolved variant. Given their ability to hydrolyze G-agents, these evolved variants may serve as broad-range G-agent prophylactics.

