Chemical and Biological News

NATIONAL AND INTERNATIONAL DEVELOPMENTS

23% of COVID-19 Casualties in Bhopal are Bhopal Gas Tragedy Survivors

Vivek Trivedi | 2 June 2021

Dr Ravi Shankar Verma, the Chief Medical Officer of Gas Relief recently told the media that out of 933 Covid-19 related deaths, 218 were 1984 victims which account for 23% of the Covid-19 deaths.

The survivors' organisations are flagging the issue for a long and also wrote to various authorities for urgent measures since last year. Besides the deplorable conditions of the assigned medical facilities and equipment, these organisations are also accusing the administration of under-reporting the figures among the 1984 victims.

OPCW Releases Second Report by Investigation and Identification Team

OPCW | THE HAGUE, Netherlands–5 February 2021

The IIT is responsible for identifying the perpetrators of the use of chemical weapons in the Syrian Arab Republic where the OPCW Fact-Finding Mission (FFM) has determined that chemical weapons have been used or likely used in Syria. The IIT released its first report on 8 April 2020.

The IIT's second report reiterates its mandate, the legal and practical challenges of its work, and the findings of the investigation focusing on the incident in Saraqib, Syrian Arab Republic, on 4 February 2018. The IIT's investigation and analysis included a comprehensive review of all the information obtained including: interviews with persons who were present in the relevant places at the time of the incidents, analysis of samples and remnants collected at the sites of the incidents, review of the symptomatology reported by casualties and medical staff, examination of imagery, including satellite images, and extensive consultation of experts. The IIT also obtained topographic analysis of the area in question and gas dispersion modelling to corroborate accounts from witnesses and victims. The investigation relied on relevant FFM report as well as on samples and other material obtained by the Technical Secretariat.

The report reached the conclusion that there are reasonable grounds to believe that, at approximately 21:22 on 4 February 2018, a military helicopter of the Syrian Arab Air Force under the control of the Tiger Forces hit eastern Saraqib by dropping at least one cylinder. The cylinder ruptured and released chlorine over a large area, affecting 12 named individuals.

Scientists adapt solar energy technology to detect chemical warfare agents & pesticides

ARC Centre of Excellence in Exciton Science | 3 March 2021

In a colourful solution to a dangerous problem, Australian scientists are adapting a component from cutting-edge solar cells to design a rapid, light-based detection system for deadly toxins.

While use of chemical warfare agents like sulfur mustard (aka mustard gas) - is banned internationally, we do rely on other strictly-controlled chemicals for agriculture,

industry and throughout our daily lives, including fumigants like methyl iodide, which is used to control insects and fungi. The wrong amounts or incorrect use of these fumigants can be harmful to people and degrade the ozone layer.

Because it's invisible and doesn't smell, it's hard to tell whether there are dangerous amounts of methyl iodide present, and until now the best way to test for it was in a laboratory using expensive, complicated equipment, which isn't practical in many real-world settings. Some cheaper, lightweight detection methods have been tried, but they didn't have enough sensitivity and took too long to deliver results.

Now, research led by the ARC Centre of Excellence in Exciton Science has found a way to detect methyl iodide through changes in colour, with - for the first time - the accuracy, flexibility and speed necessary for practical use. Importantly, this new sensing mechanism is versatile enough for use in detecting a wide range of fumigants and chemical warfare agents.

Working with Australia's national science agency CSIRO and the Department of Defence, the researchers borrowed some new technology that's being used to improve solar power - synthetic nanocrystals based on a perovskite structure - and turned it into a detection method.

Their approach relies on the fact that these highly fluorescent nanocrystals react with the fumigant causing a change in the colour of the light they emit. The presence of methyl iodide causes the nanocrystal emission to shift from green to yellow, and then on to orange, red, and finally deep red, depending on the amount of fumigant present.

The new mechanism has the widest range, highest sensitivity and quickest response ever achieved for a technique that doesn't rely on expensive laboratory instrumentation, producing its results in around five seconds at room temperature.

The researchers now hope their findings will provide a platform for building a test device that can be used in real-world applications.

Enemies 'could create new Covid as weapon': Former colonel issues bleak warning over threat of biological warfare

Mark Nicol | 15 March 2021

Action must be taken now to protect against a Covid-type virus being used as a weapon to cause another deadly pandemic, a leading expert warned last night.

Colonel Hamish de Bretton-Gordon urged the Government to prioritise biosecurity in its Integrated Review of defence and foreign policy, which will be published tomorrow.

The former commander of the military's Chemical, Biological, Radiological and Nuclear (CBRN) Regiment said he was 'concerned' the threat of a man-made pandemic deliberately being imported into the UK, either by an enemy state or a terrorist organisation, would be overlooked.

While COVID-19 may not have been conceived as a weapon, the spread of this deadly virus has provided a template for terrorists, as well as Russia and China, for how effective a biological weapon could be.

Chemical warfare detection tech used in device to make bakeries safer

George Nott | 30 March 2021

Technology developed for the military to detect chemical attacks is being pitched at the bakery industry to avoid diseases like white lung, caused by breathing in flour dust.

Suffolk firm Arosa Instruments has developed wearable monitors for use by bakery workers, which use air sampling tech developed by the Defence Science and Technology Laboratory and the University of Hertfordshire.

White lung, known as baker's asthma, is a serious health and safety risk facing the sector. Latest data from the Health and Safety Executive estimates 17,000 new cases of self-reported "breathing or lung problems" caused or made worse by work each year.

INTERNATIONAL COOPERATION

First Responders from Latin America and the Caribbean Develop Use of Chemical Emergency Management Tools

OPCW | THE HAGUE, Netherlands–5 February 2021

Emergency first responders from Latin America and the Caribbean (GRULAC) participated in a workshop to learn the full potential of two important tools for managing chemical emergencies – the Wireless Information System for Emergency Responders (WISER) and the Emergency Response Guidebook (ERG). The Organisation for the Prohibition of Chemical Weapons (OPCW) conducted the online training from 1 to 5 February with the support of instructors from Peru and Spain.

For handling emergencies involving hazardous chemicals, the participants explored the assistance the WISER and ERG systems offer such as substance identification, use of human health information, and containment and suppression methods. The online workshop also covered: personal protection against chemical warfare agents and toxic industrial chemicals, contaminant dispersion in the environment, as well as the set up and delimitation of safety and security zones.

The 46 participants came from a variety of civilian and military response backgrounds, including civil defence, hazmat equipped firefighters, and CBRN military units. They represented the following 15 OPCW Member States: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominica, the Dominican Republic, Ecuador, Guatemala, Nicaragua, Panama, Paraguay, Peru, and Uruguay.

DISARMAMENT

'Limited' progress in closing Syria chemical weapons file, UN Disarmament Chief tells Security Council

UN | 4 March 2021

Seven years after the Security Council mandated the destruction of Syria's chemical weapons programme, there have been only "limited developments" in the implementation of resolution 2118, passed unanimously in 2013 to bring the country into compliance with its global obligations.

Analysis of all the information and other materials gathered by the Declaration Assessment Team since 2014 indicates that production and/or weaponization of chemical warfare nerve agents did, in fact, take place at this facility.

Syria has yet to respond to OPCW's request that it declare the exact types and quantities of chemical agents produced and/or weaponized at this site.

The country also needs to provide sufficient technical information or explanations that

would enable the OPCW Technical Secretariat to close the issue related to the finding of a Schedule 2 chemical detected at the Research Centre's Barzah facilities during the third round of inspections in 2018.

The OPCW Fact-Finding Mission, meanwhile, is studying all available information related to the alleged use of chemical weapons in Syria, engaging with Syrian authorities and other States Parties to the Chemical Weapons Convention on a "variety of incidents"

The Investigation and Identification Team likewise continues its research into incidents in which the Fact-Finding Mission has determined that chemical weapons were used or likely used and issue reports in due course.