



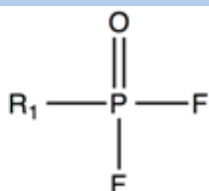
The OPCW Science & Technology Monitor

A sampling of Science & Technology
relevant to the Chemical Weapons Convention

12 September 2014

Volume 1, Number 2

Featured Content:



R¹ = Me, Et, n-Pr, i-Pr
eg DF

[Schedule 1 chemical claimed in battery design patent](#)



Photo courtesy of OPCW Laboratory

Special section on Raman Spectroscopy

Science Fun:

From beer to wasp venom, the [chemistry of everyday things explained](#) in infographics

[The chemistry of caffeine](#) (video)

Welcome

Welcome to our second issue of *The OPCW Science and Technology Monitor*, an occasional bulletin to provide updates on developments in science and technology across a broad spectrum of topics relevant to the CWC.

In this issue:

[Scheduled Chemicals](#)

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[The Convergence of Chemistry and Biology](#)

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Scheduled Chemicals

How to use Schedule 1B(9) chemicals to build improved lithium-ion batteries. Read the [abstract](#) (in English) and see the [patent application](#) (in Chinese).

Marine organism biosynthesises Schedule 2B(4) chemical ([methylphosphonic acid](#)), bringing methane to the deep ocean.

Building a biosensor for organophosphorus chemicals using [acetylcholinesterase and carbon nanotubes](#).

A new hybrid catalytic membrane for the destruction of a chemical warfare stimulant. Read about it [here](#).

A new sensitive [colourimetric test](#) for organophosphorus compounds. Click [here](#) for the original paper.

Raman Spectroscopy

If you shine light on a molecule most of the energy is scattered with the same energy that you put in. The Raman effect describes when light interacts with the molecule and the light is consequently scattered back at a different energy. This effect is named after the Indian scientist Sir C.V. Raman, one of its discoverers, for which he shared the Nobel prize for Physics in 1930.

Today Raman spectroscopy uses the Raman effect as a method to provide information about chemicals. It is one of the analytical techniques available to OPCW inspectors (as indicated in the bottom box in [this article](#)).

Some [Recent developments](#) in Raman scattering for the

[A real-life tricorder](#) - the 10 finalists

Tired of being recorded by strangers? [A cure for Google glass...](#)

Upcoming S&T Related Events:

24 - 25 September
4th meeting of the TWG on Education and Outreach

29 September - 1 October
4th meeting of the TWG on Verification

6-9 October
[Spiez CONVERGENCE 2014 workshop](#)

10 October
Science for Diplomats (2) - Biomedical Sample Analysis (side event at EC-77)

13:30-15:00, Ooms Room

Contact:

For questions, comments, suggestions, contributions, further information or to be added to the mailing list, please contact the [Science Policy Adviser](#) in the Office of Strategy and Policy

detection of chemical warfare agents.

Handheld Raman device to assist brain tumour removal. Read a press release [here](#), for the original research paper click [here](#).

Identifying explosives or fertilizers from up to a kilometre away. Read a press release [here](#), for the original research paper click [here](#).

A related laser technology uses IR light to measure blood sugar and could signal the end of pin-pricks for diabetics. Read a press release [here](#), for the original research paper click [here](#).

The Convergence of Chemistry and Biology

Taking the bio out of biosynthesis: peptide synthesis for the masses. Read a synopsis [here](#), for the original research paper click [here](#).

Metabolically engineering organisms to produce chemicals requires an understanding of metabolomics. Read about the successes and potential for the field in this [review article](#).

The latest issue of [Biotechnology Advances](#) is dedicated to the role of plants in developing new pharmaceuticals.

Chemical analysis methods applied to the detection of malaria. A new method shows promise in making detection easier, more portable, and more accurate. Read a synopsis [here](#) (original research paper [here](#)).

Science Policy

The first global summit on Science Advice to Governments was held in Auckland, New Zealand from 28-29 August. Over 200 experts and officials participated, with 4 million virtual participants! The conference discussed science advice for dealing with crises, science advice in the context of opposing political positions, science and diplomacy, capacity building, and more. More information on the conference can be found [here](#) and additional background resources [here](#). We provide some additional highlights:

Briefing Paper

[Science Advice to Governments: Diverse systems, common challenges](#)

Presentations

[SciAdvice14 SlideShare site](#)

And from the most recent meeting of the International Council for Science here is a paper on [Freedom, Responsibility and Universality of Science](#).

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