



**NOTE BY THE DIRECTOR-GENERAL**

**REQUEST FOR INFORMATION FROM STATES PARTIES  
ON NEW TYPES OF NERVE AGENTS**

1. In view of the findings of the March 2018 technical assistance visit requested by the United Kingdom of Great Britain and Northern Ireland (TAV/02/18),<sup>1</sup> the Director-General has tasked the Scientific Advisory Board (SAB) with providing advice on toxic chemicals that have been identified as, or are suspected of being, new types of nerve agents. The SAB is currently working on this request and intends to issue a report and brief States Parties before the Eighty-Eighth Session of the Executive Council. The full text of the request is contained in the Annex to this Note.
2. The Director-General requests States Parties in a position to do so to make available, by the end of May 2018, any information that could assist the SAB in its work.
3. States Parties possessing relevant information that can be provided to the SAB are requested to contact the SAB Secretary ([scitech@opcw.org](mailto:scitech@opcw.org)).

Annex: Director-General's Request to the Scientific Advisory Board to Provide Advice on New Types of Nerve Agents

---

<sup>1</sup> S/1612/2018, dated 12 April 2018.



**Annex****DIRECTOR-GENERAL'S REQUEST TO THE SCIENTIFIC ADVISORY BOARD  
TO PROVIDE ADVICE ON NEW TYPES OF NERVE AGENTS**

1. Recent events involving the use of nerve agents against individuals in Malaysia and the United Kingdom of Great Britain and Northern Ireland have drawn considerable attention internationally, including in the scientific community. While the Malaysia incident involved a well-known V-series nerve agent, the incident in the United Kingdom involved a highly toxic nerve agent with a structure that has appeared in open literature but has never been declared under the Chemical Weapons Convention. For the chemical identified in the United Kingdom incident, no information has been reported in peer-reviewed scientific literature.
2. The possibility that new types of nerve agents have been developed as weapons has been a topic of discussion for many years among experts outside the OPCW.<sup>1</sup> The toxic chemicals discussed have included organophosphorus structures that would fall under schedule 2B.04 of the Convention's Annex on Chemicals, as well as related organophosphorus structures that would not belong to any of the current schedules. The chemical identified from the United Kingdom incident is not included in the current schedules. As a result of the incident in the United Kingdom, articles are now appearing in scientific society membership publications<sup>2</sup> and journals<sup>3</sup> speculating on the structure and properties of the chemical used and other related chemicals that might have been developed as nerve agents. These publications have broad international distribution.
3. Given the potential relevance of new types of toxic chemicals to the Convention and with a view to preventing the re-emergence of chemical weapons, a clear, factual basis will be needed for future discussions. Information is necessary as background for consideration by States Parties of possible measures to address the potential threat of hostile use of such chemicals.

---

<sup>1</sup> See paragraphs 11.1 to 11.3 of the report of the Scientific Advisory Board at its Sixteenth Session (SAB-16/1, dated 6 April 2011); [www.opcw.org/fileadmin/OPCW/SAB/en/sab-16-01\\_e\\_.pdf](http://www.opcw.org/fileadmin/OPCW/SAB/en/sab-16-01_e_.pdf).

<sup>2</sup> See for example (a) American Association for the Advancement of Science: R. Stone; *Science*; 2018, published online 10.1126/science.aat6324; <http://www.sciencemag.org/news/2018/03/uk-attack-shines-spotlight-deadly-nerve-agent-developed-soviet-scientists>. (b) American Chemical Society: M. Peplow, *Chem. Eng. News*; 2018, 96(12), 3; <https://cen.acs.org/articles/96/i12/Nerve-agent-attack-on-spy-used-Novichok-poison.html>. (c) The Royal Society of Chemistry: E. Stoye; *Chemistry World*, 13 March 2018; <https://www.chemistryworld.com/news/russian-novichok-nerve-agent-linked-to-attack-on-ex-spy/3008773.article>. (d) The University of Melbourne: G. Braitberg; *Pursuit*, 19 March 2018; <https://pursuit.unimelb.edu.au/articles/the-science-behind-novichok>. (e) German Chemical Society: D. Wörhle; *Chem. Unserer Zeit.*; 2018, 52, 71; <https://onlinelibrary.wiley.com/doi/abs/10.1002/ciuz.201870202#>.

<sup>3</sup> For example: S. Costanzi, J.-H. Machado, M. Mitchell; *ACS Chem. Neurosci.*, 2018, Just Accepted Manuscript. DOI: 10.1021/acchemneuro.8b00148.

4. In view of the above, the Director-General requests the Scientific Advisory Board (SAB) to:
- (a) review the open literature, in particular scientific and patent literature, taking guidance from proceedings of the SAB's Sixteenth Session, and compile a list of chemical structures that have been suggested as next generation toxic chemicals capable of acting as nerve agents that may be related to the chemical identified in the incident in the United Kingdom;
  - (b) review patents and peer-reviewed scientific publications, to determine whether any chemicals that meet the identified structural characteristics have been reported and synthesised (regardless of whether or not they are identified as a chemical warfare agent);
  - (c) summarise any credible scientific information related to the identified chemical structures, their precursors, and/or degradation products, chemical properties, and toxicity;
  - (d) provide any available information on analytical and detection methods, on protective measures (including medical countermeasures, treatment of exposure, and decontamination), environmental fate, and any unique aspects in regard to synthesis and handling;
  - (e) assess the types of applications that these chemicals may have, based on what is reported in scientific and patent literature;
  - (f) provide an assessment of the relevance of the identified chemicals to the Convention, including the Board's considerations on the availability of materials necessary for production and other technical factors relevant to prevention of further use and how to mitigate such risks;
  - (g) indicate whether any of the chemicals and their precursors identified in scientific literature would fall under any schedule in the Convention's Annex on Chemicals;
  - (h) indicate whether data from any of the chemicals identified in scientific literature is contained in the OPCW Central Analytical Database or the NIST<sup>4</sup> Research Library; and
  - (i) identify gaps in knowledge about the chemicals identified.
5. Based on the findings of the literature review, the Director-General requests the SAB to consider the chemicals that were identified and to:
- (a) prepare a report summarising its findings; and
  - (b) be prepared to brief States Parties on the report.

---

<sup>4</sup>

NIST = National Institute of Standards and Technology.