



S/1436/2016
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NOTE BY THE TECHNICAL SECRETARIAT**SURVEY ON BIOMEDIATED PROCESSES**

1. Paragraph 1¹ of Part IX of the Verification Annex to the Chemical Weapons Convention (hereinafter “the Verification Annex”) requires declarations of other chemical production facilities (OCPFs) that produce by synthesis unscheduled discrete organic chemicals² over specified thresholds. The issue is whether the term “production by synthesis” includes biomediated processes.³ For scheduled chemicals, the Conference of the States Parties (hereinafter “the Conference”) at its Second Session decided to include these processes in the definition of “production” (C-II/DEC.6, dated 5 December 1997). For unscheduled discrete organic chemicals (DOCs), the Conference at its Third Session referred the issue to the Scientific Advisory Board (SAB), in accordance with decision C-III/DEC.5 (dated 19 November 1998).
2. Having been asked recently to reconsider the issue, which has been pending for more than 10 years, the SAB endorsed its recommendation made at its Nineteenth Session, namely that “any process designed for the formation of a chemical substance should be covered by the term ‘produced by synthesis’” (SAB-19/1, dated 12 September 2012 and RC-3/DG.1, dated 29 October 2012).
3. With a view to assessing the impact of the implementation of the aforementioned definition on the verification regime, as set out in Part IX of the Verification Annex, and with the aim of informing discussions among States Parties on the issue of the definition of “production by synthesis”, the Technical Secretariat (hereinafter “the Secretariat”) proposes to conduct a survey. The objectives of the survey are to

¹ “The initial declaration to be provided by each State Party pursuant to Article VI, paragraph 7, shall include a list of all plant sites that:

- (a) Produced by synthesis during the previous calendar year more than 200 tonnes of unscheduled discrete organic chemicals; or
- (b) Comprise one or more plants which produced by synthesis during the previous calendar year more than 30 tonnes of an unscheduled discrete organic chemical containing the elements phosphorus, sulfur or fluorine (hereinafter referred to as ‘PSF-plants’ and ‘PSF-chemical’).”

² In accordance with paragraph 4 of Part I of the Verification Annex “‘Discrete Organic Chemical’ means any chemical belonging to the class of chemical compounds consisting of all compounds of carbon except for its oxides, sulfides and metal carbonates, identifiable by chemical name, by structural formula, if known, and by Chemical Abstracts Service registry number, if assigned.”

³ The term “biomediated processes” in this document refers to biochemical and biologically mediated processes.



evaluate the number of additional sites that could become declarable and to assess the relevance to the Chemical Weapons Convention of facilities that would become declarable, if the aforementioned definition were to be implemented without exemptions.

4. Consequently, the Secretariat invites States Parties to complete Annex 1 to this Note. In order to help States Parties to do so, a questionnaire that can be disseminated to chemical companies and/or associations has also been prepared and is presented in Annex 2,⁴ aimed at establishing structured questions to support States Parties in the gathering of information. States Parties willing to provide additional relevant information about the characteristics of the biomediated processes in the chemical industry within their territory may provide such information as an attachment to the survey.
5. The completed form (Annex 1) should be submitted to the Secretariat via the respective State Party's National Authority or Permanent Representation to the OPCW, no later than 31 May 2017. Submissions should be addressed to the Head, Industry Verification Branch, Verification Division, OPCW, Johan de Wittlaan 32, 2517 JR The Hague, the Netherlands. Submissions may also be sent by email to ivb@opcw.org with the words "Survey – Production of Discrete Organic Chemicals via Biomediated Processes" indicated in the subject line.
6. Queries about the survey, if any, should be addressed to Ms Barbara Hedler, Senior Industry Officer, who can be reached by telephone at +31 (0)70 416 3670 or by email at ivb@opcw.org.
7. The Secretariat would be most grateful to the States Parties for their attention to this matter and cooperation in this task.

Annex 1: Information Form to be Completed by States Parties and Returned to the Technical Secretariat

Annex 2: Questionnaire to be Disseminated to Chemical Industry Companies and/or Associations

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Annex 2 was developed taking into account suggestions submitted by States Parties.

Annex 1

**PRODUCTION OF DISCRETE ORGANIC CHEMICALS
VIA BIOMEDIATED PROCESSES**

Information Form to be Completed by States Parties and Returned to the Technical Secretariat

State Party:	
General questions	
As a general policy, does your State Party already declare plant sites producing DOCs, ⁵ regardless of the type of process (i.e. does your State Party currently declare facilities that produce chemicals by biomediated processes)? ⁶	<input type="checkbox"/> Yes <input type="checkbox"/> No (Please elaborate)
Please specify what would define a chemical production process as biomediated production in your State Party. Please include all relevant processes that would fall under the definition.	
Please describe the actions taken to conduct this survey in your State Party (e.g. dissemination of Annex 2 directly to companies or through chemical industry associations; compilation of responses; query from existing databases, etc.)	
Specific questions	
How many additional OCPFs ⁷ would your State Party declare if you consider biomediated processes to be covered by the term “produced by synthesis”?	
If your State Party were to declare additional OCPFs, what class of chemicals would they be producing? Please split the total number across these categories: <ol style="list-style-type: none"> 1. Agrochemicals 2. Biofuels 3. Pharmaceuticals 4. Speciality and fine chemicals (please specify) 5. Other (please specify) 	

⁵ DOC = discrete organic chemical.

⁶ The term “biomediated processes” in this document refers to biochemical and biologically mediated processes.

⁷ OCPF = other chemical production facility.

<p>For the additional OCPFs, if any, indicated in the question above, what is the intended use(s) of the chemicals? Please split the total number across these categories:</p> <ol style="list-style-type: none"> 1. Human consumption as food and beverage 2. Ethanol for use as a biofuel 3. Ethanol for other purposes (please specify) 4. Other (please specify) 	
<p>For the additional OCPFs, if any, indicated in the questions above, what production processes are used? Please list each relevant production process and the number of OCPFs employing them (e.g. if you indicated 20 additional OCPFs, where 10 of these OCPFs produced chemicals by fermentation, you would indicate “fermentation: 10”, and similarly classify other biomediated processes with the number of associated OCPFs).</p>	
<p>For the additional OCPFs, if any, please specify the number of plant sites which fulfil the following characteristics:</p> <ol style="list-style-type: none"> 1. Configuration: dedicated, multipurpose or both: <ol style="list-style-type: none"> (a) All dedicated (b) All multipurpose (c) Both dedicated and multipurpose 2. Configuration: batch, continuous or both: <ol style="list-style-type: none"> (a) All batch (b) All continuous (c) Both batch and continuous 	
<p>For the additional OCPFs, if any, please specify the material of construction used in the bioreactors and/or main equipment:</p> <ol style="list-style-type: none"> 1. Corrosion resistant alloys 2. Glass 3. Glass-lined 4. Stainless steel 5. Titanium 6. Other (please specify) 	

Annex 2

**PRODUCTION OF DISCRETE ORGANIC CHEMICALS
VIA BIOMEDIATED PROCESSES**

Questionnaire to be Disseminated to Chemical Companies and/or Associations

Objective 1: Evaluate the number of additional declarable OCPFs,⁸ if biomediated chemical synthesis is considered for the production of DOCs.⁹ Strive for a consistent approach in declaring OCPFs within States Parties.

Objective 2: Evaluate the relevance to the Chemical Weapons Convention of the additional OCPF plant sites.

Plant site name (data for the State Party only)¹⁰	
General questions	
1. Is the plant site already declared under the Convention?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Does the plant site produce DOCs via biomediated processes? ¹¹	<input type="checkbox"/> Yes <input type="checkbox"/> No
If the answer to question (2) is "yes":	
3. Does the plant site produce, via biomediated processes:	
(a) DOCs in quantities above 200 tonnes/year?	<input type="checkbox"/> Yes <input type="checkbox"/> No
(b) A PSF ¹² chemical in quantities above 30 tonnes/year?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Specific questions¹³	
If you have answered "yes" for (2) or (3), please complete the following questions:	
Please specify what would be considered a biomediated production process on your plant site.	
What type of chemicals does your plant site produce? Please indicate all that apply from this list:	

⁸ OCPF = other chemical production facility.

⁹ DOC = discrete organic chemical.

¹⁰ Please complete one form for each plant site operated by your company within your territory.

¹¹ The term "biomediated processes" in this document refers to biochemical and biologically mediated processes.

¹² PSF = phosphorus, sulfur, or fluorine.

¹³ Questionnaire to be completed only if the plant site or company produces DOCs via biomediated processes.

<ol style="list-style-type: none"> 1. Agrochemicals 2. Biofuels 3. Pharmaceuticals 4. Speciality and fine chemicals (please specify) 5. Other (please specify) 	
<p>What is/are the intended use(s) of the chemicals produced at the plant site?</p> <ol style="list-style-type: none"> 1. Human consumption as food and beverage 2. Ethanol for use as a biofuel 3. Ethanol for other purposes (please specify) 4. Other (please specify) 	
<p>What are the biomediated production processes used at the plant site?</p>	
<p>For your plant site, please specify the main characteristics of the biomediated processes:</p> <ol style="list-style-type: none"> 1. Configuration: dedicated, multipurpose, or both: <ol style="list-style-type: none"> (a) All dedicated (b) All multipurpose (c) Both dedicated and multipurpose 2. Configuration: batch, continuous, or both: <ol style="list-style-type: none"> (a) All batch (b) All continuous (c) Both batch and continuous 	
<p>For your plant site, please specify the construction material used in the bioreactors and/or main equipment:</p> <ol style="list-style-type: none"> 1. Corrosion resistant alloys 2. Glass 3. Glass-lined 4. Stainless steel 5. Titanium 6. Other (please specify) 	