

**EFFECTIVE IMPLEMENTATION
OF THE
CHEMICAL WEAPONS CONVENTION**

Industrial Declarations and the CWC

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One of the major aims of the Chemical Weapons Convention (CWC) is the prevention of the production of chemicals for chemical weapons (CW) production. This is not an easy task given that the definition of a chemical weapon is complex and based on the 'general purpose criterion' which means that a toxic chemical is only a weapon when it is intended for use as a weapon. This bedevils their control since it is possible to divert legal production into illicit use. The control strategy developed under CWC requires that the production and use of chemicals that could present a danger to the convention be monitored but that the system used does not unduly hamper the legitimate use of these chemicals.

The eventual system developed divides chemicals into three schedules essentially based on the risk certain chemicals pose to the CWC and that the risks posed by other chemical production facilities be dealt with under 'Discrete Organic Chemicals' with those containing Phosphorus, Sulfur or Fluorine, 'PSF' being separated out for special scrutiny.

The CWC has envisaged a two level system: - international control by the Organization for the Prohibition of Chemical Weapons (OPWC) and national control by a National Authority (NA) representing a State Party. The State Party will demonstrate compliance with the CWC by presenting declarations on:

- Schedule 1;
- Schedule 2;
- Schedule 3; and
- Discrete Organic Chemicals (DOCs)

As required by the Verification Annex of the CWC, the OPWC through the Technical Secretariat (TS) will, by routine inspections and examination of the data supplied, determine that a given State Party has demonstrated its compliance with the CWC.

The above is a dramatic oversimplification of what has to be done; it leaves out the compelling fact that most States Parties do not produce, process, or consume chemicals directly - industry and individuals do. It is then the task of the State Party usually through its National Authority to devise a system of obtaining the required information in a timely fashion from its industry and other users of chemicals. At this time most signatories do not know the extent of the task of information collection required by the CWC declarations.

In a discussion of industrial declarations there is no need to examine the requirements of Schedule 1 only Schedule 2, 3 and DOCs are likely of general industrial interest. Following the risk concept, the monitoring regime becomes less invasive as one moves from Schedule 2 to 3 to DOCs.

Schedule 2 Requirements

If one ignores 'past production for CW purposes', then the following declarations are required for Schedule 2:

1. Initial Declarations on aggregate National Data (AND) and plant sites 30 days after entry into force (EIF);
2. annual Declarations on past or completed activities 90 days after year end for AND and plant sites;

3. annual Declarations for anticipated activities 60 days before the annual production cycle begins at plant sites; and

4. additional production over that declared under 3 above should be declared 5 days before the production cycle begins.

The list of agreed Schedule 2 chemicals appears in the CWC as the Annex on Chemicals. Article VI of the Convention covers all ‘Activities not prohibited under this Convention’ and the required declarations are described in Part VII of the Verification Annex with the full expectations of the Provisional Technical Secretariat (PTS) described in a Declaration Handbook.

Schedule 2 requirements include aggregate national data (AND) on quantities produced, processed, consumed, imported, and exported of each Schedule 2 chemical including full specification of imports and exports for each chemical involved. Declarations are required for all plant sites involved in production, processing or consumption above a threshold amount of:

- 1 kg of a ‘*’ chemical in 2A;
- 100 kg of other chemicals in 2A; and
- 1 tonne of a chemical in 2B.

A considerable amount of detailed information is required on the actual plants and plant site where a Schedule 2 chemical is produced above the threshold. The initial declaration for each plant site has to cover the three previous calendar years.

There are two major unresolved issues with respect to Schedule 2; these are

- the precise meaning of AND; and
- mixtures containing a ‘low concentration’ of a Schedule 2 chemical.

The CWC does not give a definition of aggregate national data as it was initially assumed that AND would cover all production including that from sites below the declaration threshold. This is disputed by some who prefer the aggregation of data from declared sites; this would provide no additional information since it merely involves the addition of all declared data on production, processing and consumption above the threshold together with the actual import and export quantities. The matter will be further complicated by the PTS’s proposed ‘Rounding rules’ where, for example, quantities less than 500 kg would be rounded down to 0 tonne, e.g., production, processing or consumption of 1,5 tonnes would be declared as 1,0 tonne, while 1,6 tonnes would be rounded up to 2 tonnes.

The CWC text states that declarations ‘are not generally required for mixtures containing a low concentration of a Schedule 2 chemical’ and goes on to state that declarations are only required in accordance with ‘guidelines’ that relate to the ease of recovery of the Schedule 2 chemical and its total weight. The guidelines are to be developed by the Preparatory Commission (PrepCom) and approved by the conference of States Parties (cf. Article VIII). The Expert Group seems now to have reduced its options to two: (I) agreement on total weight and a percentage below which a declaration would not be required provided that the Schedule 2 chemical was not isolated, (II) an elaboration of criteria related to ease of recovery together with quantitative thresholds. It would seem that the important points should be (I) is the quantity above the threshold for declaration for the chemical concerned? (II) can the chemical be selectively converted, without separation from the mixture, to a Schedule 1 chemical?

In either case, the mixture will pose a risk to the CWC and the process should be one that leads to a declaration and a routine inspection where the threshold is exceeded.

Schedule 3 Requirements

The following declarations are required for Schedule 3 chemicals:

1. Initial declarations on AND and on plant sites 30 days after EIF;
2. annual declarations on past or completed activities 90 days after year end both for AND and plant sites;
3. annual declarations for anticipated activities at plant sites 60 days before the year begins; and
4. any proposed change after the anticipatory declarations to be made 5 days before additional production begins.

The list of agreed Schedule 3 chemicals appears in the CWC as the Annex on Chemicals as described in Article VI. Part VIII of the Verification Annex describes the required declaration with the PTS's Handbook on Declarations providing additional details.

Schedule 3 requirements include aggregate national data and plant sites but only specifies production, imports and exports with no requirements related to processing or consumption. Declarations are needed for plant sites producing more than 30 tonnes of a Schedule 3 chemical but the production is expressed in ranges:

- 30 to 200 tonnes;
- 200 to 1000 tonnes;
- 1000 to 10000 tonnes;
- 10000 to 100000 tonnes; and
- above 100000 tonnes.

The same two problems as related under Schedule 2 exist for Schedule 3 chemicals: (I) aggregate national data, (II) low concentrations. Again 'guidelines' have to be developed as to when declarations are required for Schedule 3 chemicals which are part of mixtures and an understanding of what AND means in the CWC.

There are two problems relating to AND. If it relates to total production at both declared and non declared plant sites then it is a straight forward production number that assesses monitored as opposed to non-monitored production. If it is regarded as a summation of all declared production then it becomes a non-meaningful number in that it would involve the summation of 'production ranges'. The only useful way to provide such AND would be to provide the number of producers in each of the production ranges. If as already noted with Schedule 2, the AND is merely a summation of declared plant data then there is no point to the collection of the data and the resources implied.

A decision as to whether a declaration is necessary for a mixture containing a Schedule 3 chemical should depend on (I) is the quantity involved greater than the threshold amount? (30 tonnes in a calendar year), (II) could the Schedule 3 chemical be easily separated or can it be converted to a Schedule 2 (1) chemical without isolation from the mixture to provide another scheduled chemical in greater than a threshold quantity? If the answer to either of these is Yes, then it should be considered as production that has to be declared under the CWC.

Other Chemical Production Facilities

Since there are many chemicals that are not on the schedules but which could play a role in CW development, the CWC negotiations looked for solutions to the problem of ensuring that facilities capable of being used or converted into facilities that could be used for the production of scheduled chemicals or other chemicals that could pose a threat to the CWC were included in

a monitoring regime. The strategy adopted involved a declaration on other chemical production facilities. The production was classified as 'unscheduled discrete organic chemicals' with a subclass of 'unscheduled discrete organic chemicals containing the elements Phosphorus, Sulfur or Fluorine'. These are known as DOC and PSF chemicals respectively.

In this class declarations are required for plants that synthesize:

- 200 tonnes or more of DOC's; and
- 30 tonnes or more of PSF chemicals.

The declaration requirements are (1) declaration of plant sites 30 days after EIF (2) annual update of this list 90 days after the calendar year end.

The list of plant sites should also include an aggregate amount of the production of each DOC given in the ranges:

- under 1000 tonnes;
- 1000 to 10000 tonnes; and
- above 10000 tonnes.

The production of PSF chemicals in PSF plants is to be expressed in the aggregate ranges:

- under 200 tonnes;
- 200 to 1000 tonnes
- 1000 to 10000 tonnes ; and
- above 10000 tonnes.

There is no list of DOC's nor PSF chemicals in the CWC, the declaration requirements are found in Part IX of the Verification Annex with other information to be found in the Declaration Handbook.

The CWC provides the following definition for DOC's:

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.

The above definition is all-encompassing and must have some restrictions attached to it. The first exceptions were made for plant sites that exclusively produced explosives or hydrocarbons. The term hydrocarbons includes all the normal processes, chemical and physical, carried out in petroleum refining to produce chemicals containing only carbon and hydrogen and these are excluded from the term production in Part IX of the Verification Annex.

There clearly is still a substantial amount of work to be done on DOC exemptions, e.g., polymers from monomers, beverages from a fermentation process, high sulfur crudes etc. A specific process whereby a DOC is excluded from monitoring should be developed.

The Declaration Handbook and the National Authority

The PTS has, as part of its activities, drafted a handbook for the use of National Authorities in compiling CWC information for transmission to the Technical Secretariat of the OPCW. For most NAs, Section B as Industrial Declarations will form the major component of their declaration activities. As currently constructed it seems to be complex and unwieldy and so it should be carefully scrutinized to see if it can be simplified. It does not appear to be directly applicable to the task of obtaining the required raw data from industry by a National Authority.

Schedule 2 contains 7 individual compounds and 7 families of compounds and so will form a group of approximately 30 compounds to be declared; there are 17 compounds on Schedule 3 and so one may estimate that some 50 compounds could be declared when produced above the threshold. Each one of these scheduled chemicals will have to be declared separately when there is activity above the threshold.

The following abridges the declaration forms suggested by the PTS in their handbook.

Schedule 2:

<u>Declarations</u>	<u>No. of Forms</u>
AND - initial	4
- annual	4
Plant sites	
- initial	6
- annual (past)	6
- annual (anticipatory)	6
Additional Activities	7
Total	33

Schedule 3:

<u>Declarations</u>	<u>No. of Forms</u>
AND - initial	4
- annual	4
Plant sites	
- initial	4
- annual (p)	4
- annual (a)	4
Additional Activities	5
Total	25

Other Chemical Production Facilities:

<u>Declarations</u>	<u>No. of Forms</u>
initial	3
annual update	3
Total	6

This combination suggests that for each Schedule 2 chemical produced there could be a need for as many as 33 declaration forms, 25 for each Schedule 3 chemical and 6 for the DOC's

where there is PSF production. These are the requirements over the first cycle of initial and annual update declarations over the first year.

We could assume that an average workload for a National Authority could comprise of:

5 Schedule 2 companies,
85 Schedule 3 companies,
150 DOC producers.

This means that the National Authority would have to deal with 240 companies producing chemicals at a number of plants in various plant sites, i.e., there will be more chemicals than companies and also more plant sites than companies.

If one assumes that each company has only one plant site at which it produces:

two Schedule 2 chemicals;
three Schedule 3 chemicals; and
three DOC's

then the initial declaration requirements are:

Schedule 2	2 x 4 x 5	40
Schedule 3	3 x 4 x 85	1020
DOC's	3 x 3 x 150	1350

for a total of 2410 AND declarations.

The initial plant site declaration would be:

2 x 6 x 5	60
3 x 4 x 85	1020

for a total of 1080, i.e., the National Authority would need to be able to process about 3500 declarations within the first year after entry into force. This calculation is based on a modest number of companies with a minimal product set and only one plant site per company.

It is clear from this that before entry into force each National Authority needs to know:

- the number of chemicals to be declared;
- the number of plant sites to be declared;
- the number of plants involved; and
- the number and type of declarations required.

Conclusion

The PrepCom, the PTS and the Expert Groups have made a great deal of progress in preparing for entry into force in developing a methodology for collecting the required information in a form that is suitable for the OPWC to ensure that a State Party's industrial activities are in compliance with the Convention. The current structure of the declarations seems to be unnecessarily complicated and not easily applicable to the task of the National Authority in obtaining data from the chemical industry. The model devised also suggests that the volume of declarations, even for a State Party with a small chemical industry, would best be carried out using computers for data transfer.