4.15 Compulsory minimisation

As has been indicated in Section 3.2.1 there are substances that are so (environmentally) hazardous that an effort must always be made to achieve zero emission of these substances. This is known as compulsory minimisation. In accordance with the policy, all immissions of substances subject to compulsory minimisation (MVP substances) must be at or below the target level [1] as from 2010. Until that time, testing can be carried out against the maximum permissible level (MTR), on the understanding that the immission must be at target level in 2010. In such cases, the competent authorities must indicate in the preamble how it is ensured that the immission will be reduced to target level in 2010. See also the explanatory note in §3.2.1.For emissions of MVP substances whose hourly load is higher than the mass flow limit (GMS) the step-by-step plan elaborated in this section explicitly applies. In addition, the obligation to achieve zero emission applies to all MVP substances. [2]

Section 4.15 is an elaboration of compulsory minimisation (MVP) as referred to in Sections 2.3.7 and 3.2.1. MVP substances and the compulsory minimisation procedure are successively considered. This procedure consists of five steps. A flow chart at the end of this section summarises the steps.

MVP substances

Compulsory minimisation applies to all substances classified in class MVP1, MVP 2 and ERS. InfoMil provides the competent authorities information on the NeR. Recently, the Chemicals Expertise Centre (SEC) has been set up as part of the National Institute of Public Health and the Environment (Rijksinstituut voor Volksgezondheid en Milieu, RIVM). One of the tasks of SEC is to inform the competent authorities about the risks of substances. In its front-office function, InfoMil can use the expertise of SEC (back office) for the benefit of the competent authorities. In other words, the competent authorities can utilise via InfoMil the expertise of SEC to issue permits for substances.

The research data of SEC is accessible to the public. The data can be found at http://www.rivm.nl/SEC/. Here you can find information on all of the substances that have been investigated on their Very High Concern properties.

[1] The target value is, in principle, equal to the negligible risk (VR), provided it has been established. See also, for example, §2.4.1 of Substances and Standards, Overview of important substances and standards in the environmental policy, VROM, 1999.

Procedure

The compulsory minimisation procedure consists of five steps. The core of the procedure is that the company indicates which emitted substances are subject to compulsory minimisation and provides an inventory of the possibilities it has to prevent or reduce the emission of MVP substances. In addition, the company is responsible for performing the immission test. The role of the competent authority is to test the data furnished by the company, to establish an air quality standard, and following consultation with the company, to include measures or emission requirements in the permit prescriptions. In formulating the measures to be taken, explicit account must be taken of their preference order:

1. *prevention* of the emission
2. *reduction* of the emission

In the inventory of the possibilities to prevent or reduce the emission, various aspects are considered. That is to say, both environmental-hygiene, economic and feasibility aspects are mapped in order to achieve a balanced weighting.

Five steps are passed through in the permit issue procedure. In situations where the step-by-step plan is passed through for the first time, the different steps must be elaborated extensively. Once every five years, the company must go through the step-by-step plan again. In this way, the latest insights and developments in Best Available Technology can be used to control the emission of substances subject to compulsory minimisation. This must be based on the then current substance list and data.

Step 1 Establishing the emission situation of the company

In the preliminary consultation of the permit application, the company must provide information that shows (see also §2.3):

- what substances are being emitted;
- what the emission concentration and the cleaned mass flow is of the emitted substances;
- which of the emitted substances are classified as MVP substances;
- what the existing situation is with respect to emission reduction;
- what developments within the company are of significance for the future emission situation.

[2] This means, therefore, that compulsory minimisation also applies to emissions whose hourly load remains below GMS.

If possible, standard measuring methods should be used to establish the quantity of an emitted substance. In the other cases, the method must be agreed on through consultation between the competent authority and the company. The company is responsible for the correctness of the information furnished.

Step 2 Preliminary investigation

The company must conduct (have conducted) a preliminary investigation into the possibilities of stopping or reducing the emissions of MVP substances. The possibilities to prevent the emissions must be explicitly addressed. The purpose of the preliminary investigation is to provide an overall view of the techniques and possibilities for emission reduction. Such an investigation can also be conducted for an entire sector of industry if the emission situation of the individual facilities is similar. However, the condition is that such an investigation must offer insight into the latest possibilities of emission reduction. The company is responsible for the correctness and completeness of the preliminary investigation.

The matters addressed in the preliminary investigation include:

- An overview of the possibilities and techniques for emission reduction.[3] Here attention must be given to:
  - possibilities to *prevent* the emission
  - possibilities to *reduce* the emission
- the effectiveness of the technique
- validation of the technique (to what extent it has proven itself in practice)
- reliability
- costs
- cost efficiency
- Cross-media effects (shifting / transferring the environmental burden)

Step 3 Immission test

An imission test must then be performed. Initially, a limited test is sufficient. If this test detects an exceeding of the acceptable risk, an extensive immission test must be performed.

The expected immission level of the MVP substance(s) in the environment (air, water and soil) is tested against a statutory limit value or another environmental quality standard. The competent authority establishes this standard for the local situation. For this environmental quality standard, the Maximum Acceptable Risk Level (ARL) is used until 2010 and after 2010 the target level[4] (if available) that has been established for the substance in question. For substances for which no ARL or target level is available, a test is performed against the indicative negligible risk (IVR). For deriving the IVR, RIVM has developed a procedure. If no negligible risk (VR) is available for a specific substance, the Chemicals Expertise Centre (SEC) of RIVM can be requested to derive an IVR for a specific substance.

If the immission level in the relevant environmental compartments is lower than the environmental quality standard, emission is permitted up to the maximum emission concentration specified in the requirements set on ARL substances (see §3.2.1.). For emissions of ARL substances whose emission load does not exceed the valid mass flow limit, it is assumed that the immission level does not exceed the environmental quality standard.[5] In such cases, emission is also permitted, on the understanding that in these cases, too, a continuous effort must be made to achieve zero emission. This means that these cases are also subject to compulsory minimisation.[6] Here it must be mentioned that in the testing against the ARL the total mass flows of all MVP substances must be added up in accordance with §2.3.5, on the understanding that account is taken of the emission routes and toxicological working mechanisms.[7]

If the expected immission level in the relevant environmental compartments exceeds the environmental quality standard, the company is given the opportunity to indicate in step 3b (the extensive immission test) on the basis of more accurate methods whether the expected immission level will remain below the environmental quality standard. If this is not the case, the emission must be adjusted.

3a Limited immission test

The company performs the limited immission test. Initially, the expected immission level belonging to the general emission requirements for MVP substances is tested against the environmental quality standard. If this immission level is higher than the environmental quality standard, a test must be performed against the expected immission level belonging to the actual emission.
For establishing the expected immission level to the air and the resulting secondary immission to the water and soil, RIVM has developed a simple procedure. You can find it at http://www.infomil.nl.

As has been stated above, if the immission level in the limited immission test remains below the environmental quality standard, a permit is issued for the emission up to the maximum emission concentration applicable for MVP substances.

3) Examples of emission-abatement techniques can be found in InfoMil edition L26.
4) See what is stated in the introduction of §4.15.
5) But also see what is stated in the introduction of §4.15.
6) This compulsory investigation is elaborated in step 5 of the step-by-step plan.
7) It is, for example, not toxicologically useful to cumulate the mass flows of a heavy metal and a solvent.

3b Extensive immission test

If the limited immission test reveals that the expected immission level exceeds the environmental quality standard[8], the company must perform an extensive immission test. To do so, the New National Model can be used for the immission to the air in combination with a multimedia model for the resulting secondary immission to the water and soil. If no target level is available, a reliable negligible risk level can also be derived in accordance with the procedure used within the framework of the Integral Norms for Substances. This extensive immission test produces a more accurate risk estimate than the limited immission test.
The method developed by RIVM does not take account of the load of MVP substances released as a result of diffuse emissions. If, however, sufficient information is available to include the immission of substances as a result of diffuse emissions in the weighting in the immission test, the competent authority should include this in his deliberation.
In cases where a non-negligible background level of anthropogenic origin of a MVP substance is present in the environment, the competent authority should include this background level in the risk assessment, taking the proportionality of the situation into account.[9]

If the immission level in the extensive immission test remains below the environmental quality standard, a permit can be issued for the emission up to the maximum emission concentration applicable for MVP substances. If the extensive immission test reveals that the immission level exceeds the environmental quality standard, one of the following options is possible:

- the company states explicitly how the immission level will be brought below the required level; or
- the competent authority indicates in the environmental permit why the immission requirement for MVP substances is departed from, duly stating the reasons therefore; or
- the permit is refused.

Step 4 Implementation and measures

On the basis of the preliminary investigation (step 2) and the immission test (step 3), it is determined in consultation between the competent authority and the company how the emission will be reduced. A choice is made from the available techniques (step 4a). If there is insufficient information to serve as a basis for a decision, arrangements should be made concerning a follow-up investigation (step 4b).

4a Selection of measure

In the selection of the measure, the preference order of the measures to be taken must be included in the weighting:

1. prevention of the emission; and
2. reduction of the emission.

As regards the costs of the measure to be applied, they may be more than the standard Best Available Techniques solutions. This is true for both the absolute costs and the cost effectiveness. A clear underpinning for the selection of the technique is included in the preamble of the permit. If applicable, the reason is also explicitly given why prevention of the emission has not been chosen as a possibility.

4b Follow-up investigation

In the follow-up track, the company must indicate how further information on emission-reducing or preventing techniques will be generated. A way to do this is by a follow-up investigation. This means a company-specific investigation is performed into the development or improvement of a technique, process or process operation. A search by the company for alternative production methods can also be regarded as a solution.
A follow-up investigation can be done as follows:

- Developing an investigation plan.
  The company develops an investigation plan that specifies how the information on emission-reducing or preventing techniques will be collected. In case of a continuous and long-term investigation, the competent authority must be informed annually of the findings / progress of the investigation.
- Recording the temporary situation.
  The competent authority must indicate how the temporary situation will be dealt with. It must be considered whether temporary measures belong to the possibilities.
- Arrangements concerning periods.
  It is important to make clear arrangements concerning the (investigation) periods and to attach consequences to failure to implement the measures on time. Per situation, it must be established what the length of the time period should be.

[8] See what is stated in the introduction of §4.15.
[9] Here it concerns, for example, background levels as a result of several sources in close vicinity, long-range transport or diffuse emission. In some cases, background levels of MVP substances are present that are in the region of the MTR or target level for the substance in question. In such cases, it may not be wise to include the emission of additional quantities of the substance in question in the risk assessment. On the other hand, a comparison of background level and immission level can also be a reason for assessing an immission as negligible. The final consideration and decision should be clarified in the preamble.

Step 5 Compulsory investigation and periodic reassessment

Compulsory minimisation means that a continuous effort must be made to reduce or prevent the emission. That is why a continuous investigation must be made on how emissions of MVP substances, including emissions whose hourly load remains below GSM, can be further reduced.

Furthermore, the step-by-step plan must be gone through every five years. Of the emitted substances it must be determined whether they are listed on the latest substance list. For, new information on the properties of the substances results in a change of the list of compulsory minimisation substances. When new insights and possibilities (technical or otherwise) are available, the existing material must be supplemented. If on the basis of the newly collected information it is necessary to weight the techniques to be applied, it must be done again. On the basis of this weighting, a choice can be made for new and better techniques.

Background information

- Background to SOMS criteria, RIVM/SEC, Bilthoven, 2003, can be found at http://www.rivm.nl/SEC.
- Summary of chemical policy, Ministry of Housing, Spatial Planning and the Environment, The Hague, 2003, can be found at http://www.minvrom.nl.
- The RIVM documents limited immission test and calculation of IVR can be found at http://www.infomil.nl.
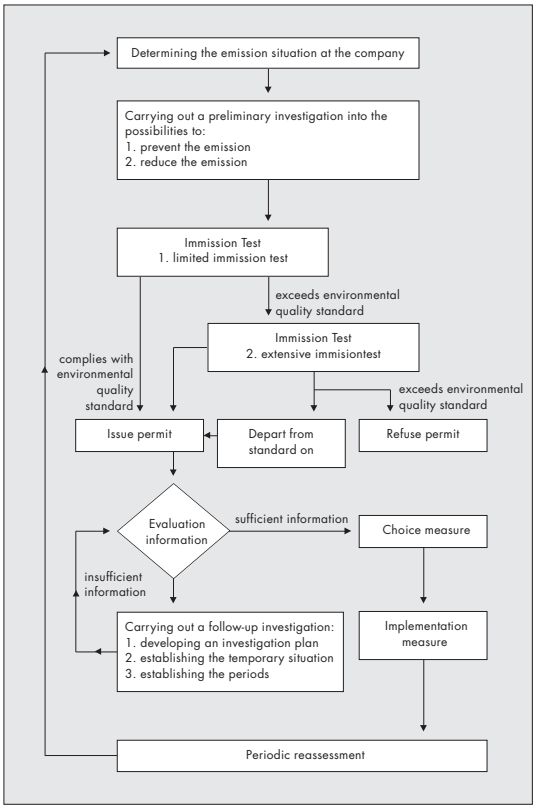
Figure 1 Compulsory minimisation procedure