

The answers below reflect the points of view of the Flemish region of Belgium. On this short notice it was impossible to communicate one Belgian point of view.

Flemish region
----------------

### Question 5.1 and 5.2

In 1999 a Flemish BAT study "petrol stations" was elaborated (VITO, 1999). This study concluded that stage 2 PVR is BAT.

Taking into account that the emissions of petrol stations are VOC that contribute to the formation of tropospheric ozone, and the fact that this ozone problem qualifies as a long range transboundary air pollution problem, the Flemish region is in favour of introducing this BAT in community legislation.

Although there is now knowledge of problems with the lack of a single market, one can only presume that an harmonisation of requirements will improve things.

### Question 5.3, 5.4, 5.5.

The stage 2 PVR was introduced in the environmental legislation "Vlarem" in 2001, which are general binding rules. The provisions are applicable to all petrol stations having a petrol turnover of more than 100 m<sup>3</sup>/year in the following time frame:

*"§ 1. For petrol distribution installations with an operating permit or environmental licence granted before the date of the coming into force of this order (= 01/08/1995), the provisions of this subsection apply as follows:*

- a. from 1 January 2002 for all distribution installations with a turnover greater than or equal to 500 m<sup>3</sup>/year and which make use of directly buried single-walled metal storage tanks that have been built before 1975 - the storage tanks are assumed to have been built before 1975 if their age cannot be proven;*
- b. from 1 January 2005 for all other distribution installations. However, if it can be shown that on 31 July 2001 the petrol distribution installation fulfils the conditions specified in section 5.17.5 for new petrol distribution installations, the provisions of this subsection will apply only from 1 January 2008. The operator can only be granted this exception under the explicit condition that by 1 January 2002 at the latest he has notified the Environmental Licence Department and the Environmental Inspection Department by registered mail of the compliance with the conditions stipulated in section 5.17.5.*

Therefore from 2008 onwards all petrol stations having a turnover of more than 100 m<sup>3</sup>/year should have a stage 2 PVR.

Therefore in our view all petrol stations should within a certain time frame be equipped with stage 2.

When the commission will introduce stage 2 in a directive, it should take into account that a significant number of member states have already introduced stage 2. In case the provisions of the directive are more stringent than the current provisions in a member states, the directive should give enough time to existing installations equipped with stage 2, to adapt to the more stringent provisions.

### Question 5.6

There is no “automatic monitoring obligation” in the Vlarem legislation, nor has this been an issue in the Flemish BAT study. I would be interesting to change points of view on this matter in an expert group.

The monitoring provisions can be found in Vlarem, article 5.17.4.2.3.

### Question 5.7

In the Vlarem legislation the petrol distribution is forbidden underneath residential dwelling because of safety issues (explosion hazards) and to avoid high exposure of benzene in the dwelling. For existing installations (licensed before 1995) there is a transition period as mentioned in the article below:

*Art. 5,17.4.2.4. § 2. The further operation of a distribution installation for petrol which is located directly under a building or under the vertical projection of a building, must be stopped definitively at the earliest of the following dates:*

- a. at the end of the current term of licence;*
- b. on the dates specified in § 1. “ (§1 see answer question 5.3, 5.4 and 5.5)*

<i>Stage 2 vapour recovery in the VLAREM general binding rules in the Flemish region</i>
--

**Art. 5.17.4.2.1.**

§ 1. The provisions of this subsection are applicable to the establishments mentioned in subheading 17.3.9 of the classification list, to the extent these establishments concern the distribution of petrol.

§ 2. If the petrol turnover is 100 m<sup>3</sup>/year or less, the operator must keep proof of this at the disposal of the supervisory official.

§ 3. The other provisions of this subsection are applicable if the petrol turnover is greater than 100 m<sup>3</sup>/year.

**Art. 5.17.4.2.2.**

§ 1. The delivery of petrol to motor vehicles is effected using a stage 2 vapour recovery system (appendix 5.17.10).

§ 2. An active system, where petrol vapours are drawn in at the nozzle by a partial vacuum, or any other equivalent system can be used as stage 2 vapour recovery system. The systems must meet the conditions of these regulations.

§ 3. The stage 2 vapour recovery system must recover at least 75% of the petrol vapours pushed out of the vehicle's petrol tank during the process of refuelling, and return these vapours to the petrol storage tank.

§ 4. In the case of a partial vacuum being used to draw in the petrol vapours, the proportion of the volume of the vapour/air mixture recovered to the volume of petrol transferred to the vehicle's petrol tank may not be less than 98% or more than 105%.

§ 5. The vapour return lines must meet the specifications of article 5.17.1.4. In addition the vapour return lines must be installed with sufficient slope to ensure that any condensate formed runs down to the petrol storage tank.

§ 6. The nozzles must be adapted for optimal collection of the vapours from the vehicle's petrol tank. The stage 2 vapour recovery system must be in good working order and free of cracks, holes and other defects.

§ 7. Components used in the system may not lead to the occurrence of fires or explosions of the recovered petrol vapours. The stage 2 vapour return and the subsequent stage 1 vapour return must be fitted with appropriately located and effective flame arresting device(s).

§ 8. The venting system for the petrol storage tanks must be physically separated from the venting system for the diesel fuel storage tanks. The necessary measures must be taken to prevent emissions resulting from the operation of the stage 2 vapour recovery system when the petrol storage tanks are being refilled.

**Art. 5.17.4.2.3.**

§ 1. The stage 2 vapour recovery system must be certified before installation at the service station. The stage 2 vapour recovery system must be certified according to the TÜV vapour recovery system certification standard or an equivalent testing method.

§ 2. After installation but before being brought into service and also with each modification of the stage 2 vapour recovery system, the system's efficiency and its compliance with the technical specifications for vapour recovery systems must be checked. This initial checking must include the verification whether the system was installed correctly.

### § 3.

1. simultaneously with the storage tanks to which the system is connected, the stage 2 vapour recovery system must be subject to periodical limited examinations and general inspections. Stage 2 vapour recovery systems connected to storage tanks made of reinforced thermoset synthetic materials must be subject to a general inspection at least every 15 years.
2. if relevant, the limited examination comprises:
  - a. perusal of the previous report or certificate;
  - b. an examination of the installation's condition and of the external visible parts of the vapour recovery system, in particular the nozzles, hoses, pumps, lines etc.;
3. the general inspection comprises:
  - a. the limited examination as specified in 2°;
  - b. checking of the vapour recovery system's efficiency and compliance with the technical requirements imposed;
  - c. seal test of the non-accessible single-walled vapour return lines.

§ 4. Within one year after an initial checking of the stage 2 vapour recovery system no periodic inspection of this stage 2 vapour recovery system is required.

§ 5. The checking of the stage 2 vapour recovery system's efficiency and compliance with imposed technical requirements - in particular the measurements that have to be made - is to be carried out in accordance with the inspection procedure for active stage 2 vapour recovery as included in appendix 5.17.11, or an equivalent procedure.

§ 6. The service station operator must have the initial checking and periodic inspections of the stage 2 vapour recovery system carried out by an environmental expert accredited in the discipline of containers for gases or hazardous substances, or by an authorised expert.

§ 7. Defects and/or dysfunctions of the stage 2 vapour recovery system found during the periodic inspection must be repaired forthwith by or under the supervision of the expert concerned.

§ 8. The expert involved is to draw up and sign a conformity certificate for each initial checking of the stage 2 vapour recovery system. On this certificate the accreditation number of the expert must be shown. It describes the findings of the inspections and measurements carried out. In this certificate it must be established unambiguously whether the stage 2 vapour recovery system satisfies the conditions of these regulations, or otherwise.

#### **Art. 5.17.4.2.4.**

§ 1. For petrol distribution installations with an operating permit or environmental licence granted before the date of the coming into force of this order, the provisions of this subsection apply as follows:

- a. from 1 January 2002 for all distribution installations with a turnover greater than or equal to 500 m<sup>3</sup>/year and which make use of directly buried single-walled metal storage tanks that have been built before 1975 - the storage tanks are assumed to have been built before 1975 if their age cannot be proven;
- b. from 1 January 2005 for all other distribution installations. However, if it can be shown that on 31 July 2001 the petrol distribution installation fulfils the conditions specified in section 5.17.5 for new petrol distribution installations, the provisions of this subsection will apply only from 1 January 2008. The operator can only be granted this exception under the explicit condition that by 1 January 2002 at the latest he has notified the Environmental Licence Department and the Environmental Inspection Department by registered mail of the compliance with the conditions stipulated in section 5.17.5.

§ 2. The further operation of a distribution installation for petrol which is located directly under a building or under the vertical projection of a building, must be stopped definitively at the earliest of the following dates:

- a. at the end of the current term of licence;
- b. on the dates specified in § 1.

#### **Art. 5.17.4.2.5.**

§ 1. Within 3 months after the date of the stage 2 vapour recovery system being brought into operation, the following data must be submitted to AMINAL, Environmental Licence Department:

1. Name and address of the holder of the licence(s) [the operator];
2. Reference(s) of the current licence(s);
3. Number of multigrade dispensers, petrol pumps and nozzles;
4. Type of stage 2 vapour recovery system;
5. Date of bringing into operation of the system;
6. A copy of the certificate of the system
7. Efficiency, measured during initial checking with the completion of the system;
8. Turnover volume (whether greater than 500 m<sup>3</sup>/year or otherwise).

§ 2. The operator must keep a copy of the data specified in § 1 available for inspection by the supervisory official, as well as proof of his submission of these data to AMINAL - Environmental Licence Department. From 3 months after the date of the bringing into operation of the stage 2 vapour recovery system, the operator must keep the necessary data related to the measured turnover and the expected turnover volume available for inspection by the supervisory official.]

#### **APPENDIX 5.17.10 VOC EMISSION RESTRICTION - Stage 2 vapour recovery**

##### **Technical annex: active stage 2 vapour recovery system**

The free space above the liquid in the vehicle's petrol tank is filled with petrol vapours. During the filling process the petrol vapours are pushed out through the filler opening and emitted into the ambient air. Such free emissions can be reduced by means of an stage 2 active vapour recovery system. With a system like this, the vapours that are pushed out during the refuelling process are not emitted directly into the atmosphere. Instead, they are collected at the nozzle and removed to the underground storage tanks.

The nozzle is equipped with a circular metal collar. Using a vacuum pump an underpressure is created at this collar, which draws in the vapours expelled from the tank during the refuelling process. The petrol vapours are removed through the coaxial hose. This flexible coaxial hose delivers the fuel through either the inner or the outer channel, while the vapours are removed through the other channel. At the dispenser the vapour and fuel channels which together make up the coaxial hose are separated. The vapours are further removed to the storage tanks through a vapour return line. The evacuation of the petrol vapours must be controlled properly, to prevent the creation of an overpressure in the storage tanks.

Such overpressure would lead to the partial emission of the collected vapours through the storage tanks' vent pipes. In order to ensure proper vapour collection and avoid overpressure emissions, active vapour recovery systems are equipped with a system that controls the volume ratio between the vapours drawn in and the petrol flow. In this way the volume of vapour returned to the storage tank will be approximately equal to the volume of petrol delivered from the storage tank to the vehicle's petrol tank.

The components of an active vapour recovery system are the following:

- a. a special nozzle with suction collar;
- b. a coaxial hose;
- c. a volume ratio control valve: this regulates the vapour flow proportionate to the instantaneous fuel flow.
- d. a vacuum pump;
- e. a vapour return line (from the dispenser to the storage tank).

Added by Art. 15 Decree 20 April 2001 (O.J. 31 August 2001)

## **APPENDIX 5.17.11. VOC EMISSION RESTRICTION - Stage 2 vapour recovery**

### **Stage 2 active vapour recovery inspection procedure**

#### **§ 1. Scope**

This procedure applies for the periodic and initial checking of stage 2 vapour recovery systems as meant in Vlare II article 5.17.4.2.3 § 2, § 3 and to which reference is made in article 5.17.4.2.3 § 5.

#### **§ 2. Conformity with the certificate**

First it must be checked whether the vapour recovery system installed is in conformity with the manufacturer's description on the certificate referred to in Vlare II article 5.17.4.2.3., § 1. This visual inspection can be partially replaced by a certificate from the supplier (e.g. for built-in parts that are not visible).

#### **§ 3. Pipework leak test**

The piping between the base of the petrol dispenser and the actuating and control valves must be tested for leaks. This leak test is effected by applying an overpressure or underpressure, as appropriate. The pressure applied must correspond to the pressure indicated in the manufacturer's system description. This leak test need not be carried out if a certificate of leak-tightness from the manufacturer of the petrol dispenser or from the supplier can be submitted.

#### **§ 4. Measurement of the vapour return volume**

The measurement of the vapour return volume must be carried out using an integral volume meter or a flow meter (e.g. dry gas meter used as integral volume meter with a measuring accuracy of  $\pm 2\%$ ). In principle the measuring appliance is to be placed in front of the suction inlet of the nozzle and must be actuated with air instead of with a mixture of air and fuel vapours. The air volume measured must be corrected using the correction factor specified on the certificate. Alternatively, the measuring appliance can also be connected to the measuring connections in the vapour return line, to be actuated by mixtures of fuel vapour and air. In this case the gas volume measured must be corrected to atmospheric pressure. For this purpose, the measuring appliance must be able to be equipped with an appropriate pressure gauge.

#### **§ 5. Determination of the volume ratio**

The petrol vapour to liquid petrol volume ratio is obtained by measuring the gas volume (see point 4) and the quantity of fuel delivered in litres (? 20 litres) when filling a tank suitable for vapour recovery. The volume percentage must be determined for each actuating unit and each control valve or for each nozzle separately. This applies both for vapour recovery systems with non-central vacuum pump as well as for systems with central vacuum pump. The volume percentage may not be outside the range given in the certificate. When carrying out these measurements, the petrol flow (filling speed) must be set to maximum. The dispenser flow rate may not exceed the maximum fuel delivery rate indicated in the certificate. The supplier must indicate this dispenser flow rate in a certificate. This is verified by means of random checks. In the case of electronic vapour recovery systems, the volume percentage can also be determined using so-called dry-test equipment and simulating the petrol flow. With this the maximum petrol flow must be simulated (setting in accordance with the certificate  $\pm 2$  l/min). In the case of a simulation of the fuel supply, the flow-dependent control valves must be set in the "open" position indicated by the manufacturer, corresponding to maximum fuel delivery. "

#### **§ 6. Leak test of the actuating and control valves**

In the case of vapour recovery systems where gas pumps run or may run without petrol being delivered, with the measurements referred to in point 4 also a leak test of the actuating and control valves of the vapour recovery must be carried out. During this leak test the measuring appliance may not detect any gas volume or gas flow while the gas pump is running.

#### **§ 7. Registration : The tests carried out must be recorded in a certificate.**