IED Chapter V – Fugitive Emissions – O1 (Annex VII Part 7)

DIRECTIVES

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on industrial emissions (integrated pollution prevention and control)
(Recast)
(Text with EEA relevance)

CHAPTER V

SPECIAL PROVISIONS FOR INSTALLATIONS AND ACTIVITIES USING ORGANIC SOLVENTS
**Definition Fugitive Emissions**

**IED Art. 57 No 2 – “Fugitive Emissions”**

“Any emissions **not in waste gases** of volatile organic compounds into air, soil and water as well as solvents contained in any products, unless otherwise stated in Part 2 of Annex VII.

They **include uncaptured emissions** into air. This includes the general ventilation of rooms, where air is released to the outside environment via windows, doors, vents and similar openings (see Annex VII Part 7 No 2)
Definition Fugitive Emissions

IED Article 57 (2): “Waste Gas”

O1 = Emissions in Waste Gases
O1 = O1.1 + O1.2

Final gaseous discharge containing volatile organic compounds or other pollutants, from a stack or abatement equipment into air

German Ordinance § 2 No 12: Definition “Captured Waste Gas”

a) Waste gas, that is finally discharged into atmosphere from a waste gas treatment unit = captured treated (= cleaned) waste gas

b) Waste gas, that is finally discharged into atmosphere by a stack or other waste gas pipes = captured untreated (= not cleaned) waste gas
Overview about different emission situations

O4 = fugitive emissions = uncaptured waste gas

O1.2 = not cleaned captured waste gas

O1.1 = cleaned captured waste gas

Exhaust gas cleaned by an abatement unit
For certain installations = generally coating installations:
O1.2 = uncleaned captured waste gas is considered as fugitive emission F!

• Heatset web offset printing installations
• Installations that realize other printing activities
• Vehicle refinishing installations
• Coating of road vehicles, driving cabs, commercial vehicles, and rail vehicles (solvent consumption =15 t/year)
• Coil coating installations
• Installations that coat other metallic or plastic surfaces
• Installations that coat wood or wood materials
• Installations that coat film or paper surfaces
• Adhesive coating installations
Consequences:

In all this cases where no VOC exhaust gas abatement unit exists all exhaust gases are fugitive emissions -> emitted VOC content of applied materials = total solvent input = 100% fugitive emission

-> always no compliance to fugitive limit value is given (fugitive limit value results from a percentage of solvent input)
Advantages:

- Problem with „dilution or cooling“ with air is left out – it is not the target of VOC Directive to comply to emission limit value ("mass concentration") in waste gas by dilution with air!

- **No discussions** necessary according to fugitive emissions sources!

- Numerous installations without exhaust gas abatement technique will choose the reduction scheme = compliance by taking **primarily measures** = Avoidance of VOC emissions = aim of EU Directive!
The calculation of the fugitive emissions $F$ according to the Solvent Emission Directive and for general activities according to the German Ordinance

$$F = O_2 + O_3 + O_4 + O_9$$

$$F = I_1 - O_1 - O_5 - O_6 - O_7 - O_8$$

German approach: Calculation for coating and printing installation

$$F = O_{1.2} + O_2 + O_3 + O_4 + O_9$$

$$F = I_1 - O_{1.1} - O_5 - O_6 - O_7 - O_8$$

The general legal definition in Germany is the same, but for certain installations $O_{1.2}$ has to be assigned to the fugitive emissions.
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