



Guidelines for estimation and measurement of emissions of Volatile Organic Compounds TFTEI technical secretariat

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*5th TFTEI annual meeting
22/23 October 2019, Ottawa, Canada*

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Agenda

- The demand
- The context of the Gothenburg Protocol
- Organisation of the guidance and information available

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Characteristics of annex VI of the Gothenburg Protocol



Gothenburg Protocol, amended in 2012 :

- Introduction of commitments for reduction of VOC emissions for Parties to the Convention in 2020 (reduction of VOC emissions in 2020 by a certain percentage compared to 2005)
- Emission Limit Values (ELVs) for different activities (for VOCs, annex VI and annex XI)
- Establishment of solvent management plans for activities using solvents covered by annex VI

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Characteristics of annex VI of the Gothenburg Protocol



A lot of activities covered by annex VI:

- Storage and distribution of petrol
- A series of activities using organic solvents such as
 - Adhesive coating
 - Wood and plastic lamination
 - Coating of cars, trucks, buses
 - Coating in various industrial sectors (metal, plastic, wood, paper)
 - Coil coating
 - Dry cleaning
 - Manufacture of coatings, varnishes, inks and adhesives

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- Printing activities
- Pharmaceutical products
- Rubber processing
- Surface cleaning
- Animal fat and vegetable oils
- Vehicles refinishing



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Content of the guidelines developed

- Context and aim of the guidelines
- Types of ELVs implemented in annex VI
- VOC measurement techniques
- Solvent management plan
- Control of ELVs for selected activities (other than solvents)
- Summary of measurement methods for the different activities covered by annex VI
- Example of development of a solvent management plan

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Information on VOC measurement techniques



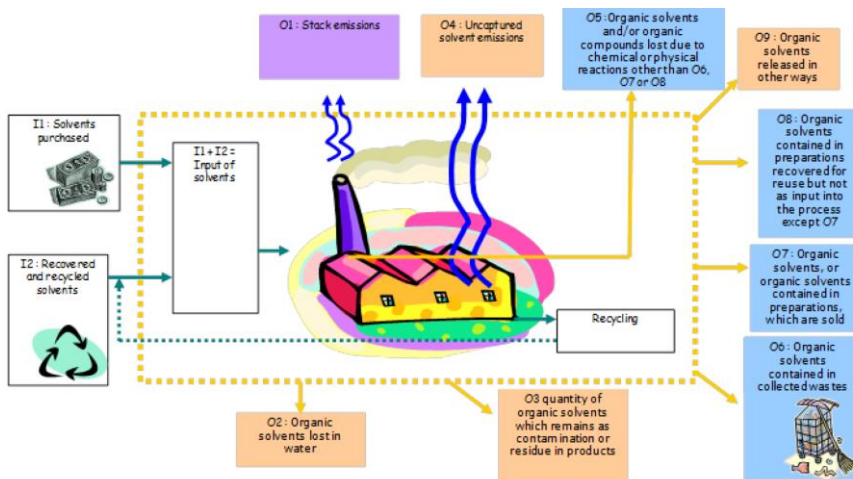
- ✓ Total VOC concentration measurement techniques
 - Flame ionisation detector (FID)
 - Catalytic oxidation and non dispersive infrared absorption
 - Photoionisation detection (PID)

- ✓ Individual VOC substance concentration measurement techniques
 - Sampling, gas chromatography and analysis by FID
 - Non Dispersive Infrared Spectrometry (NDIR)
 - Fourier Transform Infrared absorption (FTIR)

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How to develop a solvent management plan



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Other activities

Loading /unloading of mobile containers at terminals (excluding loading of seagoing ships)

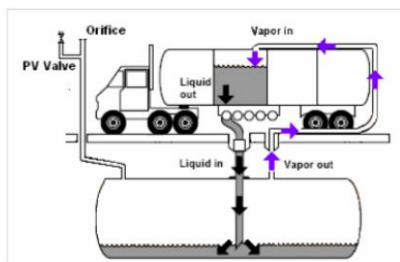
Emissions from loading and unloading of mobile containers at terminals can be estimated through equations developed by API and translated in several guidances from CONCAWE and US EPA.

The ELV implemented requires measurement in the vent of the loading and unloading platform. If equipped with a recovery unit, the measurement devices have to be installed on the vent to the atmosphere of this recovery unit.

Other activities

Storage of petrol at service-stations (Stage I)

Measurement of emissions is not required if a vapour balancing unit is present. The VOC vapours exit the tank through a return line to the mobile container.





Web site:

http://www.unece.org/fileadmin/DAM/env/documents/2016/AIR/WGSR/Docs_December/E_ECE_EBAIR_WG5_2016_4.pdf



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Thank you very much
for your attention!
Questions?

TFTEI Technical Secretariat



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