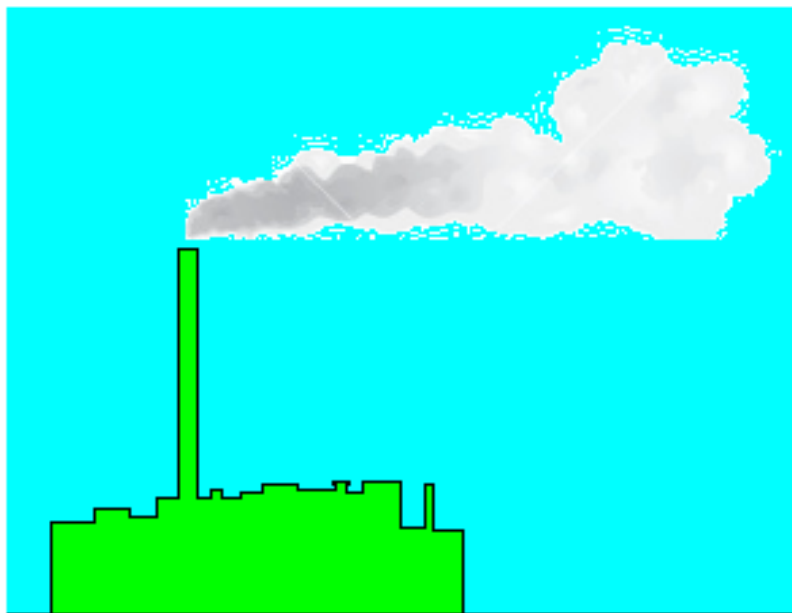


AIR EMISSIONS

Air emissions generated as part of industrial activities can have a significant impact on the environment ;
they must be strictly controlled.






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<i>Air emissions</i>	EN_06 Rev. B

SUMMARY OF REQUIREMENTS


Requirements
Regulatory requirements are known and respected.
The site maintains an inventory of its air emissions.
The site maintains a plan of its channelled air emission release points.
The site has implemented a maintenance process for its air emission treatment equipment.
The site has established a monitoring plan for its regulated emissions and implements it.
The information required on air emissions are entered into the environmental Internet-based application every three months (VIR – Valeo Risk Indicators).

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REVISIONS		
Index	Date	Designation
A	25/05/12	Initial version
B	01/10/13	New Technical Specification on Volatile Organic Compounds (VOCs)

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1. OBJECT OF THE DOCUMENT

This Directive addresses the management of their atmospheric discharges by Valeo sites.

2. RELATED DOCUMENTS

Reference	Document title
HS_08-Regulated_Substances_Directive	Prohibited and regulated substance directive
EN_06-Air_Emissions_TS_Collection&Transportation	Technical specification: Air emission collection and transport system design
EN_06-Air_Emissions_TS_VOC	Technical specification : Volatile Organic Compounds
EN_06-Air_Emissions_SIR.doc	Self Inspection Report

3. DEFINITION

Source of emission: Activity, operation or identifiable equipment generating emissions in the atmosphere (boiler, maintenance shop, surfacing, etc.).

Gaseous release treatment installation: Installation used for reducing the level of one or more pollutants contained in emissions to the atmosphere. These installations can consist of one or more cascaded elements such as:


- o Bag filters, cyclones;
- o Active carbon filters;
- o Thermal oxidation (incinerator) or catalytic oxidation devices;
- o Etc.

Channelled emissions (or releases): Emissions from one (or more) source(s) of identified and released emission(s) to the atmosphere by means of a technical conduit, such as a pipe, a stack or other functionally equivalent opening.

Diffused emissions (or releases): All non-channelled air emissions.

Regulated air pollutants: Pollutants subject to regulatory requirements applied to the site.

Volatile Organic Compounds (VOCs): Any organic compound having a vapour pressure of 0.01 kPa or more at a temperature of 20°C (293.15°K) or having a corresponding volatility under the particular conditions of use at the site. VOCs are carbon and hydrogen based organic compounds which are in gaseous form in the atmosphere, and which are likely to intervene in the smog, deforestation phenomena and greenhouse effect. VOCs include several product families: petroleum hydrocarbons (alkanes, olefins, styrenes, chlorofluoroalkanes, etc.), oxygenated solvents (ketones, esters), chlorinated and sulfur solvents, etc.

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Green house gas CO₂ equivalent: There are several greenhouse gases (GHGs) whose noxiousness is different. This noxiousness is generally characterized by their GWP (Global Warning Potential).

GWP is an index that characterizes the greenhouse effect molecule participation. We calculate the value of this index with respect to a reference molecule, to get the CO₂, and for well-defined periods (20, 100, 500 years). Thus CO₂ has a GWP = 1 whereas, for example, R22 (refrigerant) has a GWP of 1700, which means that 1 kg of R22 produces the same greenhouse effect than 1700 kg of CO₂.

This is known as CO₂ equivalent. It is the green house gas emission credit unit provided by the Kyoto Protocol.

4. REQUIREMENTS

4.1. Applicable regulatory requirements compliance

The site sets up an organization aiming to ensure compliance with applicable atmospheric discharge regulatory requirements.

4.2. General principle

Whatever the level of regulatory requirements, in order to be able to control its air emissions, the site established an inventory which it maintains.

Regulated air emissions are subject to regular checks to ensure compliance.

Air emissions treatment equipment is subject to regular maintenance operations aiming to maintain the performance level.

4.3. Installation design

Atmospheric discharge collection and transport installations are designed in accordance with the Technical Specification referenced in Chapter 2. Sites whose installations were designed prior to this specification identify the gaps in order to plan the necessary changes, for example during a process change.

4.4. Site air emissions inventory

The site maintains an inventory of its air emissions. This inventory aims to:

- Identify atmospheric discharge emission sources;
- Characterize the nature of discharges generated;
- Quantify these discharges.

4.4.1. Identification

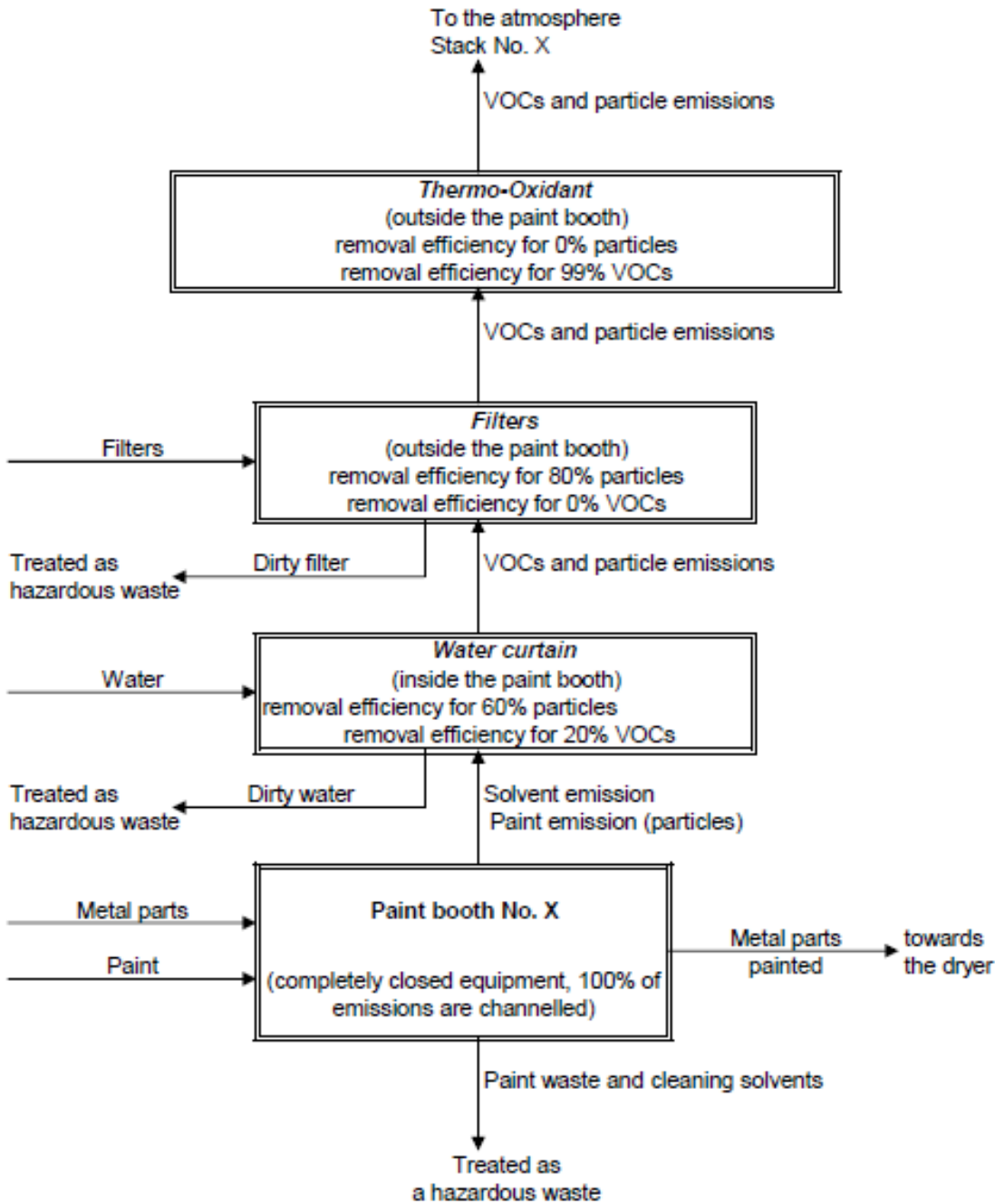
The site air emissions sources are made by considering:


- All processes, utilities (boiler room for example) and site activities;
- Gaseous release treatment installations used in connection with each emission source and their performance.

As a reminder, a treatment installation may consist of several modules, such as a capture module located at the emission source level and one or more remote treatment modules. All modules between the emission source and the release point must be taken into account.

This identification can be presented as a flow diagram as shown below.

Flow diagram example



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4.4.2. Characterization

Characterization of the pollutants discharged by each source depends on its origin. In general, there are:

- Emissions from combustion plants

Combustion plants using natural gas or fuel generate air emissions whose main pollutants are carbon dioxide, nitrogen oxides, carbon monoxide, sulfur dioxide (especially for fuel) and dust.

These plants also discharge VOCs and other "toxic" air pollutants (benzopyrene for example).

In the case of coal combustion or other solid fuel (wood), solid particles are discharged in addition to the above pollutants, sometimes in substantial quantities.

- Other process-related emissions

Air emissions generated by activities, processes or equipment can generally be characterized by using information available on the activity, process or equipment involved.

This information can be obtained from:

- o Chemicals used;
- o Potential transformations of these products due to the process (chemical reaction);
- o Gaseous products discharged after transformation by the process (drying, cooking, etc.);
- o Equipment operating parameters.

The ovens are installations that can cause air emissions combining with the fuel combustion results (gas...) and emissions related to part cooking (chemical reaction, evaporation ..).

The information about the characterization of the nature of the discharges emitted by each source can also be shown on the flow diagram.


4.4.3. Quantification

Air emissions are quantified (amounts emitted) particularly to determine the need for the permit as well as the regulations applicable to them (the regulation is often associated with the quantity of pollutant discharged per time period).

The required quantification methods and level of detail depend on the applicable regulatory requirements. These requirements define the methods and / or standards to follow and may possibly require the involvement of an approved inspection body.

The most common implementation techniques to quantify (hourly flow, concentration, etc.) air emissions are:

- Direct sampling and emission analysis;
- The matter / mass equilibrium;
- Evaluation methods from consumption;
- Technical or scientific assessments (ratio given by the manufacturer ...).

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Regarding CO₂ emissions, in the absence of local regulations requiring a more detailed approach or measurements taken directly on the releases, the site could rely on the Group's environmental indicator reporting tool (VRI - Valeo Risk Indicators) which automatically calculates the CO₂ emissions from combustion plants based on fuel consumption.

When the air emission characterization and dimensioning are not the result of a measurement, the methodology used to justify the results obtained and ensure archiving should be defined in writing.

Regulated emissions must be quantified in terms consistent with applicable regulatory requirements. These requirements can be expressed as:

- Mass ($\mu\text{g}/\text{m}^3$), or molar or volumetric (ppm) concentration;
- Pollutant output related to a production parameter (kg of VOCs emitted per litre of paint used or per square meter of painted surface, etc.).
- Emission source process efficiency (in case of combustion plants);
- Instantaneous mass emissions output (kg/h);
- Annual quantity not to exceed (ton/year);
- Etc.

This information can be shown on a flow diagram.

The required information on air emissions are entered into the VRI environmental indicator Internet-based application every three months (obligation for production and VS sites only).


4.5. Periodic updates of air emission inventory

The air emission inventory is updated at each significant process or product or activity change that can lead to significant changes in the characteristics or quantities of pollutants discharged.

By process or product change, it must be understood as:

- Raw material changes / substitutions;
- Fuel or energy changes / substitutions;
- Changes in operating conditions;
- Changes in equipment / process;
- Changes in work practices;
- The significant increase or decrease of site activity.

The consequences of these changes on air emissions of the site must be identified, quantified and included in the air emission inventory update.

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4.6. Site channelled release point identification

A site plan showing the location of all site air emissions channelled release points is maintained.

Each release has a unique identifier (name, letter, number ...) for access to the following information concerning:

- a) Physical characteristics (stack diameter, height, presence of a measuring point, etc.);
- b) Origin of emitted discharges (boilers, degreasing machine, etc.);
- c) Nature of emitted discharges (combustion gas, solvent vapour, etc.);
- d) Related regulatory control obligation.

If the flow diagrams have been established, a reference to the corresponding flow diagrams may be sufficient to characterize the points b) and c) or even d) if the information is shown on the flow diagram.

4.7. Air emission treatment equipment maintenance

Based on recommendations and manufacturer's recommendations, the site sets up an air emission treatment equipment maintenance process to ensure that they are maintained within the operating conditions limits specified by the manufacturer and to guarantee their nominal efficiency.

The possible regulatory controls associated with this equipment are planned and carried out in time.


4.8. Air emission reduction

During each process change, the site will evaluate the possibilities (technical and financial) that it has to reduce the pollutants at the air emission source particularly by favouring processes that do not require the implementation of treatment installation for these emissions.

The emission reductions at the source can be obtained by (non comprehensive list):

- Substituting raw materials;
- Substituting fuel;
- Changing the operating conditions;
- Changing the equipment and processes;
- Implementing the alternate work practices.

In order to reduce the air emission impact of the combustion installation, the use of natural gas will be favoured over the use of fuel.

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4.9. Monitoring air emissions

4.9.1. Monitoring regulated emissions

The site plans the regulatory controls associated with air emissions.

4.9.2. Monitoring other emissions

Besides monitoring regulated emissions, the site collects data and, if necessary, ensures the carrying out of the necessary analysis to provide information on atmospheric emissions to the Group's environmental indicator reporting tool.

4.10. Particular case of Volatile Organic Compounds (VOCs)

Volatile Organic Compounds are regulated in many countries and their treatment by capturing equipment in order to meet the regulatory requirements can represent significant costs.

A technical specification (cf paragraph 2) linked to this directive describes the different reduction techniques specific to VOCs.