

DEPARTMENT OF ENVIRONMENT, FORESTRY AND FISHERIES

NO. 855

07 AUGUST 2020

**NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004  
(ACT NO. 39 OF 2004)**

**DECLARATION OF CERTAIN PRINTING INDUSTRY ACTIVITIES AS CONTROLLED EMITTERS  
AND ESTABLISHMENT OF EMISSION STANDARDS**

I, Barbara Dallas Greecy, Minister of Forestry, Fisheries and the Environment, hereby in terms of section 23(2), read with section 57, of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004), consult on my intention to declare printing activities as controlled emitters in terms of section 23(1) of the Act. The proposed controlled emitters and their associated emission standards are set out in the Schedule hereto.

Members of the public are invited to submit to the Minister, within 30 (thirty) days from the date of the publication of the notice in the *Gazette*, written comments or inputs to the following addresses:

By post: The Director-General: Department of Forestry, Fisheries and the Environment  
Private Bag X447  
Pretoria  
0001

By hand: Environment House, 473 Steve Biko Road, Pretoria, 0002

By e-mail: [OMatshediso@environment.gov.za](mailto:OMatshediso@environment.gov.za)

Any inquiries in connection with the notice can be directed to Dr Vincent Gololo at 012 399 9203 or Mr Olebogeng Matshediso at 012 399 9215.

Comments received after the closing date may not be considered



**BARBARA DALLAS CREECY  
MINISTER OF FORESTRY, FISHERIES AND THE ENVIRONMENT**

## SCHEDULE

### *Part 1: Definitions and Application*

#### 1. Definitions

A word or expression defined in the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) has the same meaning in this Notice, and—

**“air quality officer”** means an officer appointed in terms of section 14 of the Act as an air quality officer;

**“an existing printing industry activity”** means an activity using an appliance that was installed before the date on which this Notice commences;

**“a new printing industry activity”** means an activity using an appliance that is installed after the date on which this Notice commences;

**“a printing industry activity”** means an activity using an appliance as described in paragraph 9;

**“National Atmospheric Emission Reporting Regulations, 2015”** means the regulations published under Government Notice No. R. 283 in *Government Gazette* No. 38633 of 2 April 2015, as amended from time to time; and

**“normal operating conditions”** means any condition that constitutes operation as designed. This excludes start-ups and shut downs conditions.

#### 2. Application

This Notice shall apply to a printing industry activity that operates in the Republic of South Africa.

#### 3. Implementation

An air quality officer shall be responsible for coordinating matters pertaining to this Notice.

#### 4. Compliance timeframes

(1) A new printing industry activity must comply with the emission standards for a new printing industry activity contained in Part 3 of this Notice from 01 April 2021.

(2) An existing printing industry activity must comply with the emission standards for an existing printing industry activity contained in Part 3 of this Notice within five years from 01 April 2026.

*Part 2: Emission Measurement and Reporting***5. Emission measurement**

- (1) Emission measurements shall be carried out on a vent connected to the printing industry activity.
- (2) The concentration of the pollutant for which emissions standards have been set in this Notice shall be reported as the average of at least three measurements, measured over a minimum sampling period of sixty minutes under normal operating conditions. The minimum sampling period does not apply to batch processes. Batch processes may require sampling during an entire cycle or taking sufficient samples to characterise the gas stream.
- (3) Measurements must be carried out in accordance with standard sampling and analysis methods listed in Annexure A of this Notice.
- (4) Methods, other than those contained in Annexure A, may be used with the written consent of the national air quality officer.
- (5) In seeking written consent referred in paragraph 5(4), an applicant must provide the national air quality officer with any information that supports the equivalence of the method applied for.
- (6) Emission measurements required under paragraph 5(2) may be supplemented by means of mass balance or any other acceptable surrogate parameters for months between reporting periods as approved by the national air quality officer.

**6. Reporting requirements**

- (1) A person conducting a printing industry activity must—
  - (a) submit at least one emissions report per annum to the relevant air quality officer in the format set out in Annexure B of this Notice;
  - (b) submit the first emissions report to the relevant air quality officer within twelve months from the commencement date of this Notice;
  - (c) provide any additional emissions reports as requested by the relevant air quality officer for the implementation of this Notice; and
  - (d) produce the record of the measurement results for inspection if requested to do so by the relevant air quality officer.
- (2) The report mentioned under paragraph 6(1) must be accompanied by information on how measurements were carried out, equipment used, calibration certificates and any other information that may be required for validation of the emission results.
- (3) A person conducting a printing industry activity must—
  - (a) prepare a solvent consumption plan to accurately record total solvent consumption on an annual basis, in a format set out in Annexure C of this Notice;

- (b) produce the record of the solvent consumption plan(s) for inspection if requested to do so by the relevant air quality officer; and
- (c) retain the records of the annual solvent consumption plans for a period of five years.

**7. Registration as a data provider under the National Atmospheric Emission Inventory System**

- (1) A person conducting an existing printing industry activity must—
  - (a) within 60 days of the promulgation of this Notice, register as a data provider in the National Atmospheric Emission Inventory System; and
  - (b) comply with all the requirements stipulated under the National Atmospheric Emission Reporting Regulations, 2015.
- (2) A person conducting a new printing industry activity must—
  - (a) register on the National Atmospheric Emission Inventory System within 30 days after commencing with such an activity; and
  - (b) comply with all the requirements stipulated under the National Atmospheric Emission Reporting Regulations, 2015.

*Part 3: Emission Standards*

**9. Emission standards**

(1) A printing industry activity must comply with the emission limits and requirements set out in the table below. All limit values are expressed on daily averages, at specified reference conditions.

| <b>Description:</b>                             |  | Printing, coating and lamination processes using gravure, flexography, rotary screen printing, heat set lithography, varnishing and printing systems that incorporate elements of these technologies. |  |
|---|--|---|--|
| <b>Application:</b>                             |  | Installations with organic solvent consumption threshold equal to or more than 25 tonnes per year.  |  |
| Substance or mixture of substances              |  | Plant status  | mgC/Nm <sup>3</sup> under normal conditions of 273 Kelvin and 101.3 kPa. |
| Common name                                     | Chemical symbol                              |   |  |
| Total Volatile Organic Compounds                | N/A  | New   | 100  |
|   |  | Existing  | 150  |
| <b>Thermal Oxidation</b>                        |  |   |  |
| Oxides of Nitrogen from thermal treatment units |  | mg/Nm <sup>3</sup> under normal conditions of 273 Kelvin and 101.3 kPa.   |  |
| Oxides of nitrogen                              | NO <sub>x</sub> expressed as NO <sub>2</sub> | New   | 100  |
|   |  | Existing  | 400  |

- (2) The following special arrangements shall apply—
- (a) **Replacement of printing appliance(s) by an existing printing activity:** An existing printing activity that replace any of its printing appliances that results in less than 20% of its production capacity must comply with emission standards for existing printing industry.
  - (b) **Expansion to existing printing activity:** An existing printing activity that expands its production capacity by more than 20% through the installation of additional printing appliances must comply with emission standards for new printing industry activity.
  - (c) Facilities with VOC abatement must achieve a 90% availability of the abatement equipment during printing operations.

## ANNEXURE A: MEASUREMENT METHODS

### 1. International Organization for Standardization

- (a) ISO 10396: Stationary source emissions – Sampling for the automated determination of gas emissions concentrations for permanently-installed monitoring systems.
- (b) ISO 10780: Stationary source emissions – Measurement of velocity volume flow rate of gas steams in ducts.
- (c) ISO 14164: Stationary source emissions – Determination of the volume flow-rate of gas streams in ducts - Automated method.
- (d) ISO 11338-1: Stationary source emissions – Determination of gas and particle-phase polycyclic aromatic hydrocarbons Part 1: Sampling.
- (e) ISO 11338-2: Stationary source emissions – Determination of gas and particle-phase polycyclic aromatic hydrocarbons Part 2: Sample preparation, clean-up and determination.
- (f) ISO 13199: Stationary source emissions – Determination of total volatile organic compounds (TVOCs) in waste gases from non-combustion processes – Non-dispersive infrared analyser equipped with catalytic converter.
- (g) ISO 10849 Stationary source emissions - Determination of the mass concentration of nitrogen oxides. Performance characteristics of automated measuring systems.
- (h) ISO 11564: Stationary source emissions – Determination of the mass concentration of nitrogen oxides – Naphthylenediamine photometric method.

### 2. United States Environmental Protection Agency

- (a) USEPA Method 1 – Traverse Points.
- (b) USEPA Method 1A – Small Ducts.
- (c) US EPA Method 2--Determination of stack gas velocity and volumetric flow rate.
- (d) US EPA Method 2A--Direct measurement of gas volume through pipes and small ducts.
- (e) US EPA Method 2B--Determination of exhaust gas volume flow rate from gasoline vapour incinerators.
- (f) US EPA Method 2C--Determination of stack gas velocity and volumetric flow rate in small stacks or ducts.
- (g) US EPA Method 2D--Measurement of gas volumetric flow rates in small pipes and ducts.
- (h) USEPA Method 3 – Molecular Weight.
- (i) USEPA Method 3A – CO<sub>2</sub>, O<sub>2</sub> by instrumental methods.

- (j) USEPA Method 3B – CO<sub>2</sub>, O<sub>2</sub> by Orsat apparatus.
- (k) USEPA Method 3C – CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>, O<sub>2</sub> by determined by thermal conductivity.
- (l) USEPA Method 4 – Moisture Content.
- (m) US EPA Method 7--Determination of nitrogen oxide emissions from stationary sources.
- (n) US EPA Method 7A--Determination of nitrogen oxide emissions from stationary sources--Ion chromatographic method.
- (o) US EPA Method 7B--Determination of nitrogen oxide emissions from stationary sources (Ultraviolet spectrophotometry).
- (p) US EPA Method 7C--Determination of nitrogen oxide emissions from stationary sources--Alkalinepermanganate/colorimetric method.
- (q) US EPA Method 7D--Determination of nitrogen oxide emissions from stationary sources--Alkaline-permanganate/ion chromatographic method.
- (r) US EPA Method 7E--Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure).
- (s) USEPA Method 18 – VOC by Gas Chromatography (GC).
- (t) USEPA Method 21 – VOC Leaks.
- (u) USEPA Method 25D – Volatile Organic Concentration.

### **3. British Standards Institution**

- (a) BS EN 15259: Air quality. Measurement of stationary source emissions. Measurement strategy, measurement planning, reporting and design of measurement sites.
- (b) BS EN 14181:2004 Stationary source emissions. Quality assurance of automated measuring systems.
- (c) BS EN 15267-1: Air quality. Certification of automated measuring systems. General principles.
- (d) BS EN 15267-2: Air quality. Certification of automated measuring systems. Initial assessment of the AMS manufacturer's quality management system and post certification surveillance for the manufacturing process.
- (e) BS EN 15267-3: Air quality. Certification of automated measuring systems. Performance criteria and test procedures for automated measuring systems for monitoring emissions from stationary sources.
- (f) BS EN 14792 Stationary source emissions - Determination of mass concentration of nitrogen oxides (NO<sub>x</sub>). Reference Method: Chemiluminescence.
- (g) BS EN 12619 Stationary source emissions - Determination of the mass concentration of total gaseous organic carbon. Continuous Flame Ionisation Detector Method.

(h) BS EN 13526 Stationary source emissions - Determination of the mass concentration of total gaseous organic carbon in flue gases from solvent using processes. Continuous Flame Ionisation Detector Method.

(i) BS EN 13649 Stationary source emissions - Determination of the mass concentration of individual gaseous organic compounds. Activated Carbon and Solvent Desorption Method.



**ANNEXURE B: TEMPLATE FOR REPORTING EMISSIONS**

**Emission Measurements Report for Printing Industry Activity**

**Name of Enterprise:** \_\_\_\_\_

Declaration of accuracy of information provided:

I, \_\_\_\_\_, declare that the information provided in this report is in all respects factually true and correct.

Signed at \_\_\_\_\_ on this \_\_\_\_\_ day of \_\_\_\_\_

\_\_\_\_\_

**SIGNATURE**

\_\_\_\_\_

**CAPACITY OF SIGNATORY**

**1. Enterprise Details**

|   |  |
|---|--|
| Enterprise Name                                 |  |
| Trading as                                      |  |
| Postal Address                                  |  |
| Telephone Number (General):                     |  |
| Fax Number (General)                            |  |
| Industry Type /Nature of Trade                  |  |
| Land Use Zoning as per Town Planning Scheme     |  |
| Land Use Rights if outside Town Planning Scheme |  |

**2. Contact details**

|                         |  |
|-------------------------|--|
| Responsible Person Name |  |
| Telephone Number        |  |
| Cell Phone Number       |  |
| Fax Number              |  |
| E-mail address          |  |

**3. Serial number, product name and model of the appliances**

| Serial Number | Product Name | Product Model | Capacity |
|---------------|--------------|---------------|----------|
|               |              |               |          |
|               |              |               |          |
|               |              |               |          |

4. Point source parameters

| Unique stack ID | Point source name | Height of release above ground [m] | Height above nearby building [m] | Diameter at stack tip / vent exit [m] | Actual gas exit temperature [°C] | Actual gas volumetric flow (m <sup>3</sup> /h) | Actual gas exit velocity [m/s] |
|-----------------|-------------------|------------------------------------|----------------------------------|---------------------------------------|----------------------------------|--|--------------------------------|
|                 |                   |                                    |                                  |                                       |                                  |  |                                |
|                 |                   |                                    |                                  |                                       |                                  |  |                                |
|                 |                   |                                    |                                  |                                       |                                  |  |                                |

5. Point source emissions

| Unique stack ID | Pollutant name | Daily Average Values* |  |  | Emission hours [e.g. 07H00 – 17H00] | Type of emission [continuous/intermittent] |
|-----------------|----------------|-----------------------|--|--|-------------------------------------|--|
|                 |                |                       |  |  |                                     |  |
|                 |                |                       |  |  |                                     |  |
|                 |                |                       |  |  |                                     |  |
|                 |                |                       |  |  |                                     |  |

\*mgC/Nm<sup>3</sup> for TVOC; mg/Nm<sup>3</sup> for NO<sub>x</sub>

**ANNEXURE C: SAMPLE SOLVENT CONSUMPTION RECORD**

| 1. COMPANY CONTACT DETAILS  |                         |  |               |    |      |
|---|-------------------------|--|---------------|----|------|
| 1.1 Enterprise Name   |                         |  |               |    |      |
| 1.2 Physical Address  |                         |  |               |    |      |
| 1.3 Phone   |                         |  |               |    |      |
| 1.4 Email   |                         |  |               |    |      |
| 1.5 Responsible Person  |                         |  |               |    |      |
| 2. OPERATIONAL DETAILS  |                         |  |               |    |      |
| 2.1 Main Printing Processes Used:   |                         |  |               |    |      |
| 2.2 Number of Employees:  | 1-50                    |  | 51-100        |    | 101+ |
| 2.3 Raw Material Containing Organic Solvent:                                    | Volume per year: (tons) |  | MSDS Attached |    |      |
| 2.3.1   |                         |  | Yes           | No |      |
| 2.3.2   |                         |  | Yes           | No |      |
| 2.3.3   |                         |  | Yes           | No |      |
| 2.3.4   |                         |  | Yes           | No |      |
| 2.3.5   |                         |  | Yes           | No |      |
| 3. Organic Solvent Waste  |                         |  |               |    |      |
| 3.1 Estimate of Organic Solvents Disposed (tons/annum):                         |                         |  |               |    |      |
| 4. Vents  |                         |  |               |    |      |
| 4.1 How many vents does your facility have that could contain organic solvents? |                         |  |               |    |      |
| 4. Recycling  |                         |  |               |    |      |
| What quality of solvent, if any, is recycled (tonnes per annum)?                |                         |  |               |    |      |