



**environment & tourism**

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Department:  
Environmental Affairs and Tourism  
REPUBLIC OF SOUTH AFRICA

# ***AQA IMPLEMENTATION: LISTED ACTIVITIES AND MINIMUM EMISSION STANDARDS***

**DRAFT SCHEDULE FOR SECTION 21 AIR QUALITY ACT**

**Rev 1.0**

**27 FEBRUARY 2008**

## SCHEDULE

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1. Definitions.....	3
2.1 Reporting requirements.....	4
2.2. Listed Activities and Minimum Emission Standards.....	9
Table 2: Listed Activities and Minimum Emission Standards.....	10
2.2.1 Combustion Installations.....	10
2.2.2 Petroleum Industry.....	12
2.2.3 Carbonisation and coal gasification.....	15
2.2.4 Metallurgical industry.....	19
2.2.5 Mineral processing industry.....	41
2.2.6 Organic chemical industry.....	50
2.2.7 Inorganic chemical industry.....	52
2.2.8 Disposal of general and hazardous waste.....	59
2.2.9 Wood products industry.....	61
2.2.10 Animal matter processing.....	67
2.2.11 Solid and liquid waste (incl sewage) disposal.....	67

## 1. Definitions

In these Regulations a word or expression to which a meaning has been assigned in the Act has that meaning and, unless the context otherwise indicates: –

**“Act”** means the National Environmental Management: Air Quality Act 2004 (Act No.39 of 2004)

**“Alternative fuels and resources”** means general and hazardous waste materials, or secondary products from other industries, which are used to substitute conventional or primary fossil fuel and/or virgin raw materials in cement kilns and other industrial manufacturing processes (also referred to as ‘Alternative fuels and raw materials’, ‘Secondary materials’, or ‘Refuse derived fuel’).

**“Flare”** means a combustion device that uses an open flame to burn combustible gases with combustion air provided by ambient air around the flame. Combustion may be steam or air assisted. Flares may be either continuous or intermittent. This term includes both ground and elevated flares;

**“Listed activities”** includes the singular

**“Oxides of nitrogen (NOx)”** means the sum of nitrogen oxide (NO) and nitrogen dioxide (NO<sub>2</sub>) expressed as nitrogen dioxide (NO<sub>2</sub>)

**“Particulate Matter (PM)”** means total particulate matter, that is the solid matter contained in the gas stream in the solid state as well as the insoluble and soluble solid matter contained in entrained droplet in the gas stream , as measured by the appropriate method listed in Table 1

**“Petrochemicals”** means ethylene and its polymers, ethylene oxide, ethylene glycol, ethylene glycol, glycol ethers, ethoxylates, vinyl acetate, 1,2-dichloroethane, trichloroethylene, tetrachloroethylene, vinyl chloride, propylene, propyl alcohols, acrylonitrile, propylene oxide, isomers of butylene, butyl ethers, butadienes, polyolefins and alpha-olefins, all alcohols, acrylic acid, allyl chloride, epichlorohydrin, benzene and alkylbenzenes, toluene, o, m and p xylene, ethylbenzene, styrene, cumene, phenols, acetone, cyclohexane, adipic acid, nitrobenzene, chlorobenzene, aniline, methylene diphenyl diisocyanate (MDI), toluene di-isocyanate or other di-isocyanates of comparable volatility, benzoic acid.

**“Point source”** means any confined and discrete conveyance from which pollutants are or may be discharged

“**Sulphur Recovery Plant**” means a process unit that processes sulphur containing gases obtained from the processing of crude mineral oil or the coking or gasification of coal and produces a final product of elemental sulphur.

## 2.1 Reporting requirements

The owner or operator of a facility in which a listed activities are operated shall submit an annual emission report to the licensing authority in terms of section 36 of the Act within a year after first date of issue of license to the facility, and annually thereafter not longer than 13 months after submission of the previous report, for each activity operated within the facility which is listed in this regulation, whether such activity was operated for the full period or not. The emission report shall be in an electronic format approved by the National Air Quality Officer.

Each report shall include all of the following:

- a) The name and description of the facility and of the listed activity as on the emission license for the facility
- b) The name and address of the accredited measurement authority that carried out the emission test
- c) The date and time on which the emission test was carried out. The emission test shall be carried out at least once during the reporting period, unless specified otherwise for the specific activity listed in Table 2 below.
- d) A declaration to the effect that normal operating conditions were maintained during the emission tests
- e) The total volumetric flow of gas, expressed in normal cubic meters (Nm<sup>3</sup>) per unit time and mass flow (kg per unit time) being emitted by the listed activity or activities measured during the emission test, as the average of at least two measurements.
- f) The concentration or mass of pollutant for which emissions standards have been set in this schedule emitted by each listed activity within the facility, as the average of at least two measurements.
- g) The method or combination of methods used for determining the flow rate and concentration, selected from Table 1 below. Where a method from Table 1 was not used, the reason shall be provided, as well as a description of the method used and documentary proof of equivalence to a method listed in Table 1.
- h) Where continuous emission measurement is prescribed, the report should include results of correlation tests, which should be carried out at least annually, and the availability of the continuous measurement in terms of the number of full hours per annum that valid results were obtained.
- i) Remediation measures with an implementation schedule where
  - the average values under (f) above exceed the prescribed standard or
  - in the case where continuous emission measurement is prescribed, results were available for less than 90% of the total hours during the reporting period and/or
  - measurement results exceeded the standard given for that activity for more than 5% of the time that measurements are available.

### Table 1: Acceptable measurement methods for point sources

#### (a) ISO Methods

[ISO 7934:1989](#) Stationary source emissions -- Determination of the mass concentration of sulfur dioxide  
Hydrogen peroxide/barium perchlorate/Thorin method

[ISO 7934:1989/Amd 1:1998](#)

[ISO 7935:1992](#) Stationary source emissions -- Determination of the mass concentration of sulfur dioxide  
Performance characteristics of automated measuring methods

[ISO 9096:2003](#) Stationary source emissions -- Manual determination of mass concentration  
of particulate matter

[ISO 9096:2003/Cor 1:2006](#)

[ISO 10155:1995](#) Stationary source emissions -- Automated monitoring of mass concentrations of particles  
Performance characteristics, test methods and specifications

[ISO 10155:1995/Cor 1:2002](#)

[ISO 10396:2007](#) Stationary source emissions  
Sampling for the automated determination of gas emission concentrations  
for permanently-installed monitoring systems

[ISO 10397:1993](#) Stationary source emissions -- Determination of asbestos plant emissions  
Method by fibre count measurement

[ISO 10780:1994](#) Stationary source emissions  
Measurement of velocity and volume flowrate of gas streams in ducts

[ISO 10849:1996](#) Stationary source emissions  
Determination of the mass concentration of nitrogen oxides -- Performance characteristics  
of automated measuring systems

[ISO 11338-1:2003](#) Stationary source emissions  
Determination of gas and particle-phase polycyclic aromatic hydrocarbons  
Part 1: Sampling

[ISO 11338-2:2003](#) Stationary source emissions  
Determination of gas and particle-phase polycyclic aromatic hydrocarbons  
Part 2: Sample preparation, clean-up and determination

[ISO 11564:1998](#) Stationary source emissions  
Determination of the mass concentration of nitrogen oxides – Naphthylethylenediamine photometric method

[ISO 11564:1998/Cor 1:2000](#)

[ISO 11632:1998](#) Stationary source emissions  
Determination of mass concentration of sulfur dioxide -- Ion chromatography method

[ISO 12039:2001](#) Stationary source emissions  
Determination of carbon monoxide, carbon dioxide and oxygen

Performance characteristics and calibration of automated measuring systems

[ISO 12141:2002](#) Stationary source emissions

Determination of mass concentration of particulate matter (dust) at low concentrations –  
Manual gravimetric method

[ISO 14164:1999](#) Stationary source emissions

Determination of the volume flowrate of gas streams in ducts -- Automated method

(b) EPA Methods

Method 1 - Traverse Points

Method 1A - Small Ducts

Method 2 - Velocity - S-type Pitot

Method 2A - Volume Meters

Method 2B - Exhaust Volume Flow Rate

Method 2C - Standard Pitot

Method 2D - Rate Meters

Method 2F - Flow Rate Measurement with 3-D Probe

Method 2G - Flow Rate Measurement with 2-D Probe

Method 2H - Flow Rate Measurement with Velocity Decay Near Stack Walls

Memo - New Test Procedures of Stack Gas Flow Rate in Place of Method 2

Method 3 - Molecular Weight

Method 3A - CO<sub>2</sub>, O<sub>2</sub> by instrumental methods

Method 3B - CO<sub>2</sub>, O<sub>2</sub> by Orsat apparatus

Method 3C - CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>, O<sub>2</sub> by determined by thermal conductivity

Method 4 - Moisture Content

Method 5 - Particulate Matter(PM)

Method 5D - PM Baghouses (Particulate Matter)

Method 5E - PM Fiberglass Plants (Particulate Matter)

Method 5F-PM Fluid Catalytic Cracking Unit

Method 5I - Determination of Low Level Particulate Matter Emissions
Method 6 - Sulphur Dioxide (SO <sub>2</sub> )
Method 6A - SO <sub>2</sub> , CO <sub>2</sub>
Method 6B - SO <sub>2</sub> , CO <sub>2</sub> - Long Term Integrated
Method 6C - SO <sub>2</sub> - Instrumental
Method 6C Figures SO <sub>2</sub>
Method 7 - Nitrogen Oxide (NO <sub>x</sub> )
Method 7A-NO <sub>x</sub> - Ion Chromatographic Method
Method 7B - NO <sub>x</sub> - Ultraviolet Spectrophotometry
Method 7C - NO <sub>x</sub> - Colorimetric Method
Method 7D - NO <sub>x</sub> - Ion Chromatographic
Method 7E - NO <sub>x</sub> - Instrumental
Method 8 - Sulfuric Acid Mist
Method 9 - Visual Opacity
Method 10 - Carbon Monoxide-NDIR
Method 10A - CO for Certifying CEMS
Method 10B - CO from Stationary Sources
Method 11 - H <sub>2</sub> S Content of Fuel
Method 12 - Inorganic Lead
Method 13A - Total Fluoride (SPADNS Zirconium Lake)
Method 13B - Total Fluoride (Specific Ion Electrode)
Method 14 - Fluoride for Primary Aluminum Plants
Method 14A - Total Fluoride Emissions from Selected Sources at Primary Aluminum Plants
Method 15 - Hydrogen Sulfide, Carbonyl Sulfide, and Carbon Disulfide
Method 15A - Total Reduced Sulfur (TRS Alt.)
Method 16 - Sulfur (Semicontinuous Determination)
Method 16A - Total Reduced Sulfur (Impinger)

Method 16B - Total Reduced Sulfur (GC Analysis)
Method 17 - In-Stack Particulate (PM)
Method 18 - VOC by GC
Method 19 - SO <sub>2</sub> Removal & PM, SO <sub>2</sub> , NO <sub>x</sub> Rates from Electric Utility Steam Generators
Method 20 - NO <sub>x</sub> from Stationary Gas Turbines
Method 21 - VOC Leaks
Method 22 - Fugitive Opacity
Method 23 - Dioxin and Furan (02/91 FR Copy).
Method 25 - Gaseous Nonmethane Organic Emissions
Method 25A - Gaseous Organic Concentration (Flame Ionization)
Method 25B - Gaseous Organic Concentration (Infrared Analyzer)
Method 26 - Hydrogen Chloride, Halides, Halogens
Method 26A - Hydrogen Halide & Halogen-Isokinetic
Method 28A - Air to Fuel Ratio, Burn Rate - Wood-fired Appliances
Method 29 - Metals Emissions from Stationary Sources
Method 101 - Mercury from Chlor-Alkali Plants (Air)
Method 101A - Mercury from Sewage Sludge Incinerators
Method 102 - Mercury from Chlor-Alkali Plants (Hydrogen Streams)
Method 103 - Beryllium Screening Method
Method 104 - Beryllium Emissions Determination
Method 106-Determination of Vinyl Chloride
Method 107A - Vinyl Chloride content of Solvents
Method 108 - Particulate & Gaseous Arsenic emissions
Method 108B - Arsenic
Method 108C - Arsenic
Methods 203A, B, and C - Opacity Determination for Time-Averaged Regulations
Method 303 - By-product Coke Oven Batteries

## 2.2. Listed Activities and Minimum Emission Standards

2.2.1 The standards given in Table 2 below shall apply to the Activities Listed in Table 2 with the proviso that “Existing Plant” standards shall apply from the date eight years after the publication date of these regulations to all plant in operation on the final publication date and plant put into operation within three years of the final publication date of these regulations and “New Plant” standards shall apply to all plant put into operation later than three years after final publication date of these regulations.

2.2.2 The holder of an emission license for a listed activity may apply for a postponement of the date of compliance with the national minimum emission standards set for a specific activity in terms of this regulation. Such an application must be made to the licensing authority at least one year before the compliance date as set out in this regulation and must be accompanied by:

- i. Demonstration that the air emissions from the activity are not causing any adverse impacts on the surrounding environment by exceedence of ambient air quality standards set under section 9 of the AQA. Such demonstration must be in the form of an air pollution impact assessment carried out by an independent person or institution (in the format for Atmospheric Impact Reports, as contemplated in Section 30 of the NEM:AQA and specified by the National Air Quality Officer); and
- ii. Proof of substantial compliance with the conditions set in the most recent revision of previous APPA registration certificates or emission licenses. Such proof must be in the form of report(s) of measurements carried out by an independent person or institution and/or such operational records as deemed appropriate by the licensing authority.

Applications for exemption in terms of this clause must conform to the conditions set for emission application licenses in section 38(3) of AQA.

When considering an application for exemption in terms of this clause, the licensing authority must inform the National Air Quality officer that such an application has been received and of its final decision in this regard.

Table 2: Listed Activities and Minimum Emission Standards

2.2.1 Combustion Installations

1. CATEGORY OF LISTED ACTIVITY			
<b>Number:</b>	1	<b>Category Title</b>	Combustion installations

2. LISTED ACTIVITY			
Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.			
<b>Number:</b>	1.1	<b>Name:</b>	Solid and liquid fuels combustion installation
<b>Description:</b>	Solid and liquid fuels (incl. biomass) combustion installations used primarily for steam raising or electricity generation.		
<b>Size:</b>	Design capacity of more than 70 MW heat input per unit, based on the lower calorific value of the fuel used.		

3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS				
Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.				
Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 6% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Particulate matter (PM)	Not applicable	20	75	Appropriate method selected from Table 1
Carbon monoxide	CO	100(coal-fired) 250(biomass-fired)	100 (coal-fired) 250(biomass-fired)	
Sulphur dioxide	SO <sub>2</sub>	400	4000	
Oxides of nitrogen	NOx	500	800	

4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS		
Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.		
Requirement	Application	Compliance Date
Continuous on-line stack measurement of PM and SO <sub>2</sub> for units with capacity larger than 300 MW heat input. On-line measurement to be calibrated annually using appropriate methods selected from Table 1.		Two years after publication
Installations burning waste oil are subject to the provision of category 8: Incineration processes including hazardous waste.		Publication date

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	1	<b>Category Title</b>	Combustion installations
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	1.2	<b>Name:</b>	Gas combustion installation
<b>Description:</b>	Gas combustion (including gas turbines) used primarily for steam raising or electricity generation.		
<b>Size:</b>	Design capacity of more than 70 MW heat input per unit, based on the lower calorific value of the fuel used.		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 6% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	10	10	Appropriate method selected from Table 1
Carbon monoxide	CO	100	100	
Sulphur dioxide	SO <sub>2</sub>	400	400	
Oxides of nitrogen	NO <sub>x</sub>	50	90	

## 2.2.2 Petroleum Industry

1. CATEGORY OF LISTED ACTIVITY			
<b>Number:</b>	2	<b>Category Title</b>	Petroleum Industry i.e the production of gaseous and liquid fuels as well as petrochemicals from coal, gas or biomass.

2. LISTED ACTIVITY			
Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.			
<b>Number:</b>	2.1	<b>Name:</b>	Combustion installations
<b>Description:</b>	Combustion installations not used primarily for steam raising or electricity generation		
<b>Size:</b>	All combustion installations (except test or experimental) including catalytic cracking regenerators.		

3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS				
Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.				
Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 6% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Particulate matter (PM)	Not applicable	50	120	Appropriate method selected from Table 1 Catalytic cracking SO <sub>2</sub> emissions excluded; see transitional and other special arrangements below.
Sulphur dioxide	SO <sub>2</sub>	350	Equivalent to 1.5% S by weight in fuel, normalised to a fuel with a calorific value of 42 MJ/kg	
Oxides of nitrogen	NO <sub>x</sub>	250	2000	

4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS		
Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.		
Requirement	Application	Compliance Date
The oxides of nitrogen shall be calculated as a flow-weighted average over all combustion processes	All refineries	Publication date
No continuous flaring of hydrogen sulphide-rich gases shall be allowed	All refineries	Publication date
Allowable SO <sub>2</sub> emissions from a refinery will be calculated as the sum of emissions from combustion, sulphur recovery units, flares and catalytic cracking units. Emissions from individual processing units may exceed the values given above, provided that the total emissions from the refinery do not exceed the sum. For purposes of this calculation, catalytic cracking emissions will be calculated as if feed is not hydrotreated and using the equation $Q_{SO_2} = 0.931 S Q$ with Q <sub>SO<sub>2</sub></sub> the emission rate of SO <sub>2</sub> in kg/hr S the sulphur content of the FCCU feed in kg.m <sup>3</sup> Q the FCCU feed rate in m <sup>3</sup> /hr	All mineral oil refineries	Publication date

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	2	<b>Category Title</b>	Petroleum Industry i.e the production of gaseous and liquid fuels as well as petrochemicals from coal, gas or biomass.
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	2.1	<b>Name:</b>	All operations except combustion
<b>Description:</b>	All operations except combustion		
<b>Size:</b>	All facilities producing more than 100 ton per annum of products; all liquid storage tanks larger than 50 cubic meters .		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 6% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Hydrogen sulphide	H <sub>2</sub> S	5	Standards to be set by licensing authority on submission of an atmospheric impact report	Appropriate method selected from Table 1
Total Volatile Organic compounds from thermal or non-thermal treatment	Not applicable	40	40	

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date								
Leak detection and repair (LDAR) program approved by licensing authority to be instituted	All facilities	1 year after publication date								
<p>The following measures shall apply for control of VOCs from storage, loading and unloading of raw materials, intermediate and final products :</p> <p>3.1 Storage vessels for liquids shall be of the following type:</p> <table border="1"> <tr> <td>True vapour pressure of contents at storage temperature</td> <td>Type of tank or vessel</td> </tr> <tr> <td>Up to 14 kPa (corrected for altitude)</td> <td>Fixed roof tank vented to atmosphere.</td> </tr> <tr> <td>Above 14 kPa up to 91 kPa (both corrected for altitude)</td> <td>External floating roof tank with primary and secondary rim seals for tank diameter larger than 20m, or fixed roof tank with internal floating deck fitted with primary seal, or fixed roof tank with vapour recovery system.</td> </tr> <tr> <td>Above 91 kPa (corrected for altitude)</td> <td>Pressure vessel</td> </tr> </table> <p>3.2 The roof legs, slotted pipes and/or dipping well on floating roof tanks shall</p>	True vapour pressure of contents at storage temperature	Type of tank or vessel	Up to 14 kPa (corrected for altitude)	Fixed roof tank vented to atmosphere.	Above 14 kPa up to 91 kPa (both corrected for altitude)	External floating roof tank with primary and secondary rim seals for tank diameter larger than 20m, or fixed roof tank with internal floating deck fitted with primary seal, or fixed roof tank with vapour recovery system.	Above 91 kPa (corrected for altitude)	Pressure vessel	All facilities	<p>Completed 8 years after publication; intermediate milestones to be agreed with licensing authority</p> <p>Requirements under 3.4 applicable to loading and unloading at facilities producing more than 1 000 000 m<sup>3</sup> of product per annum and associated tank farm; depots and retail facilities excluded.</p>
True vapour pressure of contents at storage temperature	Type of tank or vessel									
Up to 14 kPa (corrected for altitude)	Fixed roof tank vented to atmosphere.									
Above 14 kPa up to 91 kPa (both corrected for altitude)	External floating roof tank with primary and secondary rim seals for tank diameter larger than 20m, or fixed roof tank with internal floating deck fitted with primary seal, or fixed roof tank with vapour recovery system.									
Above 91 kPa (corrected for altitude)	Pressure vessel									

<p>have sleeves fitted to minimise emissions.</p> <p>3.3 Relief valves on pressurised storage should undergo periodic checks for internal leaks. This can be carried out using portable acoustic monitors or if venting to atmosphere with an accessible open end, tested with a hydrocarbon analyser as part of an LDAR programme.</p> <p>3.4 Loading/unloading: All liquid products with a vapour pressure above 14 kPa shall be loaded/unloaded using bottom loading, with the vent pipe connected to a gas balancing line. Vapours expelled during loading operations must be returned to the loading tank if it is of the fixed roof type where it can be stored prior to vapour recovery or destruction. Where vapour balancing is not possible, a recovery system utilising adsorption, absorption and condensation and/or incineration of the remaining VOC, with a collection efficiency of 99% shall be fitted.</p>		
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## 2.2.3 Carbonisation and coal gasification

1. CATEGORY OF LISTED ACTIVITY			
<b>Number:</b>	3	<b>Category Title</b>	Carbonisation and coal gasification

2. LISTED ACTIVITY			
Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.			
<b>Number:</b>	3.1	<b>Name:</b>	Combustion installation
<b>Description:</b>	Combustion installations not used primarily for steam raising or electricity generation..		
<b>Size:</b>	All combustion installations (except test or experimental) .		

3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS				
Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.				
Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 6% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Particulate matter (PM) except coke oven battery underfiring	Not applicable	50	100	Appropriate method selected from Table 1
Particulate matter (PM) from coke oven battery underfiring	Not applicable	10	100	
Oxides of nitrogen except coke oven battery underfiring	NO <sub>x</sub>	500	800	
Oxides of nitrogen from coke oven battery underfiring	NO <sub>x</sub>	700	2000	

4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS		
Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.		
Requirement	Application	Compliance Date
Sulphur-containing compounds to be recovered from gases to be used for combustion with a recovery efficiency of not less than 90% or remaining content of sulphur-containing compounds to be less than 400 parts per million measured as hydrogen sulphide, whichever is strictest.	All facilities	Two years after publication or as agreed with licensing authority
Phenol recovery from raw gas to be not less than 95%		

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	3	<b>Category Title</b>	Carbonisation and coal gasification
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	3.2	<b>Name:</b>	Coke production and coal gasification
<b>Description:</b>	Coke production, coal gasification and by-product recovery from these operations		
<b>Size:</b>	All facilities		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Hydrogen sulphide from point sources	H <sub>2</sub> S	5	5	Appropriate method selected from Table 1; see note 4 below

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
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<p>1. Leak detection and repair (LDAR) program approved by licensing authority to be instituted.</p> <p>2. Storage vessels for liquids shall be of the following type:</p>	<p>All facilities in this category</p>	<p>Two years after publication or as agreed with licensing authority</p>								
<table border="1"> <thead> <tr> <th data-bbox="165 286 549 371">True vapour pressure of contents at storage temperature</th> <th data-bbox="549 286 1011 371">Type of tank or vessel</th> </tr> </thead> <tbody> <tr> <td data-bbox="165 371 549 405">Up to 14 kPa (corrected for altitude)</td> <td data-bbox="549 371 1011 405">Fixed roof tank vented to atmosphere.</td> </tr> <tr> <td data-bbox="165 405 549 551">Above 14 kPa up to 91 kPa (both corrected for altitude)</td> <td data-bbox="549 405 1011 551">External floating roof tank with primary and secondary rim seals for tank diameter larger than 20m, or fixed roof tank with internal floating deck fitted with primary seal, or fixed roof tank with vapour recovery system.</td> </tr> <tr> <td data-bbox="165 551 549 611">Above 91 kPa (corrected for altitude)</td> <td data-bbox="549 551 1011 611">Pressure vessel</td> </tr> </tbody> </table>		True vapour pressure of contents at storage temperature	Type of tank or vessel	Up to 14 kPa (corrected for altitude)	Fixed roof tank vented to atmosphere.	Above 14 kPa up to 91 kPa (both corrected for altitude)	External floating roof tank with primary and secondary rim seals for tank diameter larger than 20m, or fixed roof tank with internal floating deck fitted with primary seal, or fixed roof tank with vapour recovery system.	Above 91 kPa (corrected for altitude)	Pressure vessel	<p>All facilities in this category</p>
True vapour pressure of contents at storage temperature	Type of tank or vessel									
Up to 14 kPa (corrected for altitude)	Fixed roof tank vented to atmosphere.									
Above 14 kPa up to 91 kPa (both corrected for altitude)	External floating roof tank with primary and secondary rim seals for tank diameter larger than 20m, or fixed roof tank with internal floating deck fitted with primary seal, or fixed roof tank with vapour recovery system.									
Above 91 kPa (corrected for altitude)	Pressure vessel									
<p>2.1 The roof legs, slotted pipes and/or dipping well on floating roof tanks shall have sleeves fitted to minimise emissions.</p> <p>2.2 Relief valves on pressurised storage should undergo periodic checks for internal leaks. This can be carried out using portable acoustic monitors or if venting to atmosphere with an accessible open end, tested with a hydrocarbon analyser as part of an LDAR programme.</p> <p>2.3 Loading/unloading: All liquid products with a vapour pressure above 14 kPa shall be loaded/unloaded using bottom loading, with the vent pipe connected to a gas balancing line. Vapours expelled during loading operations must be returned to the loading tank if it is of the fixed roof type where it can be stored prior to vapour recovery or destruction. Where vapour balancing is not possible, a recovery system utilising adsorption, absorption and condensation and/or incineration of the remaining VOC, with a collection efficiency of 99% shall be fitted.</p> <p>3. As coke oven battery emissions are difficult to quantify, the following reduction measures are required for coke oven batteries:</p> <p>3.1 Charging must be carried out "on the main" with additional draught in the ascension or riser pipes produced by high-pressure water jets in the goosenecks. Even coal feeding must be ensured using screw feeders or rotary valve feeders. Telescopic seals are to be used around the charging holes. Visible emissions are limited to 12 sec per charge</p> <p>3.2 For pushing, evacuation from the coke guide and the quench car using stationary ducting and gas cleaning is required.</p> <p>3.3 For quenching, the quench tower must have suitable baffles; quench water must have less than 50 mg/litre suspended solids and no floating oil.</p> <p>3.4 A battery and door frame maintenance system approved by the licensing authority must be operated. No more than 4% of doors may show visible leaks; no more than 2.5% of gas off-take pipes may show visible leaks.</p> <p>3.5 Measurement/ inspection procedures for visible leaks from doors, standpipes and from charging shall be carried out weekly for each battery using method EPA 303 from table 1 and records submitted to the licensing authority on a quarterly basis.</p> <p>4. The licensing authority may set alternative standards and/or control measures for the reduction of hydrogen sulphide emissions.</p>										

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	3	<b>Category Title</b>	Carbonisation and coal gasification
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	3.3	<b>Name:</b>	Char, charcoal and carbon black production
<b>Description:</b>	Char, charcoal, carbon black production and electrode paste production		
<b>Size:</b>	Facilities with a production capacity of more than 100 tons/month product.		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	50	100	Appropriate method selected from Table 1
Poly-aromatic hydrocarbons from point sources	Not applicable	0.1	0.5	

## 2.2.4 Metallurgical industry

1. CATEGORY OF LISTED ACTIVITY			
<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry

2. LISTED ACTIVITY			
Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.			
<b>Number:</b>	4.1	<b>Name:</b>	Drying
<b>Description:</b>	Drying of mineral solids including ore		
<b>Size:</b>	Facilities with a production capacity of more than 100 tons/month product.		

3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS				
Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.				
Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Particulate matter (PM)	Not applicable	50	50	Appropriate method selected from Table 1
Oxides of nitrogen	NOx	350	2000	

4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS		
Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.		
Requirement	Application	Compliance Date
Sulphur content of fuels not to exceed 0.9% S on a dry basis	All facilities operating this activity	Two years after publication or as agreed with licensing authority

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.2	<b>Name:</b>	Combustion installation
<b>Description:</b>	Combustion installations not used primarily for steam raising or electricity generation..		
<b>Size:</b>	All combustion installations (except test or experimental) .		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 6% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	50	100	Appropriate method selected from Table 1
Oxides of nitrogen except coke oven battery underfiring	NO <sub>x</sub>	500	2000	

1. CATEGORY OF LISTED ACTIVITY			
<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry

2. LISTED ACTIVITY			
Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.			
<b>Number:</b>	4.3	<b>Name:</b>	Primary aluminium production
<b>Description:</b>	Primary aluminium production		
<b>Size:</b>	All installations .		

3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS				
Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.				
Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Particulate matter (PM)	Not applicable	5	100	Appropriate method selected from Table 1
Total fluorides measured as hydrogen fluoride	HF	0.5	1	

1. CATEGORY OF LISTED ACTIVITY			
<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry

2. LISTED ACTIVITY			
Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.			
<b>Number:</b>	4.4	<b>Name:</b>	Secondary aluminium production
<b>Description:</b>	Secondary aluminium production		
<b>Size:</b>	All installations .		

3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS				
Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.				
Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Particulate matter (PM)	Not applicable	30	100	Appropriate method selected from Table 1
Total fluorides measured as hydrogen fluoride	HF	50	50	

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.5	<b>Name:</b>	Sinter plant
<b>Description:</b>	Sinter plants for agglomeration of fine ores using a heating process, including sinter cooling where applicable		
<b>Size:</b>	All installations .		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 6% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM) (6% O <sub>2</sub> standard conditions does not apply to sinter coolers)	Not applicable	50	100	Appropriate method selected from Table 1
Sulphur dioxide	SO <sub>2</sub>	500	500	
Oxides of nitrogen	NO <sub>x</sub>	700	2000	

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.6	<b>Name:</b>	Basic oxygen furnace steelmaking
<b>Description:</b>	Primary and secondary dust capture from basic oxygen furnace steel making		
<b>Size:</b>	All installations .		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 6% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Particulate matter (PM) from primary furnace gas cleaning system	Not applicable	30	100	Appropriate method selected from Table 1
Particulate matter (PM) from secondary fume capture system (6% O <sub>2</sub> standard conditions does not apply)	Not applicable	30	See transitional and other special arrangements below	

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
Three-monthly running average opacity of monthly observations of visible emissions from the furnace building as measured by EPA methods 9 and 22 not to exceed 20% or Ringelmann 1.	All facilities	Secondary fume capture to be installed on schedule agreed with licensing authority if this requirement not met two years after publication of regulation.

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.7	<b>Name:</b>	Electric arc furnace iron- and steelmaking (primary and secondary).
<b>Description:</b>	Primary and secondary dust capture from electric arc furnace iron and steel making operations.		
<b>Size:</b>	All installations .		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 6% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM) from primary furnace gas cleaning system	Not applicable	15	100	Appropriate method selected from Table 1
Particulate matter (PM) from secondary fume capture system	Not applicable	30	See 4 below	

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
Three-monthly running average opacity of monthly observations of visible emissions from the furnace building as measured by EPA methods 9 and 22 not to exceed 20% or Ringelmann 1.	All facilities	Secondary fume capture to be installed on schedule agreed with licensing authority if this requirement not met two years after publication of regulation

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.8	<b>Name:</b>	Blast furnace operations
<b>Description:</b>	Secondary dust capture .from blast furnace cast house buildings		
<b>Size:</b>	All installations .		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM) from secondary fume capture system	Not applicable	30	See 4 below	Appropriate method selected from Table 1

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
Three-monthly running average opacity of monthly observations of visible emissions from the furnace building as measured by EPA methods 9 and 22 not to exceed 20% or Ringelmann 1.	All facilities	Secondary fume capture to be installed on schedule agreed with licensing authority if this requirement is not met two years after publication of regulation

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.9	<b>Name:</b>	Ferro-alloy production
<b>Description:</b>	Primary and secondary dust capture from processes for the production of alloys of iron with chromium, manganese, silicon or vanadium		
<b>Size:</b>	All installations .		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Particulate matter (PM) from primary fume capture system, open and semi-closed furnaces	Not applicable	30	100	Appropriate method selected from Table 1
Particulate matter (PM) from primary fume capture system, closed furnaces		50	100	
Particulate matter (PM) from secondary fume capture system, all furnaces		50	See transitional and other special arrangements below.	

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
Three-monthly running average opacity of monthly observations of visible emissions from the furnace building as measured by EPA methods 9 and 22 not to exceed 20% or Ringelmann 1.	All facilities operating these activities	Secondary fume capture to be installed on schedule agreed with licensing authority if this requirement is not met two years after publication of regulation.
Emission of Cr(VI), Mn and V from primary fume capture systems of ferrochrome, ferromanganese and ferrovanadium furnaces respectively to be measured and reported (including the health impact of such emissions) to licensing authority annually.		From date of publication.

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.10	<b>Name:</b>	Foundries
<b>Description:</b>	Production of castings of iron and its alloys		
<b>Size:</b>	All installations .		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 6% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM) from cupola furnaces	Not applicable	20	100	Appropriate method selected from Table 1
Particulate matter (PM) from electric arc and induction furnaces		15	100	

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.11	<b>Name:</b>	Agglomeration operations
<b>Description:</b>	Production of pellets or briquettes using presses, inclined discs or rotating drums		
<b>Size:</b>	All installations .		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	20	100	Appropriate method selected from Table 1

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.12	<b>Name:</b>	Pre-reduction and direct reduction
<b>Description:</b>	Production of pre-reduced or metallised ore or pellets using gaseous or solid fuels		
<b>Size:</b>	All installations .		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 6% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	30	100	Appropriate method selected from Table 1
Sulphur dioxide	SO <sub>2</sub>	500	500	
Nitrogen Oxides	NOx	500	2000	

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.13	<b>Name:</b>	Lead smelting
<b>Description:</b>	The production or processing of lead by the application of heat; the production of electric batteries containing lead		
<b>Size:</b>	All installations with a capacity more than 10 ton per annum of lead .		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Lead	Pb	1	1	Appropriate method selected from Table 1

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.14	<b>Name:</b>	Processing of zinc, nickel and cadmium
<b>Description:</b>	The production and processing of zinc, nickel or cadmium by the application of heat.		
<b>Size:</b>	All installations with a capacity of more than 10 ton per annum of zinc, nickel or cadmium.		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	5	20	Appropriate method selected from Table 1

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
Facilities processing nickel or cadmium shall measure or estimate, using a method to the satisfaction of the licensing authority, and report the emission of Ni and Cd (including the health impact of such emissions) respectively to the licensing authority annually.	All facilities	From date of publication.

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.15	<b>Name:</b>	Processing of arsenic, antimony, beryllium, chromium and silicon..
<b>Description:</b>	The production and processing of arsenic, antimony, beryllium chromium and silicon and their compounds by the application of heat.		
<b>Size:</b>	All installations.		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)		5	20	Appropriate method selected from Table 1

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
Facilities processing arsenic, antimony, beryllium, chromium, selenium and their compounds shall measure or estimate, using a method to the satisfaction of the licensing authority, and report the emission of As, Sb, Be, Cr(III) and Cr(VI) (including the health impact of such emissions) respectively to the licensing authority annually.	All facilities operating these activities	From date of publication.

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.16	<b>Name:</b>	Platinum industry smelting and converting
<b>Description:</b>	Smelting and converting of ores for the production of platinum with the production of sulphuric acid		
<b>Size:</b>	All installations .		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	50	100	Appropriate method selected from Table 1
Sulphur dioxide from double contact acid plants	SO <sub>2</sub>	1200	2500	
Sulphur dioxide from single contact acid plants	SO <sub>2</sub>	1200	5000	
Nitrogen oxides	NO <sub>x</sub>	350	2000	

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.17	<b>Name:</b>	Precious and base metal production and refining
<b>Description:</b>	The production or processing of precious and associated base metals		
<b>Size:</b>	All installations		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter	Not applicable	50	50	Appropriate method selected from Table 1
Sulphur dioxide	SO <sub>2</sub>	400	400	
Chlorine	Cl <sub>2</sub>	50	50	
Nitrogen oxides	NO <sub>x</sub>	300	500	
Hydrogen chloride	HCl	30	30	
Total fluorides	HF	30	30	

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
Facilities processing nickel and its compounds shall report the emissions thereof (including the health impact of such emissions) to the licensing authority annually.	All facilities operating these activities	From date of publication.

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.18	<b>Name:</b>	Vanadium production
<b>Description:</b>	The processing of vanadium-bearing ore or slag for the production of vanadium oxides by the application of heat		
<b>Size:</b>	All installations		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter	Not applicable	50	50	Appropriate method selected from Table 1

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
Facilities processing vanadium ore or slag for the production of vanadium oxides shall report the emissions of vanadium and its compounds, sulphur dioxide and ammonia (including the health impact of such emissions) to the licensing authority annually.	All facilities operating these activities	From date of publication.

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.19	<b>Name:</b>	Production and casting of bronze and brass and the casting of copper
<b>Description:</b>	The production or and casting of bronze and brass and the casting of copper.		
<b>Size:</b>	All installations producing more than 10 tons per day of product in aggregate.		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter	Not applicable	50	100	Appropriate method selected from Table 1

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical processes
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.20	<b>Name:</b>	Slag processes
<b>Description:</b>	The processing or recovery of metallurgical slag by the application of heat .		
<b>Size:</b>	All installations		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
<b>Common Name</b>	<b>Chemical Symbol</b>			
Particulate matter	Not applicable	50	100	Appropriate method selected from Table 1

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
Facilities processing slag by the application of heat for the recovery of chromium or manganese content shall report the emissions of Cr(III) and Cr(VI) or Mn and its compounds respectively (including the health impact of such emissions) to the licensing authority annually.	All facilities operating these activities	From date of publication.

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical processes
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.21	<b>Name:</b>	Metal recovery
<b>Description:</b>	The recovery of metal from any form of scrap material containing combustible components by the application of heat.		
<b>Size:</b>	All installations		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Opacity	Not applicable	20% or Ringelmann 1	40% or Ringelmann 2	Three-monthly running average opacity of monthly observations of visible emissions from the facility or building as measured by EPA methods 9 and 22..

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
<ol style="list-style-type: none"> <li>Operators shall satisfy the licensing authority that as much as possible combustible material is removed by mechanical means before heat treatment.</li> <li>The concentration of hydrogen chloride (HCl), chlorine gas (Cl<sub>2</sub>) and total volatile organic compounds (VOC) to be measured once per year under normal operational conditions. If the concentration of HCl exceeds 30 mg/Nm<sup>3</sup> and/or the concentration of Cl<sub>2</sub> exceeds 50 mg/Nm<sup>3</sup>, scrubbing system to the satisfaction of the licensing authority is to be installed. If the concentration of VOC exceeds 40 mg/Nm<sup>3</sup> a thermal oxidation system or afterburner to the satisfaction of the licensing authority is to be installed.</li> </ol>	All facilities operating these activities	First measurement within a year of publication..

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical processes
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.22	<b>Name:</b>	Hot-dip galvanising
<b>Description:</b>	The coating of steel articles with zinc using molten zinc, including the pickling and/or fluxing of articles before coating		
<b>Size:</b>	All installations		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	10	10	Appropriate method selected from Table 1
Hydrogen chloride	HCl	5	5	

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
Acid and zinc baths shall both be fitted with air extraction systems to the satisfaction of the licensing authority. Measurements under 3 to be carried out in the exhaust ducting of the extraction system.	All facilities operating these activities	First measurement within a year of publication..

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	4	<b>Category Title</b>	Metallurgical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	4.23	<b>Name:</b>	Copper production and refining
<b>Description:</b>	Primary copper production with the production of sulphuric acid.		
<b>Size:</b>	All installations		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	50	100	Appropriate method selected from Table 1
Sulphur dioxide from double contact acid plants	SO <sub>2</sub>	1200	2500	
Sulphur dioxide from single contact acid plants	SO <sub>2</sub>	1200	5000	
Nitrogen oxides	NO <sub>x</sub>	350	2000	

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
Facilities shall measure or estimate, using a method to the satisfaction of the licensing authority, report the emissions of lead (including the health impact of such emissions) to the licensing authority annually.	All facilities operating these activities	From date of publication.

## 2.2.5 Mineral processing industry

1. CATEGORY OF LISTED ACTIVITY			
<b>Number:</b>	5	<b>Category Title</b>	Mineral processing industry.

2. LISTED ACTIVITY			
Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.			
<b>Number:</b>	5.1	<b>Name:</b>	Storage and handling of ore and coal.
<b>Description:</b>	Storage and handling of ore and coal not situated on the premises of a mine or works as defined in the Mines Health and Safety Act 29/1996.		
<b>Size:</b>	Locations designed to hold more than 100 000 tons.		

3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS				
Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.				
Substance or mixture of substances		Minimum standard		Manner in which measurement must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Dust fall.	Not applicable	Three month running average not to exceed limit value for adjacent land use according to SANS 1929:2004		Dustfall method selected prescribed in SANS 1929:2004 to be applied on facility boundary in the eight principal wind directions.

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	5	<b>Category Title</b>	Mineral processing industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	5.2	<b>Name:</b>	Clamp kilns for brick production.
<b>Description:</b>	The production of bricks using clamp kilns.		
<b>Size:</b>	All installations		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		Minimum standard		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Dust fall	Not applicable	Three month running average not to exceed limit value for adjacent land use according to SANS 1929:2004		Dustfall method selected prescribed in SANS 1929:2004 to be applied on facility boundary in the eight principal wind directions.
Sulphur dioxide	SO <sub>2</sub>	Twelve month running average not to exceed limit value for adjacent land use according to SANS 1929:2004		Passive diffusive measurement approved by the licensing authority carried out monthly.

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	5	<b>Category Title</b>	Mineral processing industries
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	5.3	<b>Name:</b>	Cement production
<b>Description:</b>	The production and cooling of Portland cement clinker and the grinding and blending of clinker to produce finished cement		
<b>Size:</b>	All installations		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 10% O <sub>2</sub> , dry gas at 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Particulate matter (PM) from clinker production	Not applicable	50	50	Appropriate method selected from Table 1
Nitrogen oxides from clinker production	NO <sub>x</sub>	1200	2000	
Sulphur dioxide from clinker production	SO <sub>2</sub>	250	250	
Particulate matter (PM) from clinker cooling using electrostatic precipitators	Not applicable	100	150	
Particulate matter (PM) from clinker cooling using fabric filters	Not applicable	50	50	
Particulate matter (PM) from clinker grinding and cement blending and loading	Not applicable	30	50	
Total organic compounds where alternative fuels and/or resources are used	Not applicable	10		
Hydrogen chloride where alternative fuels and/or resources are used	HCl	10		
Hydrogen fluoride where alternative fuels and/or resources are used	HF	1		
Cadmium plus thallium plus mercury where alternative fuels and/or resources are used	Cd+Tl+Hg	0.05		
Sum of chromium, beryllium, arsenic, antimony, barium, lead, silver, Cobalt, copper, manganese, tin, vanadium and nickel where alternative fuels and/or resources are used	Cr, Be, As, Sb, Ba, Pb, Ag, Co, Cu, Mn, Sn, V, Ni	0.5		
PCDD/PCDF (units of ng/Nm <sup>3</sup> I-TEQ) where alternative fuels and/or resources are used		0.1		

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
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<ol style="list-style-type: none"> <li>1. Variation in particulate matter concentration from clinker production to 250 mg/Nm<sup>3</sup> allowable for 72h after start-up. Start-up is measured from ignition of heating up to a raw meal feed rate of 50% of nominal capacity</li> <li>2. Variation in particulate matter concentration in ESP outlet up to 500 mg/Nm<sup>3</sup> is allowed for 30 min on any one day, provided that the overall on-line time of the ESP is 99% or more on a monthly average basis.</li> </ol>	All facilities	From date of publication
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### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	5	<b>Category Title</b>	Mineral processing industries
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	5.4	<b>Name:</b>	Burning of lime, magnesite and dolomite
<b>Description:</b>	The burning of lime, magnesite, dolomite and calcium sulphate.		
<b>Size:</b>	All installations		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 10% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	50	100	Appropriate method selected from Table 1

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	5	<b>Category Title</b>	Mineral processing industries
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	5.5	<b>Name:</b>	Glass and mineral wool production
<b>Description:</b>	The production of glass containers, flat glass, glass fibre and mineral wool		
<b>Size:</b>	All installations producing 100 ton per annum or more		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 10% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	30	100	Appropriate method selected from Table 1
Nitrogen oxides from container glass, flat glass and mineral wool production	NO <sub>x</sub>	850	1800	
Nitrogen oxides from glass fibre production	NO <sub>x</sub>	1500	1800	

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	5	<b>Category Title</b>	Mineral processing industries
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	5.6	<b>Name:</b>	Ceramic production
<b>Description:</b>	The production of tiles, bricks, refractory bricks, stoneware or porcelainware by firing, excluding clamp kilns		
<b>Size:</b>	All installations producing 100 ton per annum or more		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 10% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM) from driers and kilns	Not applicable	50	100	Appropriate method selected from Table 1
Nitrogen oxides	NO <sub>x</sub>	500	2000	
Total fluorides measured as hydrogen fluoride	HF	50	50	

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	5	<b>Category Title</b>	Mineral processing industries
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	5.7	<b>Name:</b>	Macadam preparation
<b>Description:</b>	The production mixtures of aggregate and tar or bitumen to produce road surfacing.		
<b>Size:</b>	All installations.		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	200	200	Appropriate method selected from Table 1

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	5	<b>Category Title</b>	Mineral processing industries
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	5.8	<b>Name:</b>	Alkali processes
<b>Description:</b>	Primary manufacture of potassium or sodium sulphate or the treatment of ores by chloride salts whereby hydrogen chloride gas is evolved.		
<b>Size:</b>	All installations producing 100 ton per annum or more		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 10% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	30	100	Appropriate method selected from Table 1
Hydrogen chloride	HCl	30	30	

## 2.2.6 Organic chemical industry

1. CATEGORY OF LISTED ACTIVITY			
<b>Number:</b>	6	<b>Category Title</b>	Organic chemicals manufacturing

2. LISTED ACTIVITY			
Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.			
<b>Number:</b>	6.1	<b>Name:</b>	Organic chemical manufacturing
<b>Description:</b>	The manufacture or use of hydrocarbons not specified elsewhere including acetylene, acetic, maleic or phthalic anhydride or their acids, carbon disulphide, pyridine, formaldehyde, acetaldehyde, acrolein and its derivatives, amines and synthetic rubber. The manufacture of organometallic compounds, organic dyes and pigments, surface=active agents, the polymerisation or co-polymerisation of any unsaturated hydrocarbons, substituted hydrocarbon (including vinyl chloride), the manufacture, recovery or purification of acrylic acid or any ester of acrylic acid, the use of toluene di-isocyanate or other di-isocyanate of comparable volatility; the use or recovery of pyridine; the manufacture of tyres		
<b>Size:</b>	All installations producing or using more than 100 ton per annum of any or a combination of the compounds listed above.		

3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS				
Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.				
Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 6% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	Appropriate method selected from Table 1
Total Volatile Organic compounds from thermal or non-thermal treatment	Not applicable	40	40	
Sulphur dioxide from sulphonation processes	SO <sub>2</sub>		30	

4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS										
Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.										
Requirement	Application	Compliance Date								
<p>All facilities must measure/estimate their annual emission of compounds listed in the table below. Where the estimated or measured annual emissions of a single compound exceeds 10 ton, or the sum for the compounds listed below exceeds 25 ton, an annual report must be submitted to the licensing authority accompanied by an assessment of the health risk that the emissions impose on adjacent communities.</p> <p>(CAS = Chemical Abstracts Service; the service provides a unique identification number for chemicals to prevent confusion due to different nomenclatures)</p> <table border="0"> <tr> <td><b>CAS Number</b></td> <td><b>Chemical Name</b></td> </tr> <tr> <td>107028</td> <td>Acrolein</td> </tr> <tr> <td>79061</td> <td>Acrylamide</td> </tr> <tr> <td>79107</td> <td>Acrylic acid</td> </tr> </table>	<b>CAS Number</b>	<b>Chemical Name</b>	107028	Acrolein	79061	Acrylamide	79107	Acrylic acid	All facilities	First report within one year of publication
<b>CAS Number</b>	<b>Chemical Name</b>									
107028	Acrolein									
79061	Acrylamide									
79107	Acrylic acid									

107131	Acrylonitrile		
1332214	Asbestos		
71432	Benzene		
106990	1,3-Butadiene		
	Dioxins and furans		
75150	Carbon disulfide		
56235	Carbon tetrachloride		
1319773	Cresols/Cresylic acid (isomers and mixture)		
95487	o-Cresol		
108394	m-Cresol		
106445	p-Cresol		
106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)		
75003	Ethyl chloride (Chloroethane)		
75218	Ethylene oxide		
50000	Formaldehyde		
	Hydrogen cyanide		
101688	Methylene diphenyl diisocyanate (MDI)		
87865	Pentachlorophenol		
75445	Phosgene		
75569	Propylene oxide		
584849	2,4-Toluene diisocyanate		
79016	Trichloroethylene		
75014	Vinyl chloride		

## 2.2.7 Inorganic chemical industry

1. CATEGORY OF LISTED ACTIVITY			
<b>Number:</b>	7	<b>Category Title</b>	Inorganic chemical industry

2. LISTED ACTIVITY			
Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.			
<b>Number:</b>	7.1	<b>Name:</b>	Primary production and use of ammonia, bromine and chlorine
<b>Description:</b>	The production and use of ammonia, bromine or chlorine gas.		
<b>Size:</b>	All installations		

3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS				
Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.				
Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Ammonia from ammonia production or use	NH <sub>3</sub>	30	100	Appropriate method selected from Table 1
Chlorine from chlorine production or use	Cl <sub>2</sub>	50	50	
Bromine from bromine production or use	Br	TBD		

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	7	<b>Category Title</b>	Inorganic chemical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	7.2	<b>Name:</b>	Primary production of acids
<b>Description:</b>	The primary production of hydrofluoric, hydrochloric, nitric and sulphuric acid (including oleum) in concentration exceeding 10%; also processes in oxides of sulphur are emitted through the manufacture of acid sulphites of alkalis or alkaline earths or through the production of liquid sulphur dioxide or sulphurous acid. .		
<b>Size:</b>	All installations with the exception of those producing sulphuric acid as part of the recovery of metals from ore		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Sulphur dioxide from sulphuric acid production	SO <sub>2</sub>	350	2800	Appropriate method selected from Table 1
Sulphuric acid mist and sulphur trioxide, measured as sulphur trioxide	SO <sub>3</sub>	25	100	
Nitrogen oxides from nitric acid production	NO <sub>x</sub>	350	2000	
Total fluoride from production of hydrogen fluoride and phosphoric acid, measured as HF	HF	5	30	
Hydrogen chloride from hydrogen chloride production	HCl	15	25	

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	7	<b>Category Title</b>	Inorganic chemical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	7.3	<b>Name:</b>	Primary chemical fertiliser production
<b>Description:</b>	The production of superphosphates, ammonium nitrate, ammonium phosphates and ammonium sulphate and their processing into solid fertiliser mixtures (NPK mixtures).		
<b>Size:</b>	All installations		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 10% O <sub>2</sub> , 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Particulate matter (PM) from all processes	Not applicable	25	100	Appropriate method selected from Table 1
Ammonia from production of ammonium nitrate and NPK mixtures	NH <sub>3</sub>	30	100	
Total fluoride from production of superphosphates and NPK mixtures, measured as HF	HF	5	30	

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	7	<b>Category Title</b>	Inorganic chemical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	7.4	<b>Name:</b>	Manufacturing activity involving the production, use or recovery of antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, mercury, selenium, thallium and their salts not mentioned elsewhere...
<b>Description:</b>	Manufacturing activity involving the production, use or recovery of antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, mercury, selenium, thallium and their salts not covered elsewhere by the application of heat, excluding their use as catalyst.		
<b>Size:</b>	All installations producing more than 1 ton per month		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	10	25	Appropriate method selected from Table 1

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
Operators shall estimate the emissions of the metals using a method to the satisfaction of the licensing authority. Where the estimated emissions exceed 10 tons per annum for any one of the metals, or 25 tons per annum for a combination of the metals, an air quality impact assessment for the emissions shall be submitted to the licensing authority annually	All facilities	Fisrt report within ine year of date of publication.

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	7	<b>Category Title</b>	Inorganic chemical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	7.5	<b>Name:</b>	Production of calcium carbide
<b>Description:</b>	Production of calcium carbide		
<b>Size:</b>	All installations producing more than 10 ton per month		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	25	100	Appropriate method selected from Table 1

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	7	<b>Category Title</b>	Inorganic chemical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	7.6	<b>Name:</b>	Production of phosphorus and phosphate salts not mentioned elsewhere
<b>Description:</b>	Production of phosphorus and phosphate salts		
<b>Size:</b>	All installations producing more than 10 ton per month		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	25	50	Appropriate method selected from Table 1

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	7	<b>Category Title</b>	Inorganic chemical industry
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	7.7	<b>Name:</b>	Production of oxide pigments
<b>Description:</b>	Production of oxide pigments by the application of heat		
<b>Size:</b>	All installations producing more than 10 ton per month		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	25	50	Appropriate method selected from Table 1

## 2.2.8 Disposal of general and hazardous waste.

1. CATEGORY OF LISTED ACTIVITY			
<b>Number:</b>	8	<b>Category Title</b>	The disposal of hazardous and general waste

2. LISTED ACTIVITY			
Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.			
<b>Number:</b>	8.1	<b>Name:</b>	Waste incineration
<b>Description:</b>	Facilities where hazardous waste including health care waste, used oil or sludge from the treatment of used oil is incinerated		
<b>Size:</b>	Facilities with an incinerator capacity of 10 kg of waste processed per hour or larger capacity.		

3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS			
Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.			
Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 11% O <sub>2</sub> , 273 Kelvin and 101.3 kPa (New and existing plant).	Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol		
Particulate matter (PM)	Not applicable	25	All parameters to be defined and measured as in the Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on Incineration of Waste
Carbon monoxide	CO	100	
Hydrogen chloride	HCl	30	
Sulphur dioxide	SO <sub>2</sub>	50	
Lead, Chromium, Beryllium, Arsenic, Antimony, Barium, Silver, Cobalt, Copper, Manganese, Tin, Vanadium, Nickel, Mercury	Pb, Cr (total), Be, As, Sb, Ba, Ag, Co, Cu, Mn, Sn, V, Ni, Hg	0.5	
Cadmium, Thallium	Cd, Tl	0.1	
Dioxin/furan	Not applicable	0.1 ngTE/Nm <sup>3</sup>	

4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS		
Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.		
Requirement	Application	Compliance Date
The geometry of the incinerator must be designed to allow for a retention time of greater than 2 seconds at a temperature no less than 850° C for the incineration of non-chlorinated waste and/or 1100° C for chlorinated waste.	All incinerators registered in terms of APPA before ??	?? years from date of notice
	All incinerators registered in terms of APPA after ?? and before date of notice	?? years from date of notice
	All other incinerators	From date of notice
A minimum of 15 m for stack height and an exhaust plume velocity of minimum 5 m/s.		

Continuous on-line stack measurement of PM <sub>10</sub> and CO. The accuracy of sampling and analyses to be demonstrated to SANAS accredited auditors.		
Continuous on-line stack measurement of HCl and SO <sub>2</sub> for facilities with a capacity greater than 100 kg/hour. The accuracy of sampling and analyses to be demonstrated to SANAS accredited auditors.		
Standard short term measurements of HCl and SO <sub>2</sub> four times per year for facilities with a capacity less than 100 kg/hour. The accuracy of sampling and analyses to be demonstrated to SANAS accredited auditors.		
Standard short term measurements of Pb, Cr(total), Be, As, Sb, Ba, Ag, Co, Cu, Mn, Sn, V, Ni, Cd, Tl and Hg four times per year. The accuracy of sampling and analyses to be demonstrated to SANAS accredited auditors.		

## 2.2.9 Wood products industry

1. CATEGORY OF LISTED ACTIVITY			
<b>Number:</b>	9	<b>Category Title</b>	Pulp and paper manufacturing activities, including by-product recovery

2. LISTED ACTIVITY			
Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.			
<b>Number:</b>	9.1	<b>Name:</b>	Lime recovery kilns
<b>Description:</b>	The recovery of lime from the thermal treatment of paper-making waste		
<b>Size:</b>	All installations producing more than 1 ton per month		

3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS				
Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.				
Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
Common Name	Chemical Symbol	New plant	Existing plant	
Particulate matter (PM)	Not applicable	50	300	Appropriate method selected from Table 1
Total reduced sulphur compounds, measured as hydrogen sulphide	H <sub>2</sub> S	15	15	
Nitrogen oxides	NO <sub>x</sub>	600	2000	

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	9	<b>Category Title</b>	Pulp and paper manufacturing activities, including by-product recovery
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	9.2	<b>Name:</b>	Alkali waste chemical recovery furnace
<b>Description:</b>	The recovery of alkali from the thermal treatment of paper-making waste		
<b>Size:</b>	All installations producing more than 1 ton per month		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	30	50	Appropriate method selected from Table 1
Sulphur dioxide	SO <sub>2</sub>	30	300	
Total reduced sulphur compounds, measured as hydrogen sulphide	H <sub>2</sub> S	4	10	
Nitrogen oxides	NO <sub>x</sub>	200	200	

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	9	<b>Category Title</b>	Pulp and paper manufacturing activities, including by-product recovery
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## 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	9.3	<b>Name:</b>	Copeland alkali waste chemical recovery processes
<b>Description:</b>	The recovery of alkali from the thermal treatment of paper-making waste using a Copeland process		
<b>Size:</b>	All installations producing more than 1 ton per month		

## 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable		250	Appropriate method selected from Table 1
Sulphur dioxide	SO <sub>2</sub>		800	

## 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
No further Copeland alkali waste recovery processes to be built.		Date of final publication

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	9	<b>Category Title</b>	Pulp and paper manufacturing activities, including by-product recovery
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	9.4	<b>Name:</b>	Chlorine dioxide plant
<b>Description:</b>	The production and use chlorine dioxide for paper production		
<b>Size:</b>	All installations		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Chlorine dioxide measured as hydrogen chloride	HCl	90	90	Appropriate method selected from Table 1

### 1. CATEGORY OF LISTED ACTIVITY

<b>Number:</b>	9	<b>Category Title</b>	Pulp and paper manufacturing activities, including by-product recovery
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### 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	9.5	<b>Name:</b>	Crude tall oil production
<b>Description:</b>	The production of crude tall oil		
<b>Size:</b>	All installations		

### 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Sulphur dioxide	SO <sub>2</sub>	170	170	Appropriate method selected from Table 1
Total reduced sulphur compounds, measured as hydrogen sulphide	H <sub>2</sub> S	5	130	

### 4. TRANSITIONAL AND OTHER SPECIAL ARRANGEMENTS

Being transitional and other special arrangements in respect of activities which are carried out at the time of listing as contemplated by Section 21(3)(b) of the Act.

Requirement	Application	Compliance Date
The licensing authority may set alternative standards or methods for total reduced sulphur compounds or hydrogen sulphide emissions		Date of final publication

## 2. LISTED ACTIVITY

Being an activity which result in atmospheric emissions and which the Minister reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage as contemplated in Section 21(1)(a) of the Act.

<b>Number:</b>	9.6	<b>Name:</b>	Wood drying and the production of manufactured wood products
<b>Description:</b>	The drying of wood by an external source of heat; the manufacture of laminated and compressed wood products		
<b>Size:</b>	All installations producing more than 10 tons per month		

## 3. MINIMUM EMISSION STANDARDS FOR POINT SOURCE EMISSIONS

Being the minimum emission standards for emissions from a single identifiable source and fixed location of atmospheric emission in respect of substances or mixture of substances resulting from a listed activity including the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted and the manner in which measurements of such emissions must be carried out as contemplated in Section 21(3)(a) of the Act.

Substance or mixture of substances		mg/Nm <sup>3</sup> under standard conditions of 273 Kelvin and 101.3 kPa.		Manner in which measurements of emissions must be carried out
		New plant	Existing plant	
Common Name	Chemical Symbol			
Particulate matter (PM)	Not applicable	150	250	Appropriate method selected from Table 1

*2.2.10 Animal matter processing.*

**To be dealt with under section 35 of AQA**

*2.2.11 Solid and liquid waste (incl sewage) disposal.*

**To be dealt with under section 25 of AQA**