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GENERAL NOTICE

DEPARTMENT OF ENVIRONMENTAL AFFAIRS

No. 1001 **24 July 2009**

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

LIST OF ACTIVITIES WHICH RESULT IN ATMOSPHERIC EMISSIONS WHICH HAVE OR MAY HAVE A SIGNIFICANT DETRIMENTAL EFFECT ON THE ENVIRONMENT, INCLUDING HEALTH, SOCIAL CONDITIONS, ECONOMIC CONDITIONS, ECOLOGICAL CONDITIONS OR CULTURAL HERITAGE

I, Buyelwa Patience Sonjica, Minister of Water and Environmental Affairs, hereby give notice in terms of section 57(1)(a) of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 Of 2004), of my intention to list activities in terms of section 21 of the Act. The proposed list of activities and their associated minimum emission standards are set out in the Schedule hereto.

It should be noted that possible minimum emission standards relating to, among others, persistent organic pollutants and heavy metals will be developed immediately following the final publication of the list contained in the Schedule hereto with a view to the possible addition of further minimum emission standards to a revised Schedule in 2010.

Members of the public are invited to submit to the Minister, within 30 days of publication of the notice in the *Gazette*, written representations on, or objections to, the proposed list of activities and their associated minimum emission standards –

By post to:	The Director-General: Environmental Affairs, Attention: Mr Olebogeng Matshediso. Private Bag X447, Pretoria, 0001
By fax to:	(012) 320-1167: Attention: Mr Olebogeng Matshediso
By e-mail to:	OMatshediso@deat.gov.za

Any enquiries in connection with the draft list of activities and their associated minimum emission standards can be directed to Mr Peter Lukey at (012) 310-3931 or Mr Olebogeng Matshediso at (012) 310-3102

Comments received after the closing date may not be considered.

BUYELWA SONJICA
MINISTER OF WATER AND ENVIRONMENTAL AFFAIRS

SCHEDULE

Part 1:Definitions

1. Definitions

(1) In this Notice 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;

"**Biomass**" means non-fossilised and biodegradable organic material originating from plants, animals and micro-organisms excluding – (a) sewage; and (b) treated or coated wood waste which may contain halogenated organic compounds or heavy metals;

"**Existing Plant**" shall mean any plant or process that was legally authorized to operate before the date on which the Notice was published or any plant where an application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (as amended) was made on or before 12 months before the date on which the Notice was published

"**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;

"**New Plant**" shall mean any plant or process where the application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (as amended) was made within the 12 months before the date on which the Notice was published;

"**Oxides of nitrogen (NOX)**" means the sum of nitrogen oxide (NO) and nitrogen dioxide (NO2) expressed as nitrogen dioxide (NO2);

"**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 droplets in the gas stream, as measured by the appropriate method listed in section 2;

"**Petrochemicals**" means ethylene and its polymers, ethylene oxide, 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-isocynates of comparable volatility, benzoic acid;

"**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;

"**Upset conditions**" means any temporary failure of air pollution control equipment or process equipment or failure of a process to operate in a normal or usual manner that leads to an emission standard being exceeded.

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LISTED ACTIVITIES AND ASSOCIATED MINIMUM EMISSION STANDARDS IDENTIFIED IN TERMS OF SECTION 21 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004 (ACT NO. 39 OF 2004)

Part 2: General

2. Emission measurement

(1) The manner in which measurements of minimum emissions standards, as required by Section 21(3)(a)(ii) of the Act, shall be carried out must be in accordance with the standard sampling and analysis methods listed in Schedule A of the Notice.

(2) Methods other than those contained in Schedule A may be used with the written consent of the National Air Quality Officer.

(3) In seeking the written consent referred to in (2), an applicant must provide the National Air Quality Officer with any information that supports the equivalence of the method other than that contained in Schedule A to a method contained in Schedule A.

3. Compliance time frames

(1) New plant must comply with the new plant minimum emission standards as contained in Part 3 on the date of publication of this Notice.

(2) Existing plant must comply with minimum emission standards for existing plant as contained in Part 3 within 5 years of the date of publication of this Notice.

(3) Existing plant must comply with minimum emission standards for new plant as contained in Part 3 within 8 years of the date of publication of this Notice.

4. Postponement of compliance time frames

(1) As contemplated in Section 5.4.3.5 of the 2007 National Framework for Air Quality Management in the Republic of South Africa (2007) published in terms of Section 7 of the Act, an application may be made to the National Air Quality Officer for the postponement of the compliance time frames in Section 3 for a specific plant.

(2) The application contemplated in 1(1) must include –

(a) an Atmospheric Impact Report in terms of Section 30 of the Act;

(b) a detailed justification and reasons for the application; and

(c) a certified copy of the announcement of the intention to seek postponement in, at least, one newspaper distributed in the area affected by the specific plant;

(3) The National Air Quality Officer, with the concurrence of the Licensing Authority as contemplated in Section 36 of the Act, may grant a postponement of the compliance time frames in 3 for a specific plant for a period, not exceeding, 5 years.

(4) The National Air Quality Officer, with the concurrence of the Licensing Authority, may –

(a) from time to time review any postponement granted in terms of 1(3) should ambient air quality conditions in the affected area of the plant not conform to ambient air quality standards; and

(b) on good grounds, withdraw any postponement following –

(i) representations from the affected plant; and

(ii) representations from the affected communities.

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5. Compliance monitoring

(1) Where continuous on-line emission monitoring is required for a listed activity in terms of the minimum emission standards as contained in Part 3 –

(a) the averaging period for the purposes of compliance monitoring shall be 30 days or as prescribed in the Atmospheric Emission License as contemplated in Section 22 of the Act.

(b) the emission monitoring system must be maintained to yield a minimum of 80% valid hourly average values during the reporting period.

(c) continuous on-line emission monitoring systems must be audited by an independent auditor at least once every two (2) years.

(2) Where periodic emission monitoring is required for a listed activity in terms of the minimum emission standards as contained in Part 3 –

(a) emission measurement will be conducted in accordance with Section 2.

(b) measurements shall take place on, at least, an annual basis unless otherwise prescribed in the Atmospheric Emission License as contemplated in Section 22 of the Act.

(c) sampling will take place using the permitted feed-stock and under operating conditions that are representative of operating conditions in the reporting period.

(d) all tests will be conducted by SANAS accredited laboratories.

6. Reporting Requirements

(1) Notwithstanding the compliance time frames established in terms of Section 3, the Atmospheric Emission License holder shall submit an emission report in the form specified by the National Air Quality Officer to the Licensing Authority –

(a) within one (1) year of the date of publication of this Notice; and

(b) annually thereafter unless otherwise prescribed in the Atmospheric Emission License as contemplated in Section 22 of the Act.

(2) The report contemplated in 1(1) shall include –

(a) The name, description and license reference number of the plant as reflected in the Atmospheric Emission License.

(b) Where periodic emission monitoring is required for a listed activity in terms of the minimum emission standards as contained in Part 3 –

(i) the name and address of the accredited measurement service-provider that carried out or verified the emission test, including the test report produced by the accredited measurement service-provider.

(ii) the date and time on which the emission test was carried out.

(iii) a declaration by the Atmospheric Emission License holder to the effect that normal operating conditions were maintained during the emission tests.

(iv) the total volumetric flow of gas, expressed in normal cubic meters (Nm^3) per unit time and mass flow (kg per unit time) being emitted by the listed activity

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or activities measured during the emission test, as the average of at least two (2) measurements.

(v) the concentration or mass of pollutant for which emissions standards have been set in this Notice emitted by listed activity or activities as the average of at least two (2) measurements.

(vi) the method or combination of methods used for determining the flow rate and concentration as contemplated in Section 2.

(c) Where continuous on-line emission monitoring is required for a listed activity in terms of the minimum emission standards as contained in Part 3 –

(i) results of the spot measurements or correlation tests carried out to verify the accuracy of the continuous emission measurements;

(ii) the most recent correlation tests; and

(iii) the availability of the system as contemplated in 1(1)(b) in terms of the number of full hours per annum that valid results were obtained.

(d) Following the compliance time frames established in terms of Section 3, an explanation of all instances where minimum emission standards were exceeded and remediation measures and associated implementation plans aimed at ensuring that the exceedences do not re-occur.

(e) Any other information as required by the National Air Quality Officer from time to time.

(3) Within three (3) years of the date of publication of this Notice, the National Air Quality Officer will establish an internet-based National Atmospheric Emission Inventory as a component of the South African Air Quality Information System (SAAQIS). Once established, the reports contemplated in 1(1) must be made in the format required for the internet-based National Atmospheric Emission Inventory.

7. Upset conditions, start-up and shut-downs

(1) The minimum emission standards as contained in Part 3: do not apply to upset conditions, start-up and shut-downs, unless –

(a) the minimum emission standards as contained in Part 3: are significantly exceeded for a period longer than 48 hours or as prescribed in the Atmospheric Emission License as contemplated in Section 22 of the Act.

(2) Should upset conditions, start-up and shut-downs conform to the conditions specified in 1(1)(a), then Section 30 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, shall apply.

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Part 3: Minimum Emission Standards

8. Category 1: Combustion Installations

(1) Subcategory 1.1: Solid fuel combustion installations

Description:	Solid fuels (excluding biomass) combustion installations used primarily for steam raising or electricity generation.
Application:	All installations with design capacity of 50 MW heat input per unit, based on the lower calorific value of the fuel used. These include small installations with combined capacity of 50 MW heat input, and more.

Substance or mixture of substances		Plant status	mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.
Common name	Chemical symbol		
Particulate matter	PM	New	50
		Existing	100
Sulphur dioxide	SO_2	New	500
		Existing	3500
Oxides of nitrogen	NO_X expressed as NO_2	New	750
		Existing	1100

(a) The following special arrangements shall apply:

(i) Continuous on-line stack measurement of PM, SO_2 and NO_X.

(ii) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(2) Subcategory 1.2: Liquid fuel combustion installations

Description:	Liquid fuels combustion installations used primarily for steam raising or electricity generation.
Application:	All installations with a design capacity of more than 50 MW heat input per unit, based on the lower calorific value of the fuel used, excluding Installations burning waste oil.

Substance or mixture of substances		Plant status	mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.
Common name	Chemical symbol		
Particulate matter	PM	New	50
		Existing	75
Sulphur dioxide	SO_2	New	500
		Existing	3500
Oxides of nitrogen	NO_X expressed as NO_2	New	250
		Existing	1100

(3) Subcategory 1.3: Solid biomass combustion installation

Description:	Solid biomass fuel combustion installations used primarily for steam raising or electricity generation.
Application:	All installations with a design capacity of more than 50 MW heat input per unit, based on the lower calorific value of the fuel used.

Substance or mixture of substances		Plant status	mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.
Common name	Chemical symbol		
Particulate matter	PM	New	50
		Existing	100
Sulphur dioxide	SO_2	New	500
		Existing	3500
Oxides of nitrogen	NO_X expressed as NO_2	New	750
		Existing	1100

(a) The following special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity

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(4) Subcategory 1.4: Gas combustion installation

Description:	Gas combustion (including gas turbines burning natural gas) used primarily for steam raising or electricity generation.
Application:	All installations with a design capacity of more than 50 MW heat input per unit, based on the lower calorific value of the fuel used.

Substance or mixture of substances		Plant status	mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.
Common name	**Chemical symbol**		
Particulate matter	PM	New	10
		Existing	10
Sulphur dioxide	SO_2	New	100
		Existing	400
Oxides of nitrogen	NO_X expressed as NO_2	New	50
		Existing	300

9. Category 2: Petroleum Industry

(1) Subcategory 2.1: Combustion installations

Description:	Combustion installations not used primarily for steam raising or electricity generation
Application:	All combustion installations (except test or experimental) including catalytic cracking regenerators

Substance or mixture of substances		Plant status	mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.
Common name	**Chemical symbol**		
Particulate matter	PM	New	50
		Existing	100
Sulphur dioxide	SO_2	New	350(i)
		Existing	1.9(ii)
Oxides of nitrogen	NO_X expressed as NO_2	New	250(i)
		Existing	1700

Notes: (i) Emissions from point sources

(ii) Daily average kg SO_2 / ton of crude oil throughput

(a) The following special arrangements shall apply:

(i) The oxides of nitrogen shall be calculated as a flow-weighted average over all combustion processes.

(ii) No continuous flaring of hydrogen sulphide-rich gases shall be allowed

(iii) Allowable SO_2 emissions from a refinery will be calculated as the sum of emissions from combustion, sulphur recovery units, flares and catalytic cracking units and shall be measured continuously. For purposes of this calculation, catalytic cracking emissions will be calculated as if feed is not hydro-treated and using the equation –

$$Q_{SO2} = 0.931\ SQ$$

where - Q_{SO2} = the emission rate of SO_2 in kg/hr

S = the sulphur content of the FCCU feed in kg.m3, and

Q = the FCCU feed rate in m3/hr

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(2) Subcategory 2.2: Storage and Handling of Petroleum Products

Description:	Petroleum product storage tanks and product transfer facilities		
Application:	All facilities producing more than 100 ton per annum of products; all liquid storage tanks larger than 500 cubic meters cumulative tankage capacity.		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Total volatile organic compounds (Thermal treatment)	N/A	New	150
		Existing	150
Total volatile organic compounds (Non thermal treatment)	N/A	New	40
		Existing	40

(a) The following transitional arrangements shall apply:

(i) Leak detection and repair (LDAR) program approved by licensing authority to be instituted, within two (2) years following the date of publication of this Notice.

(b) The following special arrangements shall apply for control of TVOCs from storage, loading and unloading of raw materials, intermediate and final products -

(i) Storage vessels for liquids shall be of the following type:

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

(ii) The roof legs, slotted pipes and/or dipping well on floating roof tanks shall have sleeves fitted to minimise emissions.

(iii) 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.

(iv) 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 at least 95% shall be fitted.

(v) The actual temperature in the tank must be used for vapour pressure calculations.

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(3) Subcategory 2.3: Industrial fuel oil recyclers

Description:	Installations used to recycle or recover oil from waste oils		
Application:	Industrial fuel oil recyclers with a throughput < 50 000 ton/month		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Carbon monoxide	CO	New	130
		Existing	250
Sulphur dioxide	SO_2	New	500
		Existing	3500
Total volatile organic compounds	N/A	New	40
		Existing	90

(a) The transitional arrangements contained in 1(2)(a) shall apply.

(b) The special arrangement contained in 1(2)(b) shall apply.

10. Category 3: Carbonization and Coal Gasification

(1) Subcategory 3.1: Combustion installation

Description:	Combustion installations not used primarily for steam raising or electricity generation.		
Application:	All combustion installations (except test or experimental installations).		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
PM		New	50
		Existing	100
Oxides of nitrogen	NO_x expressed as NO_2	New	700
		Existing	2000
Total volatile organic compounds (from non-coke oven operations)	N/A	New	40
		Existing	90

(a) The following transitional and special arrangements shall apply:

(i) 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 mg/Nm³ measured as hydrogen sulphide, whichever is strictest.

(ii) Phenol recovery from raw gas to be not less than 95%.

(2) Subcategory 3.2: Coke production and coal gasification

Description:	Coke production, coal gasification and by-product recovery from these operations.		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Hydrogen sulphide	H_2S	New	5(i)
		Existing	5(i)
Notes:	(i) from point source		

(a) The following transitional and special arrangements shall apply:

(i) As coke oven battery emissions are difficult to quantify, the following reduction measures are required for coke oven batteries:

(ii) 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

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rotary valve feeders. Telescopic seals are to be used around the charging holes. Visible emissions are limited to 12 sec per charge

(iii) For pushing, evacuation from the coke guide and the quench car using stationary ducting and gas cleaning is required.

(iv) For quenching, the quench tower must have suitable baffles; quench water must have less than 50 mg/litre suspended solids and no floating oil.

(v) 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.

(vi) 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.

(b) The licensing authority may set alternative standards and/or control measures for the reduction of hydrogen sulphide emissions.

(3) Subcategory 3.3: Tar Production

Description:	Processes in which tar, creosote or any other product of distillation of tar is distilled or is heated in any manufacturing process.		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Total Volatile Organic Compounds		New	130
		Existing	250
Fluorene		10 percent	
Phenanthrane		21 percent	
Fluoranthene		10 percent	

(a) The following transitional and special arrangements shall apply:

(i) Leak detection and repair (LDAR) program approved by licensing authority to be instituted, within one year after publication date of this Notice.

(ii) Storage vessels for liquids shall be of the following type:

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

(iii) The roof legs, slotted pipes and/or dipping well on floating roof tanks shall have sleeves fitted to minimise emissions.

(iv) 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.

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(v) 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 at least 95 % shall be fitted.

(vi) The actual temperature in the tank must be used for vapour pressure calculations.

(4) Subcategory 3.4 Char, charcoal and carbon black production

Description:	Char, charcoal and carbon black production (excluding electrode paste production)		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	100
Poly Aromatic Hydrocarbons	PAH	New	0.1
		Existing	0.5

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity

(5) Subcategory 3.5 Electrode paste production

Description:	Electrode paste production		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter		New	50
		Existing	100
Poly-aromatic hydrocarbons	PAH	New	0.1
		Existing	0.5

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity

11. Category 4: Metallurgical Industry

(1) Subcategory 4.1: Drying

Description:	Drying of mineral solids including ore		
Application:	Facilities with a production capacity of more than 100 tons/month product.		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter		New	50
		Existing	100
Sulphur dioxide	SO_2	New	1000
		Existing	1000
Oxides of nitrogen	NO_x expressed as	New	500

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	NO_2	Existing	1200

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity

(2) Subcategory 4.2: Combustion installations

Description:	Combustion installations not used for primarily for steam raising and electricity generation		
Application:	All combustion installations (except test or experimental).		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	100
Sulphur dioxide	SO_2	New	100
		Existing	500
Oxides of nitrogen	NO_X expressed as NO_2	New	500
		Existing	2000

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity

(3) Subcategory 4.3: Primary aluminium production

Description:	Primary aluminium production		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	100
Sulphur dioxide	SO_2	Soderberg New	No new plant will be authorised
		Soderberg Existing	400
		AP Tech New	50
		AP Tech Existing	100
Total volatile organic compounds	N/A	New	40
		Existing	40
Total fluorides measured as Hydrogen fluoride	F as HF	New	0.5
		Existing	1

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity

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(4) Subcategory 4.4: Secondary aluminium production

Description:	Secondary aluminium production through the application of heat (excluding metal recovery, covered under 4.21)		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2 , 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	30
		Existing	100
Total fluorides measured as Hydrogen fluoride	F as HF	New	1
		Existing	5
Total volatile organic compounds	N/A	New	40
		Existing	40
Ammonia	NH_3	New	30
		Existing	100

(5) Subcategory 4.5: Sinter plants

Description:	Sinter plants for agglomeration of fine ores using a heating process, including sinter cooling where applicable		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2 , 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	100
Sulphur dioxide	SO_2	New	500
		Existing	500
Oxides of nitrogen	NO_x expressed as NO_2	New	700
		Existing	1200

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity

(6) Subcategory 4.6: Basic oxygen furnace steel making

Description:	Basic oxygen furnace in steel making industry		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2 , 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	30
		Existing	100
Sulphur dioxide	SO_2	New	500
		Existing	500
Oxides of nitrogen	NO_x expressed as NO_2	New	500
		Existing	500

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

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(7) Subcategory 4.7: Electric arc furnace and steel making (primary and secondary)

Description:	Electric arc furnace in steel making industry		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	30
		Existing	100
Sulphur dioxide	SO_2	New	500
		Existing	500
Oxides of nitrogen	NO_X expressed as NO_2	New	500
		Existing	500

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(8) Subcategory 4.8: Blast furnace operations

Description:	Blast furnace operations		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	30
		Existing	100
Sulphur dioxide	SO_2	New	500
		Existing	500
Oxides of nitrogen	NO_X expressed as NO_2	New	500
		Existing	500

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(9) Subcategory 4.9: Ferro-alloy production

Description:	Production of alloys of iron with chromium, manganese, silicon or vanadium		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter from primary fume capture system, open and semi-closed furnaces			
Particulate matter	N/A	New	30
		Existing	100
Particulate matter from primary fume capture system, closed furnaces			
Particulate matter	N/A	New	50
		Existing	100
Particulate matter from secondary fume capture system, all furnaces			
Particulate matter	N/A	New	50
		Existing	100
Sulphur dioxide	SO_2	New	500
		Existing	500
Oxides of nitrogen	NO_X expressed as NO_2	New	400
		Existing	750

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(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(ii) Emission of Cr (VI), Mn and V from primary fume captures systems of ferrochrome, ferromanganese and ferrovanadium furnaces respectively to be measured and reported to licensing authority annually.

(10) Subcategory 4.10: Foundries

Description:	Production and casting of iron and its alloys		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	30
		Existing	100
Sulphur dioxide	SO_2	New	400
		Existing	400
Oxides of nitrogen	NO_x expressed as NO_2	New	400
		Existing	1200

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(11) Subcategory 4.11: Agglomeration operations

Description:	Production of pellets or briquettes using presses, inclined discs or rotating drums		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	30
		Existing	100
Ammonia	NH_3	New	30
		Existing	50

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(12) Subcategory 4.12: Pre-reduction and direct reduction

Description:	Production of pre-reduced or metallised ore or pellets using gaseous or solid fuels		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	100
Sulphur dioxide (from gas)	SO_2	New	100
		Existing	500
Sulphur dioxide(from coal)	SO_2	New	500
		Existing	1700
Oxides of nitrogen	NO_x expressed as NO_2	New	500
		Existing	2000

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(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(13) Subcategory 4.13: Lead smelting

Description:	The production or processing of lead by the application of heat; the production of electric batteries containing lead		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	30
		Existing	30
Lead	Pb (as fraction of Total Suspended Particles)	New	2
		Existing	2

(14) Subcategory 4.14: Production and processing of zinc, nickel and cadmium

Description:	The production and processing of zinc, nickel or cadmium by the application of heat excluding metal recovery		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	100
Sulphur dioxide	SO_2	New	500
		Existing	500
Oxides of nitrogen	NO_x expressed as NO_2	New	500
		Existing	500
Mercury	Hg	New	0,2
		Existing	1,0
Dioxins		New	0,1ngTEQ
		Existing	No standard proposed

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(ii) 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 respectively to the licensing authority annually, commencing within 1 year of publication.

(15) Subcategory 4.15: Processing of arsenic, antimony, beryllium chromium and silicon

Description:	The metallurgical production and processing of arsenic, antimony, beryllium chromium and silicon and their compounds by the application of heat.		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	20
		Existing	30

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(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(16) Subcategory 4.16: Smelting and converting of sulphide ores

Description:	Process in which sulphide ores are smelted, roasted calcined or converted		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	100
Oxides of nitrogen	NO_X expressed as NO_2	New	350
		Existing	2000
Sulphur dioxide (feed SO2 <5% SO2)	SO_2	New	1200
		Existing	3500
Sulphur dioxide (feed SO_2 >5% SO_2)	SO_2	New	1200
		Existing	2500

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(17) Subcategory 4.17: Precious and base metal production and refining

Description:	The production or processing of precious and associated base metals		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	100
Chlorine	Cl_2	New	50
		Existing	50
Sulphur dioxide	SO_2	New	400
		Existing	400
Hydrogen chloride	HCl	New	30
		Existing	30
Hydrogen fluoride	HF	New	30
		Existing	30
Ammonia	NH_3	New	100
		Existing	100
Oxides of nitrogen	NO_X expressed as NO_2	New	300
		Existing	500

(a) The following transitional and special arrangements shall apply:

(i) Plants processing nickel and its compounds shall report the emissions thereof to the licensing authority annually, commencing within 1 year of publication.

(ii) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

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(18) Subcategory 4.18: Vanadium ore processing

Description:	The processing of vanadium-bearing ore or slag for the production of vanadium oxides by the application of heat		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	50
Sulphur dioxide	SO_2	New	500
		Existing	500
Ammonia	NH_3	New	30
		Existing	100

(a) The following transitional and special arrangements shall apply:

(i) Plants processing vanadium ore or slag for the production of vanadium oxides shall report the emissions of vanadium and its compounds, sulphur dioxide and ammonia to the licensing authority annually, commencing within 1 year of publication.

(ii) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(19) Subcategory 4.19: Production and casting of bronze and brass, and casting copper

Description:	The production of and casting of bronze and brass and the casting of copper.		
Application:	All installations producing more than 10 tons per day of product in aggregate		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	100
Sulphur dioxide	SO_2	New	500
		Existing	500
Oxides of Nitrogen	NO_X	New	1000
		Existing	1200

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(20) Subcategory 4.20: Slag processes

Description:	The processing or recovery of metallurgical slag		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	100
Sulphur dioxide	SO_2	New	1500
		Existing	2500
Oxides of nitrogen	NO_X expressed as NO_2	New	350
		Existing	2000

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(a) The following transitional and special arrangements shall apply:

(i) 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 to the licensing authority annually, commencing within one year of the publication of the notice.

(ii) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(21) Subcategory 4.21: Metal recovery

Description:	The recovery of non-ferrous metal from any form of scrap material containing combustible components by the application of heat.		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2 , 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		

(a) The following special arrangement(s) shall apply:

(i) Compliance with the standards specified in category 8: Disposal of hazardous and general waste is required.

(22) Subcategory 4.22: Hot dip galvanizing

Description:	The coating of steel articles with zinc using molten zinc, including the pickling and/or fluxing of articles before coating.		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2 , 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	10
		Existing	15
Hydrogen Chloride	HCl	New	30
		Existing	30

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(ii) Acid and zinc baths shall both be fitted with air extraction systems to the satisfaction of the licensing authority.

(iii) Measurements of emissions to be carried out in the exhaust ducting of the extraction system.

12. Category 5: Mineral Processing Industry

(1) Subcategory 5.1: Storage and handling of ore and coal

Description:	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.		
Application:	Locations designed to hold more than 100 000 tons.		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2 , 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Dustfall		New	a
		Existing	a

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[a]: three month running average not to exceed limit value for adjacent land use according to dust fallout standards promulgated in terms of section 32 of the NEM: AQA, 2004 (Act No. 39 of 2004), in eight principal wind directions

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(2) Subcategory 5.2: Clamp kiln for brick production

Description:	The production of bricks using clamp kilns.		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Dust fall		New	a
		Existing	a
Sulphur dioxide	SO_2	New	b
		Existing	b
[a]: three month running average not to exceed limit value for adjacent land use according to dust fallout standards promulgated in terms of section 32 of the NEM: AQA, 2004 (Act No. 39 of 2004), in eight principal wind directions			
[b]: Twelve month running average not to exceed limit value for adjacent land use. Passive diffusive measurement approved by the licensing authority carried out monthly.			

(a) The following special arrangement shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(3) Subcategory 5.3: Cement production (using conventional fuels)

Description:	The production and cooling of Portland cement clinker and the grinding and blending of clinker to produce finished cement		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter (Kiln)	N/A	New	50
		Existing	100
Particulate matter (Cooler ESP)	N/A	New	100
		Existing	150
Particulate matter (Cooler BF)	N/A	New	50
		Existing	50
Particulate matter (Clinker grinding)	N/A	New	30
		Existing	50
Sulphur dioxide	SO_2	New	250
		Existing	250
Oxides of nitrogen	NO_x expressed as NO_2	New	1200
		Existing	2000

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

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(4) Subcategory 5.4: Cement production (using alternative fuels and/or resources)

Description:	The production and cooling of Portland cement clinker and the grinding and blending of clinker to produce finished cement where alternative fuels and/or resources are used.		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	30
		Existing	80
Sulphur dioxide	SO_2	New	50
		Existing	50
Oxides of nitrogen	NO_x expressed as NO_2	New	500
		Existing	800
Total organic compounds,		New	10
		Existing	10
Hydrogen chloride	HCl	New	10
		Existing	10
Hydrogen fluoride	HF	New	1
		Existing	1
Cadmium, thallium	Cd + Tl	New	0.05
		Existing	0.05
Mercury	Hg	New	0.05
		Existing	0.05
Sum of arsenic, antimony, lead, cobalt, copper manganese, vanadium and nickel	As; Sb; Pb; Co; Cu; Mn; V & Ni	New	0.5
		Existing	0.5
Dioxins and furans	PCDD/PCDF	New	0.1ng I-TEQ /Nm3
		Existing	0.1ng I-TEQ /Nm3

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(5) Subcategory 5.5: Lime production

Description:	Burning of lime, magnesite, dolomite and calcium sulphate		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	50
Sulphur dioxide	SO_2	New	400
		Existing	400
Oxides of nitrogen	NO_x expressed as NO_2	New	500
		Existing	500

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

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(6) Subcategory 5.6: Glass and mineral wool production

Description:	The production of glass containers, flat glass, glass fibre and mineral wool		
Application:	All installations producing 100 ton per annum or more		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	30
		Existing	100
Oxides of nitrogen	NO_X expressed as NO_2	New	1500
		Existing	1800
Sulphur dioxide (Gas fired furnace)	SO_2	New	800
		Existing	800
Sulphur dioxide (Oil fired furnace)	SO_2	New	1500
		Existing	1500

(a) The following transitional and special arrangements shall apply:

(i) A fugitive emission management plan must be included in the Atmospheric Emission License of the Listed Activity.

(7) Subcategory 5.7: Ceramic production

Description:	The production of tiles, bricks, refractory bricks, stoneware or porcelain ware by firing, excluding clamp kilns		
Application:	All installations producing 100 ton per annum or more		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	150
Sulphur dioxide	SO_2	New	400
		Existing	1000
Total fluorides measured as hydrogen fluoride	HF	New	50
		Existing	50

(8) Subcategory 5.8: Macadam preparation

Description:	The production mixtures of aggregate and tar or bitumen to produce road surfacing in permanent facilities and mobile plants		
Application:	All plants		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	200
		Existing (Urban area)	100
Sulphur dioxide	SO_2	New	1000
		Existing	1000

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(9) Subcategory 5.9: Alkali processes

Description:	Primary manufacturing of potassium or sodium sulphate or the treatment of ores by chloride salts whereby hydrogen chloride gas is evolved.		
Application:	All installations producing 100 ton per annum or more		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2 , 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	30
		Existing	100
Hydrogen chloride	HCl	New	30
		Existing	30

13. Category 6: Organic Chemicals Industry

(1) Subcategory 6.1: Organic chemical manufacturing

Description:	The manufacture or use in manufacture 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; or recovery of pyridine
Application:	All installations producing or using more than 100 tons per annum, and storage tanks with cumulative tankage capacity larger than 500 cubic meters, .of any or a combination of the compounds listed above.

Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2 , 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Total volatile organic compounds (thermal)	N/A	New	150
		Existing	150
Total volatile organic compounds (non thermal)	N/A	New	40
		Existing	40
Sulphur trioxide (from sulphonation processes)	SO_3	New	30
		Existing	100

(a) The following transitional and special arrangements shall apply:

(i) Leak detection and repair (LDAR) program approved by licensing authority to be instituted, within two years after publication date or as agreed with licensing authority.

(ii) Storage vessels for liquids shall be of the following type:

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

(iii) The roof legs, slotted pipes and/or dipping well on floating roof tanks shall have sleeves fitted to minimise emissions.

(iv) 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.

(v) 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 at least 95% shall be fitted.

(vi) The actual temperature in the tank must be used for vapor pressure calculations.

(2) Subcategory 6.2: Printing Works

Description:	Processes in which publication rotogravure, product and packaging rotogravure, wide web flexographic printing presses or any other printing methods are operated.		
Application:	Installations with solvent consumption equal to or more than 25 tons per annum		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Total Volatile Organic Compounds		New	75
		Existing	90

14. Category 7: Inorganic Chemicals Industry

(1) Subcategory 7.1: Primary production and use in manufacturing of ammonia, fluorine, and chlorine

Description:	Production and use in manufacturing of ammonia, fluorine, and chlorine gas		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Hydrogen fluoride	HF	New	5
		Existing	30
Chlorine	Cl_2	New	50
		Existing	50
Ammonia	NH_3	New	30
		Existing	100

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(2) Subcategory 7.2: Primary production of acids

Description:	The primary production of hydrofluoric, hydrochloric, nitric and sulphuric acid (including oleum) in concentration exceeding 10%; also processes in which 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 and secondary production of hydrochloric acid through regeneration
Application:	All installations with the exception of those producing sulphuric acid as part of the recovery of metals from ore.

Substance or mixture of substances		Plant status	mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.
Common name	**Chemical symbol**		
Primary production			
Total fluoride measured as Hydrogen Fluoride	F as HF	New	5
		Existing	30
Hydrogen chloride	HCl	New	15
		Existing	25
Sulphur dioxide	SO_2	New	350
		Existing	2800
Sulphuric acid mist and sulphur trioxide expressed as SO_3	SO_3	New	25
		Existing	100
Oxides of nitrogen expressed as NO_2	NOx	New	350
		Existing	2000
Secondary production of hydrochloric acid*			
Hydrogen chloride	HCl	New	30
		Existing	100

(3) Subcategory 7.3: Primary production of chemical fertilizer

Description:	The production of superphosphates, ammonium nitrate, ammonium phosphates and ammonium sulphate and their processing into solid fertiliser mixtures (NPK mixtures).
Application:	All installations

Substance or mixture of substances		Plant status	mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.
Common name	**Chemical symbol**		
Particulate matter	N/A	New	25
		Existing	100
Total fluoride measured as Hydrogen Fluoride	F as HF	New	5
		Existing	30
Ammonia	NH_3	New	50
		Existing	100

(4) Subcategory 7.4: Manufacturing activity involving the production, use in manufacturing or recovery of antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, mercury, selenium, not associated with the application of heat

Description:	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.
Application:	All installations producing more than 1 ton per month

Substance or mixture of substances		Plant status	mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.
Common name	**Chemical symbol**		
Particulate matter	N/A	New	10
		Existing	25

(a) The following transitional and special arrangements shall apply:

(i) Operators shall estimate the emissions of the metals using a method set out in Section 2. 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, commencing within one year of the publication of the notice.

(5) Subcategory 7.5: Production of calcium carbide

Description:	Production of calcium carbide		
Application:	All installations producing more than 10 tons per month		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	25
		Existing	100

(6) Subcategory 7.6: Production of phosphorus and phosphate salts not mentioned elsewhere

Description:	Production of phosphorus and phosphate salts		
Application:	All installations producing more than 10 tons per month		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	25
		Existing	50

15. Category 8: Disposal of hazardous and general waste

Description:	Facilities where hazardous waste including health care waste, crematoria, veterinary waste, used oil or sludge from the treatment of used oil is incinerated		
Application:	Facilities with an incinerator capacity of 10 kg of waste processed per hour or larger capacity.		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 10% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	10
		Existing	25
Carbon monoxide	CO	New	50
		Existing	75
Sulphur dioxide	SO_2	New	50
		Existing	50
Oxides of nitrogen	NOx expressed as NO_2	New	200
		Existing	200
Hydrogen chloride	HCl	New	10
		Existing	10
Dioxins and furans	PCDD/PCDF	New	0.1ng I-TEQ /Nm3
		Existing	0.1ng I-TEQ /Nm3
Sum of Lead, arsenic, antimony, chromium, cobalt, copper, manganese, nickel, vanadium	Pb+ As+ Sb+ Cr+ Co+ Cu + Mn+ Ni+ V	New	0.5
		Existing	0.5
Mercury	Hg	New	0.05
		Existing	0.05
Cadmium Thallium	Cd+Tl	New	0.05
		Existing	0.05
[b] 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			

(a) The following transitional and special arrangements shall apply:

(i) 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.

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(ii) Continuous on-line stack measurement of N/A_{10} and CO. The accuracy of sampling and analyses to be demonstrated to SANAS accredited service providers.

(iii) Continuous on-line stack measurement of HCl and SO_2 for facilities with a capacity greater than 100 kg/hour. The accuracy of sampling and analyses to be demonstrated to SANAS accredited service providers.

(iv) Standard short term measurements of HCl and SO_2 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 service providers.

(v) Standard short term measurements of Pb, Cr(total), As, Sb, Co, Cu, Mn, V, Ni, Cd, Tl and Hg four times per year. The accuracy of sampling and analyses to be demonstrated to SANAS accredited service providers.

(vi) Annual measurement for dioxins and furans is required. The accuracy of sampling and analyses to be demonstrated to SANAS accredited service providers.

16. Category 9: Pulp and Paper Manufacturing Activities, including By-Products Recovery

(1) Subcategory 9.1: Lime recovery kiln

Description:	The recovery of lime from the thermal treatment of paper-making waste		
Application:	All installations producing more than 1 ton per month		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	100
Total reduced sulphur compounds measured as H_2S	H_2S	New	15
		Existing	15
Oxides of nitrogen	NO_x expressed as NO_2	New	600
		Existing	2000

(2) Subcategory 9.2: Alkali waste chemical recovery furnaces

Description:	The recovery of alkali from the thermal treatment of paper-making waste		
Application:	All installations producing more than 1 ton per month		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	100
	H_2S	New	15
		Existing	15
Sulphur dioxide	SO_2	New	30
		Existing	300
Oxides of nitrogen	NO_x expressed as NO_2	New	600
		Existing	2000

(3) Subcategory 9.3: Copeland alkali waste chemical recovery process

Description:	The recovery of alkali from the thermal treatment of paper-making waste using a Copeland process		
Application:	All installations producing more than 1 ton per month		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	No plant of this type will be authorised in the future

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		Existing	100
Sulphur dioxide	SO_2	New	No plant of this type will be authorised in the future
		Existing	800

(4) Subcategory 9.4: Chlorine dioxide plant

Description:	Production and use of chlorine dioxide for paper production		
Application:	All installations		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Hydrogen chloride	HCl	New	15
		Existing	30

(5) Subcategory 9.6: Wood drying and the production of manufactured wood products

Description:	The drying of wood by an external source of heat; the manufacture of laminated and compressed wood products		
Application:	All installations producing more than 10 tons per month		
Substance or mixture of substances		**Plant status**	**mg/m³ under normal conditions of 6% O_2, 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	100
Oxides of nitrogen	NO_x expressed as NO_2	New	500
		Existing	700

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SCHEDULE A - METHODS FOR SAMPLING AND ANALYSIS

The following referenced documents are indispensable for the application of the Notice. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. Information on currently valid national and international standards can be obtained from Standards South Africa.

(1) ISO Standards

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

(b) ISO 7934:1989/Amd 1:1998

(c) ISO 7935:1992 Stationary source emissions –

(d) ISO 7935:Stationary source emissions – Determination of the mass concentration of sulfur dioxide – Performance characteristics of automated measuring method

(e) ISO 9096:Stationary source emissions – Manual Determination of mass concentration of particulate matter

(f) ISO 10155:Stationary source emissions – Automated monitoring of mass concentrations of particles – Performance characteristics, test methods and specifications

(g) ISO 10396:Stationary source emissions – Sampling for the automated determination of gas emissions concentrations for permanently-installed monitoring systems

(h) ISO 10397:Stationary source emissions – Determination of asbestos plant emissions method by fibre counting measurement

(i) ISO 10780:Stationary source emissions – Measurement of velocity volume flow rate of gas steams in ducts

(j) ISO 10849:Stationary source emissions – Determination of the mass concentration of nitrogen oxides – Performance characteristics of automated measuring systems

(k) ISO 11338-1:Stationary source emissions – Determination of gas and particle-phase polycyclic aromatic hydrocarbons Part 1: Sampling

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

(m) ISO 11564:Stationary source emissions – Determination of the mass concentration of nitrogen oxides – Naphthylethylenediamine photometric method

(n) ISO 11632:Stationary source emissions – Determination of mass concentration of sulphur dioxide – Iron chromatography method

(o) ISO 12039:Stationary source emissions – Determination of carbon monoxide, carbon dioxide and oxygen – Performance characteristics and calibration of automated measuring systems

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(p) ISO 12141:2002 Stationary source emissions

(q) Determination of mass concentration of particulate matter (dust) at low concentrations –

(r) Manual gravimetric method

(s) ISO 14164:1999 Stationary source emissions

(t) Determination of the volume flow-rate of gas streams in ducts -- Automated method

(6) EPA methods

(a) Method 1 - Traverse Points

(b) Method 1A - Small Ducts

(c) Method 2 - Velocity - S-type Pitot

(d) Method 2A - Volume Meters

(e) Method 2B - Exhaust Volume Flow Rate

(f) Method 2C - Standard Pitot

(g) Method 2D - Rate Meters

(h) Method 2F - Flow Rate Measurement with 3-D Probe

(i) Method 2G - Flow Rate Measurement with 2-D Probe

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

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

(l) Method 3 - Molecular Weight

(m) Method 3A - CO2, O2 by instrumental methods

(n) Method 3B - CO2, O2 by Orsat apparatus

(o) Method 3C - CO2, CH4, N2, O2 by determined by thermal conductivity

(p) Method 4 - Moisture Content

(q) Method 5 - Particulate Matter(PM)

(r) Method 5D - PM Baghouses (Particulate Matter)

(s) Method 5E - PM Fiberglass Plants (Particulate Matter)

(t) Method 5F-PM Fluid Catalytic Cracking Unit

(u) Method 5I - Determination of Low Level Particulate Matter Emissions

(v) Method 6 - Sulphur Dioxide (SO_2)

(w) Method 6A - SO_2, CO_2

(x) Method 6B - SO_2, CO_2 - Long Term Integrated

(y) Method 6C - SO_2 - Instrumental

(z) Method 6C Figures SO_2

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(aa) Method 7 - Nitrogen Oxide (NO_x)

(bb) Method 7A-NO_X - Ion Chromatographic Method

(cc) Method 7B - NO_X - Ultraviolet Spectrophotometry

(dd) Method 7C - NO_X - Colorimetric Method

(ee) Method 7D - NO_X - Ion Chromatographic

(ff) Method 7E - NO_X - Instrumental

(gg) Method 8 - Sulfuric Acid Mist

(hh) Method 9 - Visual Opacity

(ii) Method 10 - Carbon Monoxide-NDIR

(jj) Method 10A - CO for Certifying CEMS

(kk) Method 10B - CO from Stationary Sources

(ll) Method 11 - H_2S Content of Fuel

(mm) Method 12 - Inorganic Lead

(nn) Method 13A - Total Fluoride (SPADNS Zirconium Lake)

(oo) Method 13B - Total Fluoride (Specific Ion Electrode)

(pp) Method 14 - Fluoride for Primary Aluminium Plants

(qq) Method 14A - Total Fluoride Emissions from Selected Sources at Primary Aluminium Plants

(rr) Method 15 - Hydrogen Sulfide, Carbonyl Sulfide, and Carbon Disulfide

(ss) Method 15A - Total Reduced Sulfur (TRS Alt.)

(tt) Method 16 - Sulfur (Semicontinuous Determination)

(uu) Method 16A - Total Reduced Sulfur (Impinger)

(vv) Method 16B - Total Reduced Sulfur (GC Analysis)

(ww) Method 17 - In-Stack Particulate (PM)

(xx) Method 18 - VOC by GC

(yy) Method 19 - SO_2 Removal & PM, SO_2, NO_X Rates from Electric Utility Steam Generators

(zz) Method 20 - NO_X from Stationary Gas Turbines

(aaa) Method 21 - VOC Leaks

(bbb) Method 22 - Fugitive Opacity

(ccc) Method 23 - Dioxin and Furan (02/91 FR Copy).

(ddd) Method 25 - Gaseous Nonmethane Organic Emissions

(eee) Method 25A - Gaseous Organic Concentration (Flame Ionization)

(fff) Method 25B - Gaseous Organic Concentration (Infrared Analyzer)

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(ggg) Method 26 - Hydrogen Chloride, Halides, Halogens

(hhh) Method 26A - Hydrogen Halide & Halogen-Isokinetic

(iii) Method 28A - Air to Fuel Ratio, Burn Rate - Wood-fired Appliances

(jjj) Method 29 - Metals Emissions from Stationary Sources

(kkk) Method 101 - Mercury from Chlor-Alkali Plants (Air)

(lll) Method 101A - Mercury from Sewage Sludge Incinerators

(mmm) Method 102 - Mercury from Chlor-Alkali Plants (Hydrogen Streams)

(nnn) Method 103 - Beryllium Screening Method

(ooo) Method 104 - Beryllium Emissions Determination

(ppp) Method 106-Determination of Vinyl Chloride

(qqq) Method 107A - Vinyl Chloride content of Solvents

(rrr) Method 108 - Particulate & Gaseous Arsenic emissions

(sss) Method 108B - Arsenic

(ttt) Method 108C - Arsenic

(uuu) Methods 203A, B, and C - Opacity Determination for Time-Averaged Regulations

(vvv) Method 303 - By-product Coke Oven Batteries

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