ENVIRONMENTAL QUALITY ACT 1974

ENVIRONMENTAL QUALITY (CLEAN AIR) REGULATIONS 2014

ARRANGEMENT OF REGULATIONS

Regulation

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ENVIRONMENTAL QUALITY ACT 1974

ENVIRONMENTAL QUALITY (CLEAN AIR) REGULATIONS 2014

IN exercise of the powers conferred by sections 21 and 51 of the Environmental Quality Act 1974 [*Act 127*], the Minister, after consultation with the Environmental Quality Council, makes the following regulations:

Citation

1. These regulations may be cited as the **Environmental Quality (Clean Air) Regulations 2014**.

Interpretation

2. In these Regulations—

"sound engineering practice" means the manner in which an air pollution control system is operated where the operational characteristics are maintained within the acceptable range of values as determined by the Director General;

"solid fuel" means any solid combustible such as anthracite or semi-anthracite coal, coke, charcoal, wood, log, timber, fruit branch, kernel, shell, plant trimming or any solid by-product of a manufacturing process that may be substituted for any such fuels;

"Ringelmann Chart" means the Ringelmann scale for grading the density of smoke published by the latest British Standard in the BS 2742 series or an equivalent Malaysian Standard, or any chart, recorder, indicator or device for the measurement of smoke density which is approved by the Director General as the equivalent of the said Ringelmann scale;

"chimney" includes any structure, opening, vent, flue, conduit, outlet or any structure constructed or arranged from or through which air pollutants may emit, and any reference to a chimney which serves the whole or a part of the facilities though structurally separate from such facilities or building thereon;

"boiler" means any device in which for any purpose water or other liquid is heated by any combustible material;

"dioxin" means polychlorinated dibenzo-para-dioxin which is tricyclic, aromatic compounds formed by two benzene rings connected with two oxygen atoms and hydrogen atoms of which may be replaced by up to eight chlorine atoms;

"furan" means polychlorinated dibenzofuran which is tricyclic, aromatic compounds formed by two benzene rings connected with one oxygen atom, one carbon-carbon bond and hydrogen atoms of which may be replaced by up to eight chlorine atoms;

"professional engineer" has the same meaning assigned to it in the Registration of Engineers Act 1967 [*Act 138*];

"residential area" means an area designated as a residential zone having clearly demarcated boundaries as defined and which appears in the gazette local plan prepared by the appropriate local planning authorities under Part III of the Town and Country Planning Act 1976 [*Act 172*], in the case of Sabah the Town and Country Planning Ordinance [*Sabah Cap. 141*] and in the case of Sarawak the Sarawak Land Code [*Cap. 81*] or, in the absence of such gazette local plan, a housing estate or an area situated within 1000 meters of the nearest dwelling;

"start-up conditions" means the period before the actual production process;

"as-built drawings" means any engineering drawing that shows the placement of facilities as measured after a work is completed;

"accredited laboratory" means a laboratory that demonstrates competence to perform specific tests, measurements or calibrations according to ISO/IEC 17025 or any other scheme recognized by the Director General;

"threshold value" means the minimum capacity of a facility or process;

"limit value" means the quantity of the substance expressed in terms of certain specific parameters, concentration, or levels which shall not be exceeded during normal operation;

"local plan" and "local planning authorities" have the same meaning respectively assigned to them in the Town and Country Planning Act 1976, in the case of Sabah the Town and Country Planning Ordinance [*Sabah Cap. 141*] and in the case of Sarawak the Sarawak Land Code [*Cap. 81*];

"performance monitoring" means the routine monitoring of certain characteristics to provide an indication that an air pollution control system is functional and capable of treating the emission generated;

"incinerator" means any device, apparatus, equipment or structure used for destroying, reducing or salvaging or waste heat recovery by fire or by burning any material or substance including refuse, rubbish, garbage, agricultural waste, trade waste, debris or scrap or a facility for cremating animal remains;

"air pollutants" means smoke, cinders, solid particles of any kind, gases, fumes, mists, odours and radioactive substances or any other substances which the Minister may by notification in the *Gazette* declares to be air pollutants for the purposes of these Regulations;

"normal operation" means all periods of operation except start-up and shutdown operations and maintenance of equipment;

"fuel burning equipment" means any furnace, boiler, fireplace, oven, retort, internal combustion engine, vessel, or any other apparatus, device, mechanism, stack, chimney or structure used in connection with the burning of any combustible material;

"change in operation" means a change in the nature or functioning, or an extension, of the installation which may have consequences for the environment;

"new premises" means a premises purchased or acquired on or after the date on which these Regulations come into operation;

"existing premises" means a premises existing or in operation before the date on which these Regulations come into operation, or a facility approved or in the opinion of the Director General is the subject of an application for approval, provided that the facility is put into operation no later than one year after the date on which these Regulations come into operation;

"process" means any action, operation, conversion or treatment embracing chemical, industrial, manufacturing or processing factors, methods or forms, including furnaces, ovens, retorts, kettles, converters, cupolas, kilns, crucibles, stills, dryers, roasters, separator filters, reboilers, columns, classifiers, screens, quenchers, cookers, digesters, towers, washers, scrubbers, mills, condensers or absorbers;

"averaging time" means the time period over which air pollutant concentrations are averaged for the purpose of determining attainment with the emission standard using Continuous Emission Monitoring Systems (CEMS). The sub-average period for determining a half-hour average is a 1-minute average. A valid half hour average must contain at least 22 sub-average data within a half-hour period (75%). A valid 1-minute average must contain valid data readings representing any 45 seconds over the previous 1-minute period;

"furnace" means any chamber, other than a boiler, in which combustion takes place;

"Non Methane Volatile Organic Compound" or "NMVOC" means a compound that comprises of all organic compounds except methane which at 273 K shows a vapor pressure of at least 101.3 kPa or which shows a comparable volatility under the given application conditions;

"air pollution control system" means any facilities designed and constructed for the purpose of preventing or reducing the potential emission that causes air pollution, and includes the extraction system, control equipment and chimney;

"Best Available Techniques Economically Achievable" means the effective method in preventing pollution and, where that is not practicable, generally to reduce emissions into the air from the industrial activities and their impact on the environment as a whole.

Application

3. These Regulations shall apply to—

(a) any premises used for any industrial or trade purposes, or on which matter is burnt in connection with any industrial or trade purposes, including burning of waste, whether or not the premises are prescribed under section 18 of the Act;

(b) any other premises or process that discharges or is capable of discharging air pollutants into the open air;

(c) any industrial plant; and

(d) any fuel burning equipment.

Obligation to comply

4. (1) An owner or occupier of a new premises shall comply with the limit values and technical standards specified in these Regulations.

(2) An owner of every existing premises, including that which is not subject to any condition on limit values for air pollutants whether on the licence issued or approval granted for the operation of the existing facility, shall, on or before the expiry of five years from the date on which these Regulations come into operation, take such

measures as may be necessary to comply with the opacity and limit values as specified in regulations 12 and 13.

(3) Notwithstanding subregulation (2), where there is a justified complaint or evidence of nuisance, and in the opinion of the Director General compliance with regulations 12 and 13 should be accelerated, the Director General may serve upon the owner or occupier of the existing premises a notice in writing requiring compliance within such shorter reasonable period as the Director General may direct.

Obligation to notify

5. (1) An owner or occupier of a premises shall not, without giving prior written notification to the Director General—

(a) carry out any change in operation of his premises;

(b) carry out any work on any premises that may result in a source of emission;

(c) construct on any land, any building or premises designed or used for a purpose that may result in a new source of emission;

(d) make, cause, or permit to be made any change of, to, or in any plant, machine, or equipment used or installed at the premises that causes a material change in the quantity or quality of emission from an existing source; or

(e) carry out any changes or modifications to an existing air pollution control system.

(2) The written notification shall be submitted to the Director General not less than thirty days before the commencement of such work in such form as determined by the Director General.

Measures to reduce emission

6. An owner or occupier of a premises involved in any activity or industry listed in the First Schedule shall incorporate measures to reduce the emission of air pollutants to the atmosphere in accordance with the Best Available Techniques Economically Achievable determined by the Director General.

Air pollution control system

7. (1) Every premises shall be equipped with an air pollution control system in accordance with the specifications as determined by the Director General.

(2) An owner or occupier of the premises shall appoint a professional engineer to design and supervise the construction of the air pollution control system.

(3) An owner or occupier of the premises shall operate and maintain the air pollution control system in accordance with sound engineering practice and ensure that all components of the air pollution control system are in good working condition.

(4) The operation of the air pollution control system shall be supervised by a competent person who shall be on duty at all times during the operation of the air pollution control system.

(5) The owner or occupier of the premises and the professional engineer shall, within thirty days after the commencement of operations at the premises, submit a written declaration to the Director General, in such form as determined by the Director General, certifying that the design and construction of the air pollution control system have complied with the specifications referred to in subregulation (1).

(6) The owner or occupier of the premises shall, within thirty days after the commencement of the operations at the premises, submit to the Director General, as-built drawings that show the placement of any works or structures that form part of the air pollution control system.

Failure in operations of air pollution control system

8. In the case of failure in the operations of the air pollution control system, the Director General shall be notified not later than one hour from the occurrence of such failure.

Performance monitoring of air pollution control system

9. An owner or occupier of a premises shall—

(a) equip the premises with relevant facilities, equipment or instruments to conduct performance monitoring of the air pollution control system; and

(b) conduct performance monitoring of the components of the air pollution control system as determined by the Director General.

Maintenance of records

10. (1) An owner or occupier of a premises shall maintain records of manufacturing processes, and of maintenance and performance monitoring of the air pollution control system as determined by the Director General.

(2) The records shall be kept for at least three years and shall be made available for inspection by the Director General or any officer duly authorized in writing by him.

Change in occupancy

11. Where a person becomes the occupier of any premises licensed under section 11 of the Act in succession to another person, then the conditions and restrictions of the licence shall be binding on the new occupier from the change in occupancy notwithstanding that he has not applied for a transfer of the licence or that his application for the transfer of the licence has not been determined.

Opacity

12. (1) An owner or occupier of a premises shall not cause, allow or permit emissions which are—

(a) darker than shade No. 1 on the Ringlemann Chart when observed or recorded with such instrument or device as the Director General may specify; or

(b) greater than 20% opacity when measured with a transmissometer.

(2) Subregulation (1) shall not apply—

(a) where the emission is not darker than shade No. 2 on the Ringlemann Chart for an aggregate of less than five minutes in any period of one hour, provided that the total period of such emissions do not exceed an aggregate of fifteen minutes in any period of twenty four hours;

(b) in cases of start-up conditions where the emission is not darker than shade No. 2 on the Ringlemann Chart.

(3) Any premises that emits 2.5 kilograms per hour of dust or more or has a potential to emit smoke darker than shade No. 2 on the Ringlemann Chart shall install and operate a transmissometer in accordance with the specifications as stipulated by the Director General.

(4) The averaging time for opacity measurement using a transmissometer shall be one minute.

(5) For the purpose of paragraph (1)*(b)*, the owner or occupier of any premises specified by the Director General shall install and operate a transmissometer according to the specifications stipulated by the Director General.

Limit values and technical standards

13. (1) All activities and industries specified in the First Schedule shall comply with the limit values and technical standards as specified in the Second and Third Schedules, as the case may be.

(2) Unless otherwise specified, the emission shall be calculated in terms of mass of pollutant per volume of the waste gases (expressed as mg/m^3), assuming standard conditions for temperature and pressure for dry gas (volume at 273 K, 101.3 kPa).

(3) Notwithstanding subregulation (1), any fuel burning equipment that is rated to consume pulverized fuel or any solid fuel at 30 kilograms or more per hour or any liquid or gaseous matter at 15 kilograms or more per hour shall comply with the limit values and technical standards as specified in the Second Schedule.

(4) For the purpose of this regulation, the threshold values listed in the Third Schedule are met when the total capacity of one or more facilities of a particular category of activity in the same premises exceeds the respective threshold values of that category.

(5) The limit values and technical standards for emission of dioxin and furan is expressed as 2, 3, 7, 8 tetrachlorinated dibenzo-para-dioxin toxicity equivalent which is calculated by summing the concentration of each 2, 3, 7, 8 congener in the sample multiplied by the appropriate Toxicity Equivalency Factors (TEFs) as prescribed in the Fourth Schedule.

Prohibition on emission dilution

14. (1) No person shall dilute, or cause or permit to be diluted, any emission at any time or point before it is emitted to the atmosphere.

(2) Emission becomes diluted when it undergoes a process to make it less concentrated by adding oxygen or other gases from external sources before its' emission into the atmosphere.

Hazardous substances

15. (1) An owner or occupier of a premises shall use the best practicable means to prevent the emission of hazardous substances and to render harmless and inoffensive those substances necessarily discharged.

(2) In the case of the use or handling or unintentional release of hazardous or toxic substances, the limit values and technical standards prescribed in the Fifth Schedule shall apply.

Periodic monitoring

16. (1) An owner or occupier of a premises shall conduct periodic monitoring if required under the relevant Schedules.

(2) Unless otherwise directed by the Director General, periodic monitoring shall be carried out once a year and shall be conducted by a competent person.

(3) The owner or occupier of a premises shall ensure that the first monitoring for new facilities is carried out after three months, but no later than six months, from the commencement of operation of such premises.

(4) An owner or occupier of a premises shall submit a periodic monitoring report in accordance with the specifications as determined by the Director General and any samples shall be analyzed by an accredited laboratory.

(5) Any record of periodic monitoring under this regulation shall be kept for at least three years and shall be made available for inspection by the Director General or any officer duly authorized in writing by him.

Continuous emission monitoring

17. (1) In addition to periodic monitoring under regulation 16, the owner or occupier of a premises shall carry out continuous emission monitoring as specified in the Second and Third Schedules.

(2) For purposes of continuous emission monitoring, the measuring device shall comply with the specifications as determined by the Director General.

(3) For continuous emission monitoring, the limit values are complied with if the evaluation of the results for the operating period within any one calendar year shows that no daily average exceeds the emission standard, and no half-hour average exceeds the emission standard more than two times.

(4) The owner or occupier of the premises shall make evaluations of the continuous emission monitoring in a calendar year, whereby for each calendar day, the daily mean value that relates to the daily operating time shall be derived from the half-hourly mean values.

(5) The owner or occupier of the premises shall submit to the Director General the results of evaluations within three months after the end of each calendar year, and such evaluation results are to be kept and maintained by the owner or occupier for at least 3 years.

(6) In the event where emission standards exceed the prescribed limit values, the owner or occupier of such premises shall notify the Director General within twenty-four hours from the discovery of the excess emission.

(7) In the event a monitoring device fails to operate, the owner or occupier of the premises shall notify the Director General not later than one hour from the occurrence of such failure.

Emission declaration

18. (1) An owner or occupier of a premises which carries out any of the activities or industries specified in the First Schedule shall for every calendar year submit to the Director General an emission declaration in such form as determined by the Director General.

(2) The emission declaration shall be submitted as follows:

(a) in the case of an existing premises, no later than eighteen months from the date on which these Regulations come into operation; and

(b) in the case of a new premises, the first emission declaration shall be submitted twelve months after the date the facility commences its operations, but no later than eighteen months from such date.

(3) In the event of a change in occupancy, the new owner or occupier shall submit an emission declaration for the next calendar year.

Owner or occupier of premises to render assistance

19. An owner or occupier of a premises being inspected by the Director General or any officer duly authorized in writing by him shall provide every reasonable assistance and facility available at the premises, including labour, equipment, appliances and instruments, that the Director General or any officer duly authorized in writing by him may require.

Failure of control equipment and emergency requirement

20. Where in the opinion of the Director General a failure in the operations of any premises, plant, machine, or equipment, or any control equipment used or installed on any premises may cause an accumulation of air pollutants to such level so as to threaten public health, safety or welfare, or the quality of the environment, the Director General may, by notice in writing require the owner or occupier of such premises to—

(a) submit a comprehensive emergency response plan detailing out the equipment, chemicals and personnel requirement, as well as measures and steps to be taken by parties concerned in the event of such emergency;

(b) install necessary public warning or alert systems;

(c) keep in adequate stock such equipment or chemicals as may be required in such emergency; and

(d) comply with any other directions which the Director General considers necessary in dealing with such emergency.

Accidental emission

21. (1) In the event of the occurrence of an accidental emission at the premises, the owner or occupier of a premises shall inform the Director General of such occurrence immediately upon discovery of the accidental emission.

(2) The owner or occupier of a premises shall, to every reasonable extent, contain, cleanse or abate the accidental emission in the manner satisfactory to the Director General.

Installation and operation as required by Director General

22. (1) In addition to any other provisions in these Regulations, the Director General may, by notice in writing, require an owner or occupier of a premises to—

(a) measure, take samples of, analyse, monitor, record and report any environmentally hazardous substances, air pollutants or emissions containing pollutants;

(b) comply with stricter limit values, parameters or equivalent technical measures than those prescribed in the Schedules;

(c) use certain types of fuel; or

(d) take any other action which the Director General considers necessary,

within such time and in such manner as may be specified in the notice.

(2) Subregulation (1) shall apply if, in the opinion of the Director General, the prescribed conditions or standards set forth in these Regulations will not adequately protect public health, safety or welfare, or the quality of the environment, due to—

(a) the accumulation or concentration of air pollutants in a certain area;

(b) the proximity of a residential area to the premises that is carrying out activities that discharges or is capable of discharging air pollutants into the atmosphere; or

(c) the instances where, based on the Best Available Techniques Economically Achievable, the prescribed conditions or standards under these Regulations will not be sufficient, have been exceeded or are expected to be exceeded.

Standard method of sampling and analysis of emissions

23. The sampling and analysis of pollutants shall be carried out in accordance with the Malaysian Standards MS 1596 or MS 1723 or the Methods published by the United States Environmental Protection Agency or any other standards as determined by the Director General.

Prohibition order

24. (1) In the event of any undesirable occurrence as specified in the Sixth Schedule, and where in the opinion of the Director General, the continued operation of any premises or process in question should not be permitted in order to safeguard public health, safety or welfare, the Director General may by notice in writing issue an order to the owner or occupier of a premises prohibiting the further operation of such premises or process absolutely or conditionally, or for such period as he may direct, or until remedial requirements as directed by him have been complied with.

(2) For the purpose of subregulation (1), a copy of the Director General's prohibition order shall be posted in a conspicuous place in the vicinity of the premises to which the said prohibition order refers, and no person shall operate such premises until the prohibition order is withdrawn.

Licence required to contravene acceptable conditions for emitting emissions into atmosphere

25. (1) An owner or occupier of a premises may apply for a licence under subsection 22(1) of the Act to contravene the acceptable conditions of emission of pollutants into the atmosphere specified under regulations 12 and 13.

(2) An application for a licence under subregulation (1) shall be accompanied by—

(a) a report on emission of pollutants characterization; and

(b) the licence fee as specified in regulation 27.

Schedule of required actions

26. (1) Where in the opinion of the Director General the circumstances surrounding a failure to comply with the requirements set forth in or prescribed in accordance with these Regulations so warrant, the Director General may issue a schedule of required actions to bring the owner or occupier of a premises into compliance within a fixed period of time.

(2) The schedule of required actions shall set interim standards which may require reduced levels of operation pending the installation of adequate control equipment and may establish a series of deadlines for the installation of specific control equipment.

(3) Failure to comply with any of the conditions or deadlines specified in such schedule of required actions shall render the owner or occupier of a premises liable to the penalty prescribed for the original violation.

Fees

27. (1) An application for a licence, including for renewal of a licence under regulation 25, shall be accompanied with a fee of one thousand ringgit and shall not be refundable.

(2) Payment of the fee shall be made by money order, postal order, bank draft or electronic payment to the Director General who shall issue a receipt upon payment.

False or misleading information

28. Any person who provides any information under these Regulations which he knows to be false or, in any material respect, misleading shall be guilty of an offence and shall be liable to a fine not exceeding one hundred thousand ringgit or to imprisonment for a term not exceeding two years or to both.

Penalty

29. Any person who contravenes or fails to comply with any provisions of these Regulations shall be guilty of an offence and shall be liable to a fine not exceeding one hundred thousand ringgit or to imprisonment for a term not exceeding two years or to both.

Revocation

30. (1) The Environmental Quality (Clean Air) Regulations 1978 [*P.U. (A) 280/1978*] and the Environmental Quality (Dioxin and Furan) Regulations 2004 [*P.U. (A) 104/2004*] are revoked (hereinafter referred to as "the revoked Regulations").

(2) Any applications made under the revoked Regulations for a licence to contravene the acceptable conditions, including any renewal or transfer of such licence, and any applications made for written permission under the revoked Regulations which are pending immediately before the date of the coming into operation of these Regulations shall, after the date of the coming into operation of these Regulations, be dealt with under the revoked Regulations and for such purposes such applications shall be treated as if these Regulations had not been made.

(3) All licences issued and written permissions granted under the revoked Regulations shall, after the date of the coming into operation of these Regulations, continue to remain in full force and effect until the licence expires, is amended, suspended or cancelled or the written permission expires or is revoked under the revoked Regulations and for such purpose such licences and written permissions shall be treated as if these Regulations had not been made.

(4) The provisions of the revoked Regulations relating to the acceptable conditions for emission of air pollutants emitted into the atmosphere shall continue to apply for a period of five years after the date of coming into operation of these Regulations if on the date of the coming into operation of these Regulations—

(a) any work on any construction of any emission control system has not commenced within one year from the date of issuance of the written permission for its construction immediately before the date of the coming into operation of these Regulations;

(b) any work on any construction of any emission control system has commenced but has not been completed immediately before the date of coming into operation of these Regulations; or

(c) any work on any construction of any emission control system has been completed but has not begun operations before the date of the coming into operation of these Regulations.

(5) Any proceeding, whether civil or criminal, commenced under the revoked Regulations and are pending on the date of the coming into operation of these Regulations shall, on the date of the coming into operation of these Regulations, be continued and concluded under the revoked Regulations and for such purposes it shall be treated as if these Regulations had not been made.

FIRST SCHEDULE
[Regulations 6 and 13]

ACTIVITIES AND INDUSTRIES SUBJECT TO THE BEST AVAILABLE TECHNIQUES ECONOMICALLY ACHIEVABLE (BAT)

1. Fuel burning, including heat and power generation in boilers, combustion turbines or generator sets for combined heat and power production.

   Fuel burning: Heat and power generation in: Boilers or gas turbines with a total capacity > 10 MW_e; Generator sets for combined heat and power production with a total capacity ≥ 3 MW_e.

2. Production and processing of ferrous metals (iron and steel mills) in all sizes, including:

   (a) metal ore roasting or sintering facilities;

   (b) facilities for the production of pig iron or steel (primary or secondary fusion) including continuous casting; and

   (c) facilities for the processing of ferrous metals (hot rolling mills).

3. Ferrous metal foundries with the *c*apacity of ≥ 1 ton molten metal per day.

4. Production and processing of non-ferrous metals with the capacity of ≥ 0.5 tons per day for lead or cadmium, or ≥ 2 tons per day for other metals.

5. Oil and gas industries in all sizes, including refineries, natural gas processing and storage, storage and handling of petroleum products.

6. Non-metallic (mineral) industry in cement production in all sizes, including:

(a) manufacture of glass, including glass fibre with the capacity of ≥ 1 ton of product per day; and

(b) manufacture of ceramic products by firing, in particular roofing tiles, ceramic glass**,** bricks, refractory bricks, tiles, stoneware or porcelain with the capacity of ≥ 10 tons of product per day.

7. All stationary asphalt mixing plants.

8. Pulp and paper industry, including paper recycling in all sizes.

9. Chemical and petrochemical industry in all sizes, including:

(a) production of inorganic chemicals, including gases (ammonia, chlorine, hydrogen chloride, sulphur dioxide); acids (hydrofluoric acid, phosphoric acid, nitric acid, hydrochloric acid, sulphuric acid, oleum), bases, salts and fertilizers (NPK);

(b) production of organic chemicals, including hydrocarbons, vinyl chloride monomer (VCM), oxygen-containing sulphurous, nitrogenous or phosphorous hydrocarbons, basic plastic material, synthetic rubber, dyes and surface-active agents and surfactants;

(c) production of pharmaceutical products, plant health products and biocides; and

(d) mixing and packaging of chemicals, pesticides, pharmaceutical products with the capacity of ≥ 5 tons of product per day.

10. Solvent use in industry: Facilities for the surface treatment of substances, objects or products using organic solvents, in particular for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating, fat extraction, with a solvent consumption capacity of more than 200 tonnes per year.

11. Waste incinerators in all sizes.

SECOND SCHEDULE
[Regulation 13]

LIMIT VALUES AND TECHNICAL STANDARDS (GENERAL)

(I) Control of fuel burning equipment, incinerators and crematoria

1. Control of fuel quality for fuel burning equipment and incinerators not covered by the First Schedule:

Fuel type	Fuel	Fuel quality parameter
Liquid	All	Sulphur content < 500 ppm (per weight)
Solid	Coal	Sulphur content < 1% (per weight)
	Biomass	Wood, agricultural waste, *etc*.: air dry and in its natural composition (e.g. wood without coating, paint or other treatment)
		Residues from wood-based industries: without wood preservatives

2. Combustion emissions from fuel burning equipment and incinerators not covered by the First Schedule:

The CO_2 reference content is 12%.

Fuel type	Pollutant	Limit value	Monitoring
Liquid	Total particulate matter (PM) Where dust load emitted: *(a)* > 0.33 < 1.0 kg/h *(b)* ≥ 1.0 kg/h	50 mg/m^3	 Once/year 2 times/year

Solid	Total particulate matter (PM) Where dust load emitted: *(a)* > 0.44 < 1.0 kg/h *(b)* ≥ 1.0 < 1.5 kg/h *(c)* ≥ 1.5 < 2.0 kg/h *(d)* ≥ 2.0 < 2.5 kg/h *(e)* ≥ 2.5 kg/h	150 mg/m^3	Once/year 2 times/year 3 times/year 4 times/year Continuous*
	Carbon monoxide (CO)	1000 mg/m^3	Periodic

*Averaging time for continuous monitoring is 30 minutes

NOTE:

In the case of boilers, the thermal efficiency shall be at least 90%.

(II) Control of NMVOC emissions

1. Outlets (vents, exhaust outlets, *etc*.) which have the potential to emit NMVOC shall comply with:

   (a) 20 mg/m^3 (indicated as total organic carbon) in the case of halogenated hydrocarbons; and

   (b) 150 mg/m^3 (indicated as total organic carbon) other than halogenated hydrocarbons.

2. The limit values shall be measured periodically.

(III) Control of fugitive emissions

Fugitive emissions of NMVOC and dust shall be minimized in accordance with the Guidance Document on Fugitive Emission Control.

(A) *Fugitive emissions of NMVOC*

1. NMVOC emissions from solvent use shall be minimized by good housekeeping measures and the use of closed systems. Emissions from storage and handling shall be, as far as feasible—

   (a) captured and ducted to an abatement device; or

   (b) captured by a vapor recovery system.

2. Solvent residues shall be handled, transported and removed from a facility in a closed system.

3. Fugitive emissions from pumps, compressors, flanged joints, *etc*., shall be minimized by state-of-the-art seals and joints in accordance with the Guidance Document on Fugitive Emission Control.

4. Service stations shall be operated with a vapor recovery system. The vapor displaced by the filling of petrol storage tanks shall be displaced either into other storage tanks or into abatement equipment.

5. Fugitive emissions from the dry cleaning of textiles shall not exceed 20g of solvent per kg cleaned and dried clothes. The halogenated solvents have to be recovered. Filters for solvent recovery have to be regenerated.

(B) *Fugitive emissions of dust*

1. Suitable requirements shall be made to emission reduction with regard to facilities at which solid substances are loaded or unloaded, hoisted, transported, prepared or stored if these substances may cause dust emissions due to their density, grain size distribution, grain shape, surface condition, abrasion resistance, shearing resistance, resistance to fracture, composition or due to their low humidity content.

2. Fugitive dust emission control shall be achieved via good housekeeping and appropriate equipment as outlined in the Guidance Document on Fugitive Emission Control.

THIRD SCHEDULE
[Regulation 13]

LIMIT VALUES AND TECHNICAL STANDARDS (BY ACTIVITY OR INDUSTRY)

In this Schedule, "Toxicity Equivalents" or "TEQ" means toxicity equivalents in comparison to 2, 3, 7, 8 tetrachlorinateddibenzo-para-dioxin which is also known as 2, 3, 7, 8 tetrachlorodibenzodioxin or 2, 3, 7, 8 TCDD.

A. HEAT AND POWER GENERATION

1. Boilers

The O_2 reference content is 6% for solid fuels and 3% for others.

Fuel type	**Pollutant**	**Capacity**	**Limit value**	**Monitoring**
Solid and liquid fuels	Sum of SO_2 and SO_3, expressed as SO_2	> 10 MW_e	500 mg/m^3	Continuous*
	Sum of NO and NO_2 expressed as NO_2	> 10 MW_e	500 mg/m^3	Continuous*
	Hydrogen chloride (HCl)	> 10 –<100 MW_e	200 mg/m^3	Periodic
	Hydrogen chloride (HCl)	≥100 MW_e	100 mg/m^3	Periodic

	Hydrogen fluoride (HF)	> 10 –<100 MW_e	30 mg/m^3	Periodic
	Hydrogen fluoride (HF)	≥100 MW_e	15 mg/m^3	Periodic
	Carbon monoxide (CO)	> 10 MW_e	200 mg/m^3	Continuous*
	Total PM	> 10 MW_e	50 mg/m^3	Continuous*
	Mercury (Hg)	>10 MW_e	0.03 mg/m^3	Periodic
	PCDD/PCDF	> 10 MW_e	0.1 ng TEQ/m^3	Periodic
Gaseous fuels	Sum of NO and NO_2 expressed as NO_2	> 10 MW_e	350 mg/m^3	Continuous*
	Carbon monoxide (CO)	> 10 MW_e	50 mg/m^3	Continuous*
	Total PM	> 10 MW_e	5 mg/m^3	Periodic

*Averaging time for continuous monitoring is 30 minutes

2. Combustion turbines

The O_2 reference content is 15%.

Fuel type	**Pollutant**	**Capacity at ISO conditions**	**Limit value**	**Monitoring**
Gaseous fuels	Sum of NO and NO_2 expressed as NO_2	> 10 MW_e	150mg/m^3	Continuous*
	Carbon monoxide (CO)	> 10 MW_e	100 mg/m^3	Continuous*
Liquid fuels	Sum of NO and NO_2 expressed as NO_2	> 10 MW_e	200 mg/m^3	Continuous*
	Carbon monoxide (CO)	> 10 MW_e	100 mg/m^3	Continuous*

*Averaging time for continuous monitoring is 30 minutes

3. Generator sets for combined heat and power production with a total thermal output ≥ 3 MW_e:

The O_2 reference content is 5%.

Fuel type	**Pollutant**	**Capacity**	**Limit value**	**Monitoring**
Liquid or gas fuels	Sum of NO and NO_2 expressed as NO_2	≥ 3 MW_e	600mg/m^3	Periodic
	Carbon monoxide (CO)	≥ 3 MW_e	650 mg/m^3	Periodic
	Total PM	≥ 3 MW_e	80 mg/m^3	Periodic

B. PRODUCTION AND PROCESSING OF FERROUS METALS (IRON AND STEEL MILLS)

Source	Pollutant	Limit value	Monitoring
Sinter plants (waste gas from the sintering belt)	Sum of SO_2 and SO_3, expressed as SO_2	500mg/m^3	Continuous*
	Sum of NO and NO_2 expressed as NO_2	400 mg/m^3	Continuous*
	Total PM	50 mg/m^3	Continuous*
	Total lead as Pb	1 mg/m^3	Periodic
	NMVOC	75 mg/m^3	Periodic
	PCDD/PCDF	0.1 ng TEQ/m^3	Periodic
Coke ovens (@ 5% O_2)	Total PM	10 mg/m^3	Continuous*
	Sum of NO and NO_2 expressed as NO_2	500 mg/m^3	Periodic
	Sulphur compounds as S	800 mg/m^3	Periodic
Blast furnace (Regenerator; @ 3% O_2)	Total PM	50 mg/m^3	Continuous*
Basic oxygen furnace (converter gas)	Total PM	50 mg/m^3	Continuous*
Electric arc furnaces	Total PM	50 mg/m^3	Continuous*
Rolling mill: Thermal treatment furnace (@ 5% O_2)	Sum of NO and NO_2 expressed as NO_2	500 mg/m^3	Periodic

*Averaging time for continuous monitoring is 30 minutes

NOTE:

1. *Blast furnace top gas and converter gas shall be actively recycled. If these gases cannot be recycled for safety reasons or in emergencies, they shall be fed into a flare.*

2. *Emissions from iron and steel industry shall be minimized by using techniques described in the Best Available Techniques Guidance Document.*

3. *These measures include low emission procedures such as dry coke cooling.*

4. *Gaseous and volatile organic compounds shall be indicated as total organic carbon.*

C. FERROUS METAL FOUNDRIES WITH A CAPACITY ≥ 1 TON MOLTEN METAL PER DAY

Source	Pollutant	Limit value	Monitoring
Cupola furnace	Sum of SO_2 and SO_3, expressed as SO_2	500mg/m^3	Periodic
	Carbon monoxide (CO)	150 mg/m^3	Periodic
Core production and casting	Amine	5 mg/m^3	Periodic
	Benzene	5 mg/m^3	Periodic

NOTE:

Gaseous and volatile organic compounds shall be indicated as total organic carbon.

D. PRODUCTION AND PROCESSING OF NON-FERROUS METALS WITH A CAPACITY ≥ 0.5 TONS PER DAY FOR LEAD OR CADMIUM OR ≥ 2 TONS PER DAY FOR OTHER METALS

Source	Pollutant	Limit value	Monitoring
Sinter plants (waste gas from the sintering belt)	Sum of SO_2 and SO_3, expressed as SO_2	500mg/m^3	Continuous*
	Sum of NO and NO_2 expressed as NO_2	400 mg/m^3	Continuous*
	Total PM	50 mg/m^3	Continuous*
	Total lead as Pb	1 mg/m^3	Periodic
	NMVOC	75 mg/m^3	Periodic
	PCDD/PCDF	0.1 ng TEQ/m^3	Periodic
Production of copper and zinc	Total PM	20 mg/m^3	Continuous*
Production of lead	Total PM	10 mg/m^3	Continuous*
Primary aluminium	Total PM	10 mg/m^3	Continuous*
	Fluorine compounds as HF	1 mg/m^3	Periodic
	Total Fluoride	1.5 mg/m^3	Periodic
	Sum of SO_2 and SO_3 expressed as SO_2	100 mg/m^3	Continuous*
Secondary aluminium(1)	Total PM	10 mg/m^3	Continuous*
	Sum of NO and NO_2 expressed as NO_2	500 mg/m^3	Periodic
Smelting, alloying and refining of aluminium(2)	Total PM	10 mg/m^3	Continuous*

Smelting, alloying and refining of other non-ferrous metals	Total PM	5 mg/m^3	Continuous*

*Averaging time for continuous monitoring is 30 minutes

(1) In secondary aluminium production, hexachloroethane shall not be used for smelting. "Secondary aluminium" is defined as re-melting of all kinds of used aluminium end products which might be coated, painted and laminated.

(2) "Smelting, alloying and refining of aluminium" is defined as melting of pure aluminium and plain scrap.

NOTE:

1. Gaseous and volatile organic compounds shall be indicated as total organic carbon.

2. For non-ferrous metal foundries limit values of ferrous metal foundries apply.

3. Fugitive dust emissions shall be minimized using Best Available Techniques Economically Achievable Guidance Document.

E. OIL AND GAS INDUSTRIES: REFINERIES (ALL SIZES); NATURAL GAS PROCESSING AND STORAGE; STORAGE AND HANDLING OF PETROLEUM PRODUCTS

Source	Pollutant	Limit value	Monitoring
Claus plant	Sulphur	Recovery > 95%	Periodic
Catalytic cracking	Total PM	40 mg/m^3	Continuous*
	Sum of SO_2 and SO_3, expressed as SO_2	1200 mg/m^3	Continuous*
Calcination	Total PM	40 mg/m^3	Continuous*

*Averaging time for continuous monitoring is 30 minutes

NOTE:

1. *Gases and vapors of organic substances which escape from pressure relief fittings and blow-down systems shall be fed into a gas collecting system.*

2. The collected gases shall be combusted in process furnaces if this is feasible. If this is not feasible, the gases shall be fed into a flare.

3. Waste gases continually produced by processing systems and waste gases occurring during the regeneration of catalysts, inspections and cleaning operations shall be fed into a post-combustion facility, or equivalent measures to reduce emissions shall be applied.

4. Gaseous and volatile organic compounds shall be indicated as total organic carbon.

5. Fugitive emissions of volatile organic substances shall be minimized according to the respective Best Available Techniques Economically Achievable Guidance Document.

6. For compliance check a "Leakage Detection and Repair Programme" shall be implemented as outlined in the Guidance Document on Leak Detection and Repair in a manner as specified and approved by the Director General.

7. Combustion installations using refinery gas or other by-products shall comply with the standards of Fuel Burning Equipment in the Second Schedule or Third Schedule, depending on the thermal output.

F. NON-METALLIC (MINERAL) INDUSTRY: CEMENT PRODUCTION (ALL SIZES); MANUFACTURE OF GLASS INCLUDING GLASS FIBRE WITH A MELTING CAPACITY ≥ 1 TON OF PRODUCT PER DAY; MANUFACTURE OF CERAMIC PRODUCTS BY FIRING, ROOFING TILES, BRICKS, REFRACTORY BRICKS, TILES, CERAMIC GLASS, STONEWARE OR PORCELAIN, WITH A PRODUCTION CAPACITY ≥ 10 TONS OF PRODUCT PER DAY

The O_2 reference content for:

(a) cement kilns is 10%.
(b) flame-heated glass melting furnaces is 8%.
(c) flame-heated pot furnaces and day tanks furnaces 13%.
(d) ceramic furnaces is 17%.

Source	Pollutant	Limit value	Monitoring
Cement kilns	Sum of NO and NO_2 expressed as NO_2	800 mg/m^3	Continuous*
	Total PM	50 mg/m^3	Continuous*
	Mercury	0.05 mg/m^3	Periodic
	PCDD/PCDF	0.1 ng TEQ/m^3	Periodic
Rotary furnaces for the manufacture of hard quicklime or sintering dolomite	Sum of NO and NO_2 expressed as NO_2	1500 mg/m^3	Continuous*
	Total PM	50 mg/m^3	Continuous*
	Mercury	0.05 mg/m^3	Periodic
	PCDD/PCDF	0.1 ng TEQ/m^3	Periodic
Glass furnaces	Sum of SO_2 and SO_3 expressed as SO_2	800 mg/m^3	Continuous*
	Sum of NO and NO_2 expressed as NO_2	800 mg/m^3	Continuous*
	Total lead as Pb	5 mg/m^3	Periodic
	Total PM	50 mg/m^3	Continuous*
Ceramic furnaces	Sum of SO_2 and SO_3 expressed as SO_2	800 mg/m^3	Periodic
	Sum of NO and NO_2 expressed as NO_2	800 mg/m^3	Periodic
	Total PM Where dust load emitted: *(a)* > 0.33 < 1.0 kg/h *(b)* ≥ 1.0 <2.0 kg/h *(c)* ≥ 2.0 kg/h	50 mg/m^3	 Once/year 2 times/year Continuous*

*Averaging time for continuous monitoring is 30 minutes

NOTE:

1. *Glass furnaces: If nitrate purification is required for reasons of glass product quality, sum of NO and NO_2 emissions expressed as NO_2 in waste gas shall not exceed a mass concentration of 1000 mg/m^3.*

2. *The best available techniques to further reduce emissions, particularly by using improved combustion, shall be applied.*

3. *Emission limits for furnaces with oxy-fuel burners shall be considered on a case-by-case basis in accordance with the Best Available Techniques Economically Achievable Guidance Document.*

4. *Facilities for the melting of mineral substances including the production of mineral fibres shall comply with a limit value for* sum of SO_2 and SO_3, expressed as SO_2 *of 1500 mg/m³ corrected to O_2 reference content at 8%.*

G. ASPHALT MIXING PLANTS (STATIONARY INSTALLATIONS)

The O_2 reference content is 17%.

Fuel type	Pollutant	Limit value	Monitoring
Liquid and gaseous	Carbon monoxide (CO)	0.50 g/m^3	Periodic
Solid	Carbon monoxide (CO)	1.0 g/m^3	Periodic
All fuels	Total PM	50mg/m^3	Periodic
	NMVOC	50 mg/m^3	Periodic

NOTE:

1. *Waste gases containing dust from the mineral rotary dryer, the asphalt granulate dryer (parallel dryer), the transport units for hot minerals, the washer and the mixer shall be collected and fed into a de-dusting system.*

2. *Crushers for recycled asphalt shall be encapsulated and equipped with effective control equipment to reduce dust emissions, e.g., water sprinklers.*

3. *Waste gases from the vicinity of the mixer outflow, the transfer points to the mixer, the transport units for the bituminous mixture and the transfer points to the loading silos which contains organic substances shall be collected and fed into a suitable waste gas purification facility, by feeding the waste gases into the mineral rotary dryer as combustion air.*

4. *Emissions of organic substances when the bitumen storage tanks are filled shall preferably be avoided by using the vapor recovery technique.*

5. *Gaseous and volatile organic compounds shall be indicated as total organic carbon.*

H. PULP AND PAPER INDUSTRY INCLUDING PAPER RECYCLING FACILITIES IN ALL SIZES

Source	Pollutant	Limit value	Monitoring
Recovery furnaces	PM	150 mg/m^3	Periodic
	Sum of NO and NO_2 expressed as NO_2	2 kg/t Air Dried Pulp (ADP)	Periodic
Lime kilns	Hydrogen sulfide (H_2S)	15 mg/m^3	Periodic
	Sum of NO and NO_2 expressed as NO_2	2 kg/t Air Dried Pulp (ADP)	Periodic
Sulfite mills	Total sulfur	1.5 kg/t Air Dried Pulp (ADP)	Periodic
Kraft and others	Total sulfur	1.0 kg/t Air Dried Pulp (ADP)	Periodic

NOTE:

1. *Through good planning and construction, as well as optimization of process technology and plant management, emissions of odour-intensive substances such as from waste paper stock, waste paper treatment, interim storage and transportation of waste from waste paper treatment, process water cycles, the water treatment plant and sludge dewatering, shall be prevented as far as possible.*

2. *If odour impacts are to be expected in the vicinity of a facility, the best available more extensive techniques to reduce odours shall be used, for example enclosure of the facility components, collection of waste gases and feeding them to a waste gas purification facility.*

3. *Emissions of dust and Total Reduced Sulphur (TRS) shall be minimized by using Best Available Techniques Economically Achievable as outlined in the Best Available Techniques Economically Achievable Guidance Document.*

I. CHEMICAL AND PETROCHEMICAL INDUSTRY IN ALL SIZES

Pollutant	Limit value	Monitoring
Hydrogen chloride (HCl)	200 mg/m^3	Periodic
Sum of NO and NO_2 expressed as NO_2	700 mg/m^3	Periodic
Ammonia (NH_3)	76 mg/m^3	Periodic
Chlorine (Cl)	32 mg/m^3	Periodic
Sum of SO_2 and SO_3, expressed as SO_2	100 mg/m^3	Periodic
Mercury (Hg)	0.05 mg/m^3	Periodic
Hydrogen sulphide (H_2S)	7.5 mg/m^3	Periodic
Total PM	50 mg/m^3	Periodic

NOTE:

1. Gaseous and volatile organic compounds shall be indicated as total organic carbon.

2. For the control of NMVOC emissions Best, Available Techniques Economically Achievable shall apply as outlined in the Best Available Techniques Economically Achievable Guidance Document.

3. New facilities for the production of chlorine or alkali using asbestos for the diaphragm or amalgam process are prohibited.

4. For mixing and packaging of chemicals, pesticides and pharmaceutical products with a capacity ≥ 5 tons of product per day:

(a) Total dust, including organic substances specified as hazardous as in the Fifth Schedule;

(b) Waste gases containing dust shall be collected at the place of origin and fed into a de-dusting system;

(c) Dust emissions in waste gas shall not exceed a maximum mass concentration of 5 mg/m^3; and

(d) Dust emissions with a composition of hazardous substances or preparations of 10 per cent or more shall not exceed a maximum mass concentration in waste gas of 2 mg/m^3.

J. SOLVENT USE IN INDUSTRY: FACILITIES FOR THE SURFACE TREATMENT OF SUBSTANCES, OBJECTS OR PRODUCTS USING ORGANIC SOLVENTS, IN PARTICULAR FOR DRESSING, PRINTING, COATING, DEGREASING, WATERPROOFING, SIZING, PAINTING, CLEANING OR IMPREGNATING, FAT EXTRACTION, WITH A SOLVENT CONSUMPTION CAPACITY OF MORE THAN 200 TONNES PER YEAR

1. Facilities of this category shall establish a solvent management plan in order to set-up a reduction strategy.

2. Solvent losses shall be reduced in accordance with Best Available Techniques Economically Achievable limiting these losses to not more than 30% of the solvent input as a general rule.

3. Actual reduction targets and their time frame shall be set on a case-by-case basis as outlined in the Guidance Document on Fugitive Emission Control.

K. WASTE INCINERATORS IN ALL SIZES

Air pollutant emission from incineration process shall not exceed the concentration limits tabulated below.

The O_2 reference content is 11%.

Pollutant	Limit value	Monitoring
Total PM	100 mg/m^3	Continuous*
NMVOC as total organic carbon	10 mg/m^3	Continuous*
Hydrogen chloride (HCl)	40 mg/m^3	Continuous*
Hydrogen fluoride (HF)	1 mg/m^3	Continuous*
Sum of SO_2 and SO_3 expressed as SO_2	50 mg/m^3	Continuous*
Sum of NO and NO_2 expressed as NO_2	200 mg/m^3	Continuous*
Carbon monoxide (CO)	50 mg/m^3	Continuous*

Cadmium and its compounds, expressed as cadmium (Cd) Thallium and its compounds, expressed as thallium (Tl)	Total 0.05 mg/m^3	Periodic
Mercury and its compounds, expressed as mercury (Hg)	0.05 mg/m^3	Periodic
Antimony (Sb), Arsenic (As), Lead (Pb), Chromium (Cr), Cobalt (Co), Copper (Cu), Manganese (Mn), Nickel (Ni), Vanadium (V), and their compounds expressed as the element	Total 0.5 mg/m^3	Periodic
PCDD/PCDF	0.1 ng TEQ/m^3	Periodic

*Averaging time for continuous monitoring is 30 minutes

FOURTH SCHEDULE
[Regulation 13]

TOXICITY EQUIVALENTS FACTOR (TEFs) FOR DIOXIN AND FURAN

Chlorine Position		Component	Equivalents Factor
DIOXIN			
(a)	2,3,7,8	Tetrachlorodibenzodioxin (TCDD)	1
(b)	1,2,3,7,8	Pentachlorodibenzodioxin (PeCDD)	0.5
(c)	1,2,3,4,7,8	Hexachlorodibenzodioxin (HxCDD)	0.1
(d)	1,2,3,7,8,9	Hexachlorodibenzodioxin (HxCDD)	0.1
(e)	1,2,3,6,7,8	Hexachlorodibenzodioxin (HxCDD)	0.1
(f)	1,2,3,4,6,7,8	Heptachlorodibenzodioxin (HpCDD)	0.01
(g)	1,2,3,4,6,7,8,9	Octachlorodibenzodioxin (OCDD)	0.001
FURAN			
(a)	2,3,7,8	Tetrachlorodibenzofuran (TCDF)	0.1
(b)	2,3,4,7,8	Pentachlorodibenzofuran (PeCDF)	0.5
(c)	1,2,3,7,8	Pentachlorodibenzofuran (PeCDF)	0.05
(d)	1,2,3,4,7,8	Hexachlorodibenzofuran (HxCDF)	0.1
(e)	1,2,3,7,8,9	Hexachlorodibenzofuran (HxCDF)	0.1
(f)	1,2,3,6,7,8	Hexachlorodibenzofuran (HxCDF)	0.1
(g)	2,3,4,6,7,8	Hexachlorodibenzofuran (HxCDF)	0.1
(h)	1,2,3,4,6,7,8	Heptachlorodibenzofuran (HpCDF)	0.01
(i)	1,2,3,4,7,8,9	Heptachlorodibenzofuran (HpCDF)	0.01
(j)	1,2,3,4,6,7,8,9	Octachlorodibenzofuran (OCDF)	0.001

FIFTH SCHEDULE
[Regulation 15]

EMISSION STANDARDS FOR HAZARDOUS SUBSTANCES

1. In the case of emissions originating from incineration or fuel burning the oxygen content in the emission shall not be less than 3%.

2. Gaseous and volatile organic compounds shall be indicated as total organic carbon.

3. The limit values shall be measured periodically.

4. As to an occurrence of substances of one category belonging to different classes, the *cumulation rule* shall apply.

   The *cumulation rule* means that:

   (a) The total emission standards of class (2) may not be exceeded if substances of classes (1) and (2) occur simultaneously in waste gas.

   (b) The emission standards of class (3) may not be exceeded as a total if substances of classes (1) and (3), of classes (2) and (3) or of classes (1) to (3) occur simultaneously in waste gas.

5. A list of the most relevant substances in each category are given in the List of Hazardous Substances document. The Director General may include other substances in each category listed in the List Of Hazardous Substances Under Regulation 15, Environmental Quality (Clean Air) Regulations 2013 document.

6. In this Schedule, “Toxicity Equivalents” or "TEQ” means toxicity equivalents in comparison to 2, 3, 7, 8, tetrachlorinateddibenzo-para-dioxin which is also known as 2, 3, 7, 8 tetrachlorodibenzodioxin or 2, 3, 7, 8 TCDD.

Category (1) Extremely hazardous substances

A substance is categorized as extremely hazardous on the basis of extreme toxicity, persistence and tendency towards accumulation. For extremely hazardous substances no limit mass flow or emissions standard applies but the requirement to minimize emissions applies instead. In general, for unintentional releases of Category (1) substances a limit value of 0.1 ng TEQ/m^3 shall apply.

Category (2) Carcinogenic substances

For substances classified as hazardous the following limit value shall apply to the sum of all occurring carcinogenic substances in a gas flow:

Class (1) In the case of an untreated mass flow of 0.5 grams/hour or more an emission standard of 0.10 mg/m^3 applies.

Class (2) In the case of an untreated mass flow of 5 grams/hour or more an emission standard of 1 mg/m^3 applies.

Class (3) In the case of an untreated mass flow of 25 grams/hour or more an emission standard of 5 mg/m^3 applies.

Category (3) Gaseous and volatile organic substances

Class (1) In the case of an untreated mass flow of 0.10 kilograms/hour or more an emission standard of 20 mg/m^3 applies.

Class (2) In the case of an untreated mass flow of 2.0 kilograms/hour or more an emission standard of 100 mg/m^3 applies.

Class (3) In the case of an untreated mass flow of 3.0 kilograms/hour or more an emission standard of 150 mg/m^3 applies.

If more than one emission standard applies to a group of substances, the lowest standard will be the norm for the sum of all substances in accordance with the *cumulation rule*.

Fugitive NMVOC emissions shall be minimized by suitable control measures such as those mentioned in the Guidance Document on Fugitive Emission Control.

Category (4) Gaseous and volatile inorganic substances

(a) **Volatile inorganic substances other than Oxides of Sulfur and Oxides of Nitrogen**

Class (1) In the case of an untreated mass flow of 10 grams/hour or more for each substance an emission standard of 1.0 mg/m^3 applies.

Class (2) In the case of an untreated mass flow of 50 grams/hour or more for each substance an emission standard of 5.0 mg/m^3 applies.

Class (3) In the case of an untreated mass flow of 300 grams/hour or more for each substance an emission standard of 30 mg/m^3 applies.

In the case of gaseous and volatile inorganic substances the *cumulation rule* shall not apply.

(b) **Oxides of Sulfur and Oxides of Nitrogen**

General limit values for oxides of sulphur (sum of SO_2 and SO_3 expressed as SO_2) and oxides of nitrogen (sum of NO and NO_2 expressed as NO_2):

In the case of an untreated mass flow of 5.0 kilograms/hour or more for each substance an emission standard of 400 mg/m^3 shall apply if not stated otherwise in the Third Schedule.

Category (5) Particulate inorganic substances

Class (1) In the case of an untreated mass flow of 1.0 grams/hour or more an emission standard of 0.20 mg/m^3 applies.

Class (2) In the case of an untreated mass flow of 5.0 grams/hour or more an emission standard of 1.0 mg/m^3 applies.

Class (3) In the case of an untreated mass flow of 25 grams/hour or more an emission standard of 5.0 mg/m^3 applies.

If more than one emission standard applies to a group of substances, the lowest value will be the norm for the sum of all substances in accordance with the *cumulation rule*.

Fugitive particulate emissions shall be minimized by suitable control measures as determined by the Director General.

Category (6) Fibres

Biopersistent ceramic fibres (for example, consisting of aluminium silicate, aluminium oxide, silicon carbide, potassium titanate) in waste gases shall not exceed 1.5×10^4 $fibres/m^3$.

Fibre here means a particle with a length in excess of 5 μm, a width of less than 3 μm and a length/width ratio of more than 3:1.

SIXTH SCHEDULE
[Regulation 24]

LIST OF UNDESIRABLE OCCURRENCE

1. Where there is justified complaint or evidence of nuisance, and non-installation of control equipment.

2. Breakdown or non-operation of control equipment.

3. Pollution cases that seriously threaten the environment or public health and safety which warrant immediate halt.

4. Premises that experiences industrial disaster such as fire, explosion and the like which may pose serious risk to the environment or the public in the vicinity.

5. Serious environmental pollution which gives rise to frequent complaints and upon investigation, the complaints are found to be justified and the premises are flouting the directives of the Director General.

6. Premises which frequently commit similar offences despite having been subject to various legal actions by the Director General such as notices, directives, compounds or court actions.

7. Pollution cases which cause serious negative impacts to life and there is evidence indicating that the premises do not make sufficient effort to overcome the pollution problems.

8. Serious environmental pollution with wide coverage in mass media and there is evidence indicating that the pollution occurred as a result of absence, non-operation or malfunctioning of the air pollution control system in the premises.

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