

Regulation on Controlling Air Pollutants (MD118/2004)
Issued by Ministry of Regional Municipalities, Environment & Water
Resources, Sultanate of Oman
(August 7, 2004)

Article 1:

The rules and regulations specified hereunder shall apply for controlling air pollutants released from stationary sources. These rules and regulations supercede those issued under MD 5/86. These rules and regulations come into force effective from the date of publication in the Official Gazette.

Article 2:

The owner shall use scientific means to prevent direct or indirect emissions of toxic and hazardous gases and particulates from site, and treat such gases and particulates appropriately to render them harmless and to comply with the ministry's standards.

Article 3:

The owner shall comply with the standards specified in the annexure, monitor the particulate and gas emissions from time to time, carry out any necessary alterations to the stacks or the sources of generation, and report the results of emission monitoring to the ministry. The ministry reserves the right to issue any modifications to the methods and equipment used for monitoring by the owner.

Article 4:

In case of any potential risk to human health or odour /noise nuisance caused by air emissions released from a work site, the ministry shall specify, from time to time, the necessary mitigation measures to be undertaken by the owner.

Article 5:

Dark smoke shall not be emitted from a chimney of any building, any industrial / commercial premises, or any other site. Open burning of organic or agricultural wastes is prohibited.

In special cases, the ministry may allow the emission of dark smoke for a limited period with special conditions and stipulated, provided the ministry accepts the reasons given by the owner.

Article 6:

The owner shall apply for an environmental permit. No construction or operation shall commence before the ministry approves the height of the chimney which shall be sufficient to prevent, as far as is practicable, the smoke, grit, dust and gases emitted from the chimney causing injury to health or nuisance. The minimum stack heights (from ground level) are as follows:

Power Plants

Plants generated by natural gas	26 m
Plants generated by diesel oil	35 m

Boilers

Boilers generated by natural gas	15 m
Boilers generated by diesel oil	20 m

Furnaces

Cement manufacturing ovens	40 m
Ceramic manufacturing ovens	20 m

Melting Kilns

Metallic and non-Metallic Elements	45 m
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Incinerators

Medical, municipal and industrial waste incinerator	15-20 m
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For other categories, the stack height shall be at least 2.5 times the height of the tallest building around the facility.

Article 7:

The permit to operate shall be issued for a period of three years, which can be renewed for a similar period or longer. Application for renewal shall be made at one month before the expiry date. A fee of twenty-five (25) Omani Rials is to be paid for the permit application or renewal.

In case of late renewal of the permit, a five (5) Omani Rial fine is to be paid for every month (or part of a month) with the maximum limit of one hundred (100) Omani Rials.

Article 8:

Environmental Inspectors from the ministry are authorized to enter any work site at any time in order to inspect any process emitting noxious or offensive substances, to check the efficiency of pollution control systems and to monitor / test the emission quantities and quality.

Article 9:

The owner or his representative shall permit the Environmental Inspectors to enter the work site, inspect the facilities and carry out the necessary tests. On written request from the Inspectors, the owner or his representative shall provide the necessary flow sheets and layout plans, which shall be maintained confidential by the ministry.

Article 10:

The owner shall notify in writing to the ministry of any changes made with respect to the ownership or the manufacturing process.

Annexure: Emission Standards

The standards shown here are numerical standards for emissions to air, which can be measured with instruments. There may be many sources of fugitive emissions, for which emissions rates may be estimated using mass balances.

1 - General

Grit and dust (<76µm diameter) 0.050 g/m³

Dark smoke – products of combustion shall not emit smoke as dark as darker than shade 1 on the Ringelmann Scale (20% opacity).

2 - Aggregates Works

Particulates 0.050 g/m³

3 - Asbestos Works

Crocidolite asbestos –where not banned, emission of crocidolite to air shall not exceed 0.5 fibers/mL over a period of not less than 10 minutes.

Total particulates 0.050 g/m³

4 - Asphalt Works

Bitumen fumes 0.030 g/m³

Total particulates 0.050 g/m³

5 - Cement Works

Particulates 0.100 g/m³

Sulphur dioxide 0.035 g/m³

6 - Ceramic Works

Total particulates 0.050 g/m³

Hydrogen fluoride 0.005 g/m³

Hydrogen chloride 0.050 g/m³

7 - Copper Works

Total particulates 0.200 g/m³

Copper compounds 0.100 g/m³

Zinc compounds 0.100 g/m³

Cadmium compounds 0.005 g/m³

Sulphur dioxide calculated as sulphur trioxide 0.050 g/m³

The mass rate of emission from the site shall not exceed 1.0 kg/h calculated as cadmium.

8 - Lead Works

Lead or its compounds 0.030 g/m³

Total particulates	0.050 g/m ³
The mass rate of lead emission from the site shall not exceed 3.0 kg/h, calculated as lead.	
9 - Incineration Works	
Hydrogen chloride	0.050 g/m ³
Hydrogen fluoride	0.010 g/m ³
Oxides of nitrogen, calculated as nitrogen dioxide	0.200 g/m ³
Phosphorous compounds, calculated as phosphorus pentoxide	0.050 g/m ³
Hydrogen sulphide	5 ppm v/v
Dioxin	0.5 ng/m ³
Totals particulates	0.050 g/m ³
10 - Lime Works	
Particulates from kiln emission	0.100 g/m ³
Particulates from slacking	0.100 g/m ³
Carbon monoxide	0.050 g/m ³
Particulates from ancillary processes	0.050 g/m ³
11 - Petroleum Works	
Particulates from catalytic crackers	0.100 g/m ³
Sulphur recovery units minimum efficiency	99.9%
Organic compounds from fume recovery units	0.035 g/m ³
Hydrogen sulphide	5 ppm v/v
12 - Flaring in Refinery and Petroleum Fields	
Carbon monoxide	0.050g/m ³
Sulphur dioxide	0.035 g/m ³
Nitrogen dioxide	0.150 g/m ³
Carbon dioxide	5 g/m ³
Unburned hydrocarbons	0.010 g/m ³
Particulates	0.100 g/m ³
13 - Power Plant	
<u>Plant generated by natural gas:</u>	
Nitrogen dioxide	0.150 g/m ³
Particulates	0.050 g/m ³
Unburned hydrocarbons	0.010 g/m ³
Carbon dioxide	5 g/m ³
<u>Plant generated by diesel oil (<0.5% sulphur):</u>	
Sulphur dioxide	0.035 g/m ³
Carbon monoxide	0.050 g/m ³
Nitrogen dioxide	0.150 g/m ³
Particulates	0.100 g/m ³
Unburned hydrocarbons	0.010 g/m ³

14 - Urea/Ammonia Fertilizer Factories	
Ammonia	0.020 g/m ³
Urea particulates	0.050 g/m ³
Nitrogen dioxide	0.150 g/m ³
Carbon dioxide	5 g/m ³
Unburned hydrocarbons	0.010 g/m ³
15 - Pharmaceuticals (Antibiotic)	
Particulates (10 microns in size)	0.030 g/m ³
Volatile organic matter	0.035 g/m ³
Ammonia	0.02 g/m ³
Carbon disulphide	0.0015 g/m ³
16 - Aluminum Factory (Melting)	
Hydrogen fluoride (total surface gaseous emissions)	0.005 g/m ³
Emission per ton:	
Electric analysis cell	1.0 kg/ton of aluminum
Cathode	0.05 kg/ton of aluminum
Particulates	0.150 g/m ³
Carbon monoxide	0.050 g/m ³
Sulphur dioxide	0.035 g/m ³
17 - Di-Isocyanates	
Volatile di-Isocyanates	0.1 ppm v/v
Di-Isocyanates particulates	0.001 g/m ³
18 - Firing Sources (Factories Boilers, Kilns and Melting Kilns)	
<u>Generated by diesel oil:</u>	
Carbon monoxide	0.050 g/m ³
Sulphur dioxide	0.035 g/m ³
Nitrogen dioxide	0.150 g/m ³
Particulates	0.1 g/m ³
Unburned hydrocarbons	0.010 g/m ³
<u>Generated by natural gas:</u>	
Nitrogen dioxide	0.150 g/m ³
Particulates	0.050 g/m ³
Unburned hydrocarbons	0.010 g/m ³
Carbon dioxide	5 g/m ³
19 - Desalination Plants	
Chlorine (fugitive emission)	0.005 g/m ³

20 - Petrochemical Works

Hydrocarbons	0.010 g/m ³
Nitrogen oxides	0.150 g/m ³
Carbon monoxide	0.050 g/m ³
Total particulates	0.1 g/m ³
Sulphur dioxide	0.035g/m ³

21 - Metal Works

Furnace (Kiln) operated with electricity:

Total particulates	0.1 g/m ³
Carbon monoxide	0.050 g/m ³
Fluorine	0.003 g/m ³

Furnace (Kiln) operated with diesel oil or gas:

Total particulates	0.1 g/m ³
Carbon monoxide	0.050 g/m ³
Fluorine	0.003 g/m ³
Sulphur dioxide	0.035 g/m ³
Nitrogen oxides	0.150 g/m ³
Hydrocarbons	0.010 g/m ³

22 - Glass Works

Silicon tetrafluoride	0.010 g/m ³
Total Particulates	0.1 g/m ³
Carbon monoxide	0.050 g/m ³
Nitrogen oxides	0.150 g/m ³
Sulphur dioxide	0.035 g/m ³

Note: In the absence of specified reference temperature, 0°C may be taken as the reference temperature while calculating the emissions concentrations. (Note inserted by HMR Consultants)