Cogenco

a Dalkia company

Emissions information for Packaged Cogenco CHP-Tesco Stores

Emissions

The CHP unit is powered by a natural gas reciprocating engine.

The unit emissions are shown in the Table below and we will meet the levels shown in yellow, by installing the appropriate Calalysts

CHP Type	Engine	Emissions		After SCR Catalyst		After Oxy Cat	
		Nox mg/m3	CO mg/m3	Nox mg/m3	CO mg/m3	Nox mg/m3	CO mg/m3
120	E2876 TE302	500	650	N/A	N/A	500	300
140	E2876 E312	5500	3200	250	200	N/A	N/A
165	E2842 E	425	575	N/A	N/A	425	300
212	E2842 E302	5500	3200	250	200	N/A	N/A
238	E2842 E312	5500	3200	250	200	N/A	N/A
250	E2848 LE322	500	650	N/A	N/A	500	300

The document identifies test methods and parameters for Internal Combustion Engines

5.4.1.4 Facilities under 1.4:

Internal Combustion Engines (including Internal Combustion Engines under 1.1 and 1.2)

REFERENCE VALUES

Emission standards shall refer to a volume content of oxygen in waste gas of 5 per cent.

MASS FLOWS

The mass flows established in 5.2 shall not apply.

TOTAL DUST, INCLUDING THE CONTENT OF CARCINOGENIC, MUTAGENIC OR REPRODUCTION TOXIC SUBSTANCES

Dust emissions in waste gas from compression ignition engines operated on liquid fuels shall not exceed the maximum mass concentrations of 20 mg/m³.

Dust emissions in waste gas from internal combustion engines exclusively used during emergencies or operated for up to 300 hours per year during periods of peak load (e.g. for generating electricity, supplying gas or water) shall not exceed the maximum mass concentrations of 80 mg/m³.

The best available techniques to further reduce emissions, particularly with respect to engine design, shall be applied.

CARBON MONOXIDE

Carbon monoxide emissions in waste gas shall not exceed the following mass concentrations:

a) for compression ignition engines and spark ignition engines operated on liquid fuels, and for compression ignition engines (pilot injection engines) and spark ignition engines operated on gaseous fuels, with the exceptions of biogas, sewer gas or mine gas, 0.30 g/m³,

b) for spark ignition engines operated on biogas or sewer gas with a firing thermal capacity of

   aa) 3 MW or more 0.65 g/m³,

   bb) less than 3 MW 1.0 g/m³,

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c) for spark ignition engines operated on mine gas, 0.65 g/m³.

d) for pilot injection engines operated on biogas or sewer gas with a firing thermal capacity of

aa) 3 MW or more 0.65 g/m³,

bb) less than 3 MW 2.0 g/m³;

when biogas, sewer gas and mine gas are utilized, the best available techniques to further reduce carbon monoxide emissions, particularly with respect to engine design, shall be applied.

Carbon monoxide emission standards shall not apply to internal combustion engines exclusively used during emergencies or operated for up to 300 hours per year during periods of peak load (e.g. for generating electricity, supplying gas or water); all possible emission reduction measures with respect to engine design shall be applied.

NITROGEN OXIDES

Nitrogen monoxide and nitrogen dioxide emissions in waste gas shall not exceed the following mass concentrations, to be indicated as nitrogen dioxide:

a) for compression ignition engines operated on liquid fuels with a firing thermal capacity of

aa) 3 MW or more 0.50 g/m³,

bb) less than 3 MW 1.0 g/m³,

b) for gas-powered compression ignition engines (pilot injection engines) and spark ignition engines

aa) for pilot injection engines operated on biogas or sewer gas with a firing thermal capacity of

— 3 MW or more 0.50 g/m³,

— less than 3 MW 1.0 g/m³,

bb) for lean-burn engines and other four-stroke Otto engines operated on biogas or sewer gas, 0.50 g/m³,

cc) for pilot injection engines and lean-burn engines operated on other gaseous fuels, 0.50 g/m³,

c) for other four-stroke SI engines 0.25 g/m³,

d) for two-stroke engines 0.80 g/m³;

when biogas, sewer gas and mine gas are utilized in pilot injection engines with a firing thermal capacity of less than 3 MW, all possible measures with respect to engine design to further reduce nitrogen oxides emissions shall be applied.
Nitrogen oxides emission standards shall not apply to internal combustion engines used exclusively during emergencies or operated for up to 300 hours per year during periods of peak load (e.g. for generating electricity, supplying gas or water).

SULPHUR OXIDES

When liquid mineral fuels are used, only heating oils listed in DIN 51603 Part 1 (version March 1998) with a sulphur mass content for light heating oil pursuant to the 3. BImSchV, as currently applicable, or diesel fuels with a sulphur mass content for light heating oil pursuant to the 3. BImSchV, as currently applicable, may be used, or equivalent measures shall be applied.
When gaseous fuels are used, the requirements under 5.4.1.2.3 shall apply, provided that a conversion is made to a reference oxygen content in waste gas of 5 per cent.
When biogas and sewer gas are utilized, the best available primary techniques to further reduce emissions (gas purification) shall be applied.

ORGANIC SUBSTANCES

Formaldehyde emissions in waste gas shall not exceed a mass concentration of 60 g/m^3. The requirements in 5.2.5 shall not apply to emissions of other organic substances.
The best available techniques to further reduce organic substances emissions shall be applied.

5.4.1.5 Facilities under 1.5:

Gas Turbines with a Firing Thermal Capacity of less than 50 MW (including Gas Turbines under 1.2)

REFERENCE VALUES

Emission standards shall refer to a volume content of oxygen in waste gas of 15 per cent.