



**EMB MEMORANDUM CIRCULAR**

No. 2021 - 15

**SUBJECT: CLARIFYING THE REQUIREMENTS STATED UNDER SECTION 14, RULE XIX OF DEPARTMENT ADMINISTRATIVE ORDER NO. 2000-81**

Pursuant to Section 14, Rule XIX of DAO No. 2000-81, which states that

*“A permit issued by the Department through the Bureau will generally contain source-specific monitoring and reporting requirements for air pollutant concentrations at the point of emission, for determination of compliance with the requirements of Rule XXV. These requirements may include, where applicable, a provision that sample results for particulate matter shall be corrected to standard operating (or combustion) conditions such as 12% carbon dioxide.”*

The Bureau hereby clarifies that source-specific monitoring and reporting requirements subsequently mandated upon the issuance of the permit, shall include a condition that sample results at the point of emission shall be corrected using a Standard Oxygen Correction Factor as described below:

<b>Equipment</b>	<b>Standard Oxygen Correction Factor (%)<sup>1</sup></b>
Oil Fired Boilers including diesel, light fuel oil, heavy fuel oil, and bunker C, natural gas-fired boilers	9%
Coal-fired boilers	9%
Diesel/distillate, petrol, and bunker C fired generator sets	13%
Natural gas-fired gas turbines	15%
Cement kilns	10%
Petroleum refinery heaters	7%
Natural gas-fired boilers	7%
Waste-to-Energy (WTE) 1: Rice Hulls, Bagasse, Biomass fired boilers	11%
Waste-to-Energy (WTE) 2: Cocoshell, Wood, wood waste fired boilers	13%
Steel Rolling Mill Furnace (Reheating Furnaces)	13%
Steel Smelting Furnace (Electric Arc and Induction Furnace)	13%

Further, the correction of stack concentration shall use the equation below:

$$Conc_{Std} = Conc_{Measured} \times \frac{(20.9\% - Std\ O_2\%)}{(20.9\% - Measured\ O_2\%)} \quad \text{(Equation No. 1)}$$

where:

- Conc<sub>(Std O<sub>2</sub>)</sub>** = Gas Concentration at standard O<sub>2</sub> level
- Conc<sub>(Measured)</sub>** = Gas Concentration at measured O<sub>2</sub> level
- Std<sub>(O<sub>2</sub>)</sub>** = Oxygen Concentration standard level
- Measured O<sub>2</sub>** = Oxygen Concentration at measured level

<sup>1</sup> The values were derived based on the following: (1) Actual measurements and theoretical calculations; (2) Comparison with International Standards; (3) Central Tendencies of data from Stack Test Reports; and (4) Comments from different Industries

Provided, that the EMB-Regional Offices shall not apply the use of correction factors for sources with valid Permit to Operate (PTO) issued before the effectivity of this Circular. Upon application for PTO renewal of the said sources, the EMB-Regional Offices shall apply the use of correction factor as a permit condition.

This Memorandum Circular shall take effect fifteen (15) days after its publication in a newspaper of general circulation and upon acknowledgement of receipt of a copy thereof by the Office of the National Administrative Register (ONAR), UP Law Center.

Issued this 12th day of October 2021.



**ENGR. WILLIAM P. CUÑADO**  
Director

