

**RULE 1117. EMISSIONS OF OXIDES OF NITROGEN FROM GLASS MELTING FURNACES**

(a) Definitions

For the purpose of this rule the following definitions shall apply:

- (1) Container Glass includes food and beverage type containers manufactured by pressing, blowing in molds, drawing, rolling, or casting.
- (2) Flat Glass means glass that is used in windows, windshields, plate glass, etc., and which is produced by the float, sheet, rolled, or plate glass process.
- (3) Pull is the term applied to the removal of glass from a glass melting furnace, generally expressed in tons.
- (4) Cullet is scrap glass which is added to the formulation being charged to a furnace.
- (5) Furnace is any fossil fuel fired glass melting furnace.
- (6) Furnace Rebuild is any change in furnace design configuration which requires a change in the Permit to Operate.
- (7) Idling is the operation of a furnace at less than 25 percent of the production capacity as stated on the Permit to Operate.
- (8) Start-up is that period of time during which a furnace is heated to operating temperature from a lower temperature.
- (9) Shutdown is that period of time during which a furnace is allowed to cool from operating temperature to a lower temperature.
- (10) Energy Recovery is the use of waste heat from a permit unit in another permit unit on the same premises so that at less than five percent of the total waste heat is recovered for useful purposes at the first stage of heat transfer.

(b) Requirements

- (1) After December 31, 1987, no person shall operate a furnace capable of discharging nitrogen oxides into the atmosphere unless such discharge of nitrogen oxides into the atmosphere is limited to no more than 5.5 pounds of nitrogen oxides per ton of glass pulled.

- (2) After December 31, 1992, no person shall operate a furnace capable of discharging nitrogen oxides into the atmosphere unless such discharge of nitrogen oxides into the atmosphere is limited to no more than 4.0 pounds of nitrogen oxides per ton of glass pulled.
- (3) The requirements of paragraphs (b)(1) and (b)(2) shall not apply to furnaces which comply with an alternative emissions control plan which satisfies all of the following requirements:
  - (A) The maximum emission of any air contaminant in any 24 hour period shall not exceed the emission of such air contaminant if the furnaces complied with (b)(1) and (b)(2).
  - (B) The furnaces are located within the same premises.
  - (C) Prior to its implementation, the control plan shall be approved, in writing, by the Executive Officer.
  - (D) The control plan shall be enforceable by the District and shall include methods acceptable to the Executive Officer for demonstrating compliance with the control plan on a daily basis.
  - (E) Continuous NO<sub>x</sub> monitors shall be required for each furnace included in a control plan.
  - (F) A modified alternative emission control plan shall be required prior to modification of any permit units subject to alternative emission control, or upon amendment of this rule. Such plan shall not include credit for those reductions required by amendments to this rule.
  - (G) The Permits to Operate for the equipment described in the control plan shall be surrendered and cancelled at the time new Permits to Construct or Operate are issued. Such new permits shall not be effective unless surrender of such existing permits has been made. If such new permits are denied, the existing permits surrendered pursuant to this section shall be reissued and restored to the same conditions which were applicable to the original permits prior to their surrender. The Executive Officer shall impose written conditions on any permits specifying emissions limits or other conditions as necessary.
  - (H) The person submitting the control plan shall maintain such records (for a period of two years) and submit such information on furnace operation, source tests, monitoring data, and other information as

required by the Executive Officer to determine compliance with the control plan.

- (4) For installations using energy recovery, the NO<sub>x</sub> emission limit shall be based on the following equation:

$$\text{Energy Recovery Based NO}_x \text{ Emission Limit} = \text{Emission Limit} \times A$$

Where: Emission Limit = 1bs NO<sub>x</sub>/ton of glass pulled per paragraphs (b)(1) and (b)(2)

$$A = 1 + \frac{\text{Energy Recovered (BTU/hr)}}{\text{Furnace Heat Input (BTU/hr)}}$$

- (5) The energy recovered shall not be required for compliance with any other District Rule, used as an offset pursuant to Regulation XIII, banked as an emission reduction credit, nor used for alternative emission control pursuant to paragraph (b)(3).
- (6) Furnace heat input shall be based on the higher heating value of the fossil fuel fired and shall include the heat input due to electric boost.

(c) Compliance Determination

- (1) For the purposes of this rule, nitrogen oxides shall be calculated as NO<sub>2</sub> on a dry basis, or by an alternative method requested by the operator and approved by the Executive Officer.
- (2) All emission determinations shall be made in the as-found operating condition, except no compliance determination shall be made during start-up, shutdown, or under breakdown conditions.
- (3) The averaging time for measurement of nitrogen oxides for compliance determination shall be 3 hours, except if an operator installs and maintains a continuous NO<sub>x</sub> monitor in accordance with conditions set forth by the Executive Officer, the averaging time may be extended to 24 hours.
- (4) The following expression shall be used to convert uncorrected observed volume in parts per million of NO<sub>x</sub> to pounds of NO<sub>x</sub> per ton of glass pulled at standard conditions of 68 degrees F and 29.92 inches of mercury:

$$\frac{(\text{PPM}_v \text{ NO}_x)(46 \text{ grams/mole})(1.56 \times 10^{-7})(\text{SDCFM})}{\text{Ton/hour of Glass Pulled}} = \frac{\text{Lbs NO}_x}{\text{Ton of glass pulled}}$$

(d) Exemptions

The provisions of this rule shall not apply to:

- (1) Furnaces which are limited by Permit to Operate to 15 lbs/hour of NO<sub>x</sub> or less.
- (2) Glass remelt facilities using exclusively glass cullet, marbles, chips, or similar feedstock in lieu of basic glass-making raw materials.
- (3) Furnaces used in the melting of glass for the production of glass tableware exclusively.
- (4) Flat glass melting furnaces.
- (5) Furnaces used in the melting of glass for the production of fiberglass exclusively.
- (6) Idling furnaces.

(e) Effective Date

Any furnace rebuilt after July 1, 1983 shall comply with the provisions of paragraph (b)(1) of this rule upon commencement of operation. All other furnaces shall comply by December 31, 1987.

Any furnace rebuilt after December 31, 1987 shall comply with the provisions of paragraph (b)(2) of this rule upon commencement of operation. All other furnaces shall comply by December 31, 1992.