

Annex A

TITLE 25. ENVIRONMENTAL PROTECTION

PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION

SUBPART C. PROTECTION OF NATURAL RESOURCES

ARTICLE III. AIR RESOURCES

CHAPTER 121. GENERAL PROVISIONS

§ 121.1. Definitions.

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*100% Air-fuel fired*—Operation of a glass melting furnace where the oxidant is exclusively ambient air.

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*Air-fuel firing*—Operation of a glass melting furnace where greater than 50% of the oxidant for the fuel comes from ambient air.

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*Blown glass*—Glassware shaped by blowing air into a molten glass gather.

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*Complete reconstruction* - For purposes of §§ 129.301-129.310 (relating to emissions of NOx from glass melting furnaces), the replacement of components of an existing glass melting furnace to the extent that the fixed capital cost of the new components exceeds 50% of the fixed capital cost that would be required to construct a comparable entirely new glass melting furnace.

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*Container glass*—Glass manufactured by pressing, blowing in molds, drawing, rolling or casting which is used as a container.

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*Fiberglass*—Material consisting of fine filaments of glass that are combined into yarn and woven or spun into fabrics, or that are used as reinforcement in other materials or in masses as thermal or as acoustical insulating products for the construction industry.

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*Flat glass*—Glass produced by the float, sheet, rolled or plate glass process which is used in windows, windshields, tabletops or similar products.

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*Furnace battery*—Two or more glass melting furnaces at a single facility that exhaust to a common stack.

*Furnace rebuild*—A complete reconstruction which is commenced after the end of a furnace campaign period or expected life cycle of a furnace. For the purpose of the compliance deadline in § 129.304 (relating to emission requirements), the effective date of a furnace rebuild is the date of the start of the furnace shutdown.

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*Glass melting furnace* —A unit comprising a refractory vessel in which raw materials are charged, melted at high temperature, refined and conditioned to produce molten glass. The unit includes foundations, superstructure and retaining walls, raw material charger systems, heat exchangers, melter cooling system, exhaust system, refractory brick work, fuel supply and electrical boosting equipment, integral control systems and instrumentation and appendages for conditioning and distributing molten glass to forming apparatuses. As specified in 40 CFR §60.291 (relating to definitions), the forming apparatuses, including the float bath used in flat glass manufacturing and flow channels in wool fiberglass and textile fiberglass manufacturing, are not considered part of the glass melting furnace.

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*Idling*—For purposes of §§ 129.301-129.310 (relating to emissions of NOx from glass melting furnaces), the operation of a glass melting furnace at less than 25% of the permitted production capacity or fuel use capacity as stated in the plan approval or operating permit.

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*Multiple furnaces*—Two or more glass melting furnaces at a single facility that do not exhaust to a common stack.

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*Oxyfuel fired*—Operation of a glass melting furnace where greater than 50% of the oxidant for the fuel is provided from enriched oxygen streams.

\* \* \* \* \*

*Oxygen-assisted combustion*—Operation of a glass melting furnace where the oxygen content in the oxidant is greater than the oxygen content in ambient air or greater than 20.9% oxygen.

\* \* \* \* \*

*Permitted production capacity*—The maximum pull rate as stated in the plan approval, operating permit or Title V permit.

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*Pressed glass*—Glassware formed by placing a blob of molten glass in a metal mold, then pressing it with a metal plunger or “follower” to form the inside shape. The resultant piece, termed “mold-pressed,” has an interior form independent of the exterior, in contrast to mold-blown glass, whose interior corresponds to the outer form.

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*Primary furnace combustion system*—The burners in a glass melting furnace that are used during production of glass.

\* \* \* \* \*

*Pull rate*—The amount of glass withdrawn from a glass melting furnace, expressed in short tons per day.

\* \* \* \* \*

*Shutdown*—For purposes of § 129.303 (relating to exemptions), the period of time during which a glass melting furnace is purposely allowed to cool from operating temperature and molten glass is removed from the tank for the purpose of a furnace rebuild.

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*Start-up*—For purposes of § 129.303 (relating to exemptions), the period of time, after initial construction or a furnace rebuild, during which a glass melting furnace is heated to stable operating temperature by the primary furnace combustion system.

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*Vintage or vintage year*—The calendar year assigned to an allowance by the issuing authority that designates the first year in which it is valid for use in meeting an emission limit.

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## CONTROL OF NO<sub>x</sub> EMISSIONS FROM GLASS MELTING FURNACES

Sec.

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**§ 129.301. Purpose.**

**The purpose of the provisions in this section and §§ 129.302-129.310 is to limit emissions of NO<sub>x</sub> from glass melting furnaces.**

**§ 129.302. Applicability.**

**The provisions of this section, § 129.301 (relating to purpose) and §§ 129.303-129.310 apply to an owner or operator of a glass melting furnace that emits or has the potential to emit NO<sub>x</sub> at a rate greater than 50 tons per year or 20 pounds per hour. Beginning May 1, 2009, and of each year thereafter, an owner or operator of a glass melting furnace shall comply with the provisions of this section, §§ 129.301 and 129.303-129.310.**

**§ 129.303. Exemptions.**

**(a) The provisions of this section, §§ 129.301, 129.302 (relating to purpose; and applicability) and 129.304-129.310 shall not apply to glass melting furnaces where the heat is supplied solely by an electric current from electrodes submerged in the molten glass, except that heat may be supplied by other fuels for start-up when the furnace contains no molten glass.**

**(b) The emission requirements in § 129.304 (relating to emission requirements) shall not apply during periods of start-up or shutdown as defined in § 121.1 (relating to definitions), if the owner or operator complies with the requirements of §§ 129.305 and 129.306 (relating to start-up requirements; and shutdown requirements).**

**(c) The owner or operator of a glass melting furnace claiming an exemption under subsection (b) shall notify the Department in writing at least 24 hours prior to initiating shutdown or start-up. The methods for submitting the written notice may include e-mail, hand or courier delivery, mail or facsimile transmissions to the appropriate regional office described in § 121.4 (relating to regional organization of the Department). The notification shall include:**

**(1) The date and time of the start of the exempt operation.**

**(2) The reason for performing the operation and an estimated completion date.**

**(d) The owner or operator of a glass melting furnace granted an exemption under this section shall maintain operating records or documentation, or both, necessary to support the claim for the exemption. The records shall be maintained for five years onsite and made available or submitted to the Department upon request.**

**(e) The owner or operator of a glass melting furnace shall notify the Department in writing within 24 hours after completion of the operation for which the exemption is claimed.**

**§ 129.304. Emission requirements.**

**(a) During the interval from May 1 through September 30, 2009, and each year thereafter, except as specified in §§ 123.303, 129.305 and 129.306 (relating to exemptions; start-up requirements; and shutdown requirements), the owner or operator of a glass melting furnace shall not operate the glass melting furnace in a manner that results in NO<sub>x</sub> emissions in excess of the allowable limits specified in subsection (b).**

**(b) The owner or operator of a glass melting furnace shall determine allowable NO<sub>x</sub> emissions during the interval from May 1 through September 30, 2009, and each year thereafter, by multiplying the tons of glass pulled by each furnace by:**

- (1) 4.0 pounds of NO<sub>x</sub> per ton of glass pulled for container glass furnaces.**
- (2) 7.0 pounds of NO<sub>x</sub> per ton of glass pulled for pressed or blown glass furnaces.**
- (3) 4.0 pounds of NO<sub>x</sub> per ton of glass pulled for fiberglass furnaces.**
- (4) 7.0 pounds of NO<sub>x</sub> per ton of glass pulled for flat glass furnaces.**

**§ 129.305. Start-up requirements.**

**(a) The plan approval issued for the construction of a new glass melting furnace or furnace rebuild shall include terms and conditions consistent with the requirements of 25 Pa. Code § 127.12b (relating to plan approval terms and conditions). At least no later than 30 days prior to the anticipated date of start-up, the owner or operator of the glass melting furnace shall submit, in writing, to the Department, information requested by the Department to assure proper operation of the furnace. The information shall include a:**

- (1) Detailed list of activities to be performed during start-up and an explanation for the length of time needed to complete each activity.**
- (2) Description of the material process flow rates and system operating parameters and other information that the owner or operator plans to evaluate during the process optimization.**

**(b) The owner or operator of a glass melting furnace may submit a request for a start-up exemption in conjunction with the plan approval application for the construction of a new furnace or furnace rebuild. The actual length of the start-up exemption, if any, shall be determined by the Department at the time of the issuance of the plan approval for the furnace rebuild.**

**(c) The length of the start-up exemption following activation of the primary furnace combustion system shall not exceed:**

(1) 104 days for a flat glass furnace.

(2) 70 days for a container glass, pressed or blown glass furnace.

(3) 40 days for a fiberglass furnace.

(d) The Department may approve start-up exemptions to the extent that the submittal clearly:

(1) Identifies the control technologies or strategies to be used.

(2) Describes the physical conditions that prevail during start-up periods that prevent the controls from being effective.

(3) Provides a reasonably precise estimate as to when physical conditions will have reached a state that allows for the effective control of emissions.

(e) During the start-up period, the owner or operator of a glass melting furnace shall maintain the stoichiometric ratio of the primary furnace combustion system so as not to exceed 5% excess oxygen, as calculated from the actual fuel and oxidant flow measurements for combustion in the glass melting furnace.

(f) The owner or operator shall place the emission control system in operation as soon as technologically feasible during start-up to minimize emissions.

#### § 129.306. Shutdown requirements.

(a) The duration of a glass melting furnace shutdown, as measured from the time the furnace operations drop below 25% of the permitted production capacity or fuel use capacity to when all emissions from the furnace cease, shall not exceed 20 days.

(b) The owner or operator of a glass melting furnace shall operate the emission control system whenever technologically feasible during shutdown to minimize emissions.

#### § 129.307. Idling requirements.

(a) The owner or operator of a glass melting furnace shall operate the emission control system whenever technologically feasible during idling to minimize emissions.

(b) The NO<sub>x</sub> emissions during idling shall not exceed the amount calculated using the following equation:

Pounds per day emission limit of NO<sub>x</sub> = (Applicable NO<sub>x</sub> emission limit specified in § 129.304 (relating to emission requirements) expressed in

pounds per ton of glass produced) x (Furnace permitted production capacity in tons of glass produced per day)

§ 129.308. Compliance determination.

(a) Not later than May 1, 2009, the owner or operator of a glass melting furnace subject to this section, §§ 129.301-129.307, 129.309 and 129.310 shall install, operate and maintain continuous emissions monitoring systems (CEMS, as defined in § 121.1) for NO<sub>x</sub> and other monitoring systems to convert data to required reporting units in compliance with Chapter 139, Subchapter C (relating to requirements for continuous source monitoring for stationary sources) and calculate actual emissions using the CEMS data reported to the Department. The owner or operator of a glass melting furnace may install and operate an alternate NO<sub>x</sub> emissions monitoring system or method, approved in writing, by the Department.

(b) Data invalidated under Chapter 139, Subchapter C, shall be substituted with data calculated using the potential emission rate for the furnace, or if approved, in writing, by the Department as follows:

(1) The highest valid one-hour emission value that occurred during the reporting quarter.

(2) If no valid data were collected during the reporting quarter, the most recent quarter for which valid data were collected shall be reported to the Department unless an alternative reporting period is approved in writing by the Department.

(c) The owner or operator of a glass furnace subject to this section shall submit to the Department quarterly reports of CEMS monitoring in pounds of NO<sub>x</sub> emitted per hour, in a format approved by the Department and in compliance with Chapter 139, Subchapter C.

(d) The CEMS or approved monitoring system or method for NO<sub>x</sub> installed under this section shall meet the minimum data availability requirements in Chapter 139, Subchapter C.

(e) The owner or operator of a furnace battery may use a single CEMS to determine the total NO<sub>x</sub> emissions from all the furnaces if the emission measurements are made at the common stack.

§ 129.309. Compliance demonstration.

(a) By October 31, 2009, and each year thereafter, the owner or operator of a glass melting furnace shall calculate and report to the Department the difference between the actual NO<sub>x</sub> emissions from the glass melting furnace during the interval from May 1 through September 30 and the allowable NO<sub>x</sub> emissions for that period. The calculations used to determine the difference in NO<sub>x</sub> emissions, including the CEMS

data and glass production data used to show compliance with the allowable NO<sub>x</sub> emission limits specified in § 129.304 (relating to emission requirements), shall be included in the report submitted to the Department. The glass production data shall consist of the quantity of glass, in tons, pulled per day for each furnace. Compliance with § 129.304 shall be demonstrated by averaging the NO<sub>x</sub> emissions during the interval from May 1 through September 30.

(b) The owner or operator of a glass melting furnace, multiple glass melting furnaces or furnace battery shall demonstrate compliance with the requirements of § 129.304 using one of the following methods:

(1) On a furnace-by-furnace basis.

(2) Facility-wide emissions averaging.

(3) System-wide emissions averaging among glass melting furnaces under common control of the same owner or operator in this Commonwealth.

(c) The owner or operator of a glass melting furnace, multiple glass melting furnaces or furnace battery may demonstrate compliance with the requirements of § 129.304 in accordance with the following:

(1) For the period from May 1 through September 30, 2009, the owner or operator of a glass melting furnace, multiple glass melting furnaces or furnace battery shall surrender to the Department 0.25 CAIR NO<sub>x</sub> Ozone Season allowance, as defined in § 145.202 (relating to definitions), for each ton of NO<sub>x</sub> by which the combined actual emissions exceed the allowable emissions of the glass melting furnaces subject to this section.

(2) For the period from May 1 through September 30, 2010, the owner or operator of a glass melting furnace, multiple glass melting furnaces or furnace battery shall surrender to the Department 0.50 CAIR NO<sub>x</sub> Ozone Season allowance for each ton of NO<sub>x</sub> by which the combined actual emissions exceed the allowable emissions of the glass melting furnaces subject to this section.

(3) For the period from May 1 through September 30, 2011, the owner or operator of a glass melting furnace, multiple glass melting furnaces or furnace battery shall surrender to the Department 0.75 CAIR NO<sub>x</sub> Ozone Season allowance for each ton of NO<sub>x</sub> by which the combined actual emissions exceed the allowable emissions of the glass melting furnaces subject to this section.

(4) For the period from May 1 through September 30, 2012, and each ozone season thereafter, the owner or operator of a glass melting furnace, multiple glass melting furnaces or furnace battery shall surrender to the Department one CAIR NO<sub>x</sub> Ozone Season allowance for each ton of NO<sub>x</sub> by which the combined actual



emissions exceed the allowable emissions of the glass melting furnaces subject to this section.

(5) The surrendered CAIR NOx Ozone Season allowances shall be of current year vintage. For the purpose of determining the amount of allowances to be surrendered, a remaining fraction of a ton equal to or greater than 0.50 ton is deemed to equal 1 ton and a fraction of a ton less than 0.50 ton is deemed to equal zero tons.

(6) By November 1, 2009, and by November 1 of each year thereafter, an owner or operator of a glass melting furnace, multiple glass melting furnaces or furnace battery subject to this section shall surrender the required CAIR NOx Ozone Season allowances to the Department's designated NATS-NOx allowance tracking system account as defined in § 121.1 (relating to definitions) and shall provide to the Department, in writing, the following:

(i) The serial number of each NOx allowance surrendered.

(ii) The calculations used to determine the quantity of NOx allowances required to be surrendered.

(7) If an owner or operator fails to comply with paragraph (6), the owner or operator shall by December 31 surrender three CAIR NOx Ozone Season allowances of the current or later year vintage for each NOx allowance that was required to be surrendered by November 1 of that year.

(d) The surrender of CAIR NOx Ozone Season allowances under paragraph (c)(7) does not affect the liability of the owner or operator of the unit for a fine, penalty or assessment, or an obligation to comply with another remedy for the same violation, under the CAA or the act.

(1) For purposes of determining the number of days of violation, if a facility has excess emissions for the period May 1 through September 30 which have not been reconciled with CAIR NOx Ozone Season allowances, each day in that period (153 days) constitutes a day in violation unless the owner or operator of the unit demonstrates that a lesser number of days should be considered.

(2) Each ton of excess emissions is a separate violation.

(e) If the combined allowable emissions from glass melting furnaces at a facility from May 1 through September 30 exceed the combined actual emissions from glass melting furnaces at the facility subject to this section during the same period, the owner or operator may deduct the difference or a portion of the difference from the amount of actual emissions from glass melting furnaces at the owner or operator's other facilities located in this Commonwealth for that period.

**§ 129.310. Recordkeeping.**

**(a) The owner or operator of a glass melting furnace subject to the requirements of this section and §§ 129.301-129.309 shall maintain records to demonstrate compliance. The records shall include an operating log maintained for each glass melting furnace that includes, on a monthly basis:**

- (1) The total hours of operation.**
- (2) The type and quantity of fuel used.**
- (3) The quantity of glass pulled.**

**(b) The owner or operator of a glass melting furnace shall maintain records of:**

- (1) Source tests and operating parameters established during the initial source test.**
- (2) Maintenance, repairs, malfunctions, idling, start-up and shutdown.**

**(c) The records required under this section shall be maintained onsite for a period of five years. The records shall be made available or submitted to the Department upon request.**