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dscf). Water shall be used instead of acetone in the sample recovery.

(3) Process data shall be used to determine the black liquor solids (BLS) feed rate on a dry weight basis.

(d) The owner or operator shall determine compliance with the TRS standards in § 60.283, except § 60.283(a)(1)(vi) and (4), as follows:

(1) Method 16 shall be used to determine the TRS concentration. The TRS concentration shall be corrected to the appropriate oxygen concentration using the procedure in § 60.284(c)(3). The sampling time shall be at least 3 hours, but no longer than 6 hours.

(2) The emission rate correction factor, integrated sampling and analysis procedure of Method 3B shall be used to determine the oxygen concentration. The sample shall be taken over the same time period as the TRS samples.

(3) When determining whether a furnace is a straight kraft recovery furnace or a cross recovery furnace, TAPPI Method T.624 (incorporated by reference—see § 60.17) shall be used to determine sodium sulfide, sodium hydroxide, and sodium carbonate. These determinations shall be made 3 times daily from the green liquor, and the daily average values shall be converted to sodium oxide (Na<sub>2</sub>O) and substituted into the following equation to determine the green liquor sulfidity:

$$GLS = 100 C_{Na_2S} \left( C_{Na_2S} C_{NaOH} C_{Na_2CO_3} \right)$$

Where:

GLS=green liquor sulfidity, percent.

C<sub>Na<sub>2</sub>S</sub>=concentration of Na<sub>2</sub>S as Na<sub>2</sub>O, mg/liter (gr/gal).

C<sub>NaOH</sub>=concentration of NaOH as Na<sub>2</sub>O, mg/liter (gr/gal).

C<sub>Na<sub>2</sub>CO<sub>3</sub></sub>=concentration of Na<sub>2</sub>CO<sub>3</sub> as Na<sub>2</sub>O, mg/liter (gr/gal).

(e) The owner or operator shall determine compliance with the TRS standards in § 60.283(a)(1)(vi) and (4) as follows:

(1) The emission rate (E) of TRS shall be computed for each run using the following equation:

$$E = C_{TRS} F Q_{sd} / P$$

where:

E=emission rate of TRS, g/kg (lb/ton) of BLS or ADP.

C<sub>TRS</sub>=average combined concentration of TRS, ppm.

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F = conversion factor, 0.001417 g H<sub>2</sub>S/m<sup>3</sup>-ppm (8.846 × 10<sup>-8</sup> lb H<sub>2</sub>S/ft<sup>3</sup>-ppm).

Q<sub>sd</sub>=volumetric flow rate of stack gas, dscm/hr (dscf/hr).

P=black liquor solids feed or pulp production rate, kg/hr (ton/hr).

(2) Method 16 shall be used to determine the TRS concentration (C<sub>TRS</sub>).

(3) Method 2 shall be used to determine the volumetric flow rate (Q<sub>sd</sub>) of the effluent gas.

(4) Process data shall be used to determine the black liquor feed rate or the pulp production rate (P).

(f) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) For Method 5, Method 17 may be used if a constant value of 0.009 g/dscm (0.004 gr/dscf) is added to the results of Method 17 and the stack temperature is no greater than 204 °C (400 °F).

(2) In place of Method 16, Method 16A or 16B may be used.

[54 FR 6673, Feb. 14, 1989; 54 FR 21344, May 17, 1989, as amended at 55 FR 5212, Feb. 14, 1990; 65 FR 61759, Oct. 17, 2000]

**Subpart CC—Standards of Performance for Glass Manufacturing Plants**

**§ 60.290 Applicability and designation of affected facility.**

(a) Each glass melting furnace is an affected facility to which the provisions of this subpart apply.

(b) Any facility under paragraph (a) of this section that commences construction or modification after June 15, 1979, is subject to the requirements of this subpart.

(c) This subpart does not apply to hand glass melting furnaces, glass melting furnaces designed to produce less than 4.55 Mg (5 tons) of glass per day and all-electric melters.

[45 FR 66751, Oct. 7, 1980, as amended at 65 FR 61759, Oct. 17, 2000]

**§ 60.291 Definitions.**

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part, unless otherwise required by the context.

*All-electric melter* means a glass melting furnace in which all the heat required for melting is provided by electric current from electrodes submerged in the molten glass, although some fossil fuel may be charged to the furnace as raw material only.

*Borosilicate recipe* means glass product composition of the following approximate ranges of weight proportions: 60 to 80 percent silicon dioxide, 4 to 10 percent total  $R_2O$  (e.g.,  $Na_2O$  and  $K_2O$ ), 5 to 35 percent boric oxides, and 0 to 13 percent other oxides.

*Container glass* means glass made of soda-lime recipe, clear or colored, which is pressed and/or blown into bottles, jars, ampoules, and other products listed in Standard Industrial Classification 3221 (SIC 3221).

*Experimental furnace* means a glass melting furnace with the sole purpose of operating to evaluate glass melting processes, technologies, or glass products. An experimental furnace does not produce glass that is sold (except for further research and development purposes) or that is used as a raw material for nonexperimental furnaces.

*Flat glass* means glass made of soda-lime recipe and produced into continuous flat sheets and other products listed in SIC 3211.

*Flow channels* means appendages used for conditioning and distributing molten glass to forming apparatuses and are a permanently separate source of emissions such that no mixing of emissions occurs with emissions from the melter cooling system prior to their being vented to the atmosphere.

*Glass melting furnace* means 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. 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.

*Glass produced* means the weight of the glass pulled from the glass melting furnace.

*Hand glass melting furnace* means a glass melting furnace where the molten glass is removed from the furnace by a glassworker using a blowpipe or a pontil.

*Lead recipe* means glass product composition of the following ranges of weight proportions: 50 to 60 percent silicon dioxide, 18 to 35 percent lead oxides, 5 to 20 percent total  $R_2O$  (e.g.,  $Na_2O$  and  $K_2O$ ), 0 to 8 percent total  $R_2O_3$  (e.g.,  $Al_2O_3$ ), 0 to 15 percent total RO (e.g.,  $CaO$ ,  $MgO$ ), other than lead oxide, and 5 to 10 percent other oxides.

*Pressed and blown glass* means glass which is pressed, blown, or both, including textile fiberglass, noncontinuous flat glass, noncontainer glass, and other products listed in SIC 3229. It is separated into:

- (1) Glass of borosilicate recipe.
- (2) Glass of soda-lime and lead recipes.
- (3) Glass of opal, fluoride, and other recipes.

*Rebricking* means cold replacement of damaged or worn refractory parts of the glass melting furnace. Rebricking includes replacement of the refractories comprising the bottom, sidewalls, or roof of the melting vessel; replacement of refractory work in the heat exchanger; replacement of refractory portions of the glass conditioning and distribution system.

*Soda-lime recipe* means glass product composition of the following ranges of weight proportions: 60 to 75 percent silicon dioxide, 10 to 17 percent total  $R_2O$  (e.g.,  $Na_2O$  and  $K_2O$ ), 8 to 20 percent total RO but not to include any  $PbO$  (e.g.,  $CaO$ , and  $MgO$ ), 0 to 8 percent total  $R_2O_3$  (e.g.,  $Al_2O_3$ ), and 1 to 5 percent other oxides.

*Textile fiberglass* means fibrous glass in the form of continuous strands having uniform thickness.

*With modified-processes* means using any technique designed to minimize emissions without the use of add-on pollution controls.

*Wool fiberglass* means fibrous glass of random texture, including fiberglass

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insulation, and other products listed in SIC 3296.

[45 FR 66751, Oct. 7, 1980, as amended at 49 FR 41035, Oct. 19, 1984; 65 FR 61759, Oct. 17, 2000]

**§ 60.292 Standards for particulate matter.**

(a) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator of a glass melting furnace subject to the provisions of this subpart shall cause to be discharged into the atmosphere—

(1) From any glass melting furnace fired exclusively with either a gaseous fuel or a liquid fuel, particulate matter at emission rates exceeding those specified in Table CC-1, Column 2 and Column 3, respectively, or

(2) From any glass melting furnace, fired simultaneously with gaseous and liquid fuels, particulate matter at emission rates exceeding STD as specified by the following equation:

$$STD=X [1.3(Y)+(Z)]$$

Where:

STD=Particulate matter emission limit, g of particulate/kg (lb of particulate/ton) of glass produced.

X=Emission rate specified in Table CC-1 for furnaces fired with gaseous fuel (Column 2).

Y=Decimal fraction of liquid fuel heating value to total (gaseous and liquid) fuel heating value fired in the glass melting furnaces as determined in §60.296(b). (joules/joules).

Z=(1-Y).

(b) Conversion of a glass melting furnace to the use of liquid fuel is not considered a modification for the purposes of §60.14.

(c) Rebricking and the cost of rebricking is not considered a reconstruction for the purposes of §60.15.

(d) An owner or operator of an experimental furnace is not subject to the requirements of this section.

(e) During routine maintenance of add-on pollution controls, an owner or operator of a glass melting furnace subject to the provisions of paragraph (a) of this section is exempt from the provisions of paragraph (a) of this section if:

(1) Routine maintenance in each calendar year does not exceed 6 days;

(2) Routine maintenance is conducted in a manner consistent with good air pollution control practices for minimizing emissions; and

(3) A report is submitted to the Administrator 10 days before the start of the routine maintenance (if 10 days cannot be provided, the report must be submitted as soon as practicable) and the report contains an explanation of the schedule of the maintenance.

**TABLE CC-1—Emission Rates**  
[g of particulate/kg of glass produced]

Col. 1—Glass manufacturing plant industry segment	Col. 2—Furnace fired with gaseous fuel	Col. 3—Furnace fired with liquid fuel
Container glass .....	0.1	0.13
Pressed and blown glass		
(a) Borosilicate Recipes .....	0.5	0.65
(b) Soda-Lime and Lead Recipes ..	0.1	0.13
(c) Other-Than Borosilicate, Soda-Lime, and Lead Recipes (including opal, fluoride, and other recipes) .....	0.25	0.325
Wool fiberglass .....	0.25	0.325
Flat glass .....	0.225	0.225

[45 FR 66751, Oct. 7, 1980, as amended at 49 FR 41035, Oct. 19, 1984; 54 FR 6674, Feb. 14, 1989; 65 FR 61759, Oct. 17, 2000]

**§ 60.293 Standards for particulate matter from glass melting furnace with modified-processes.**

(a) An owner or operator of a glass melting furnaces with modified-processes is not subject to the provisions of §60.292 if the affected facility complies with the provisions of this section.

(b) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator of a glass melting furnace with modified-processes subject to the provisions of this subpart shall cause to be discharged into the atmosphere from the affected facility:

(1) Particulate matter at emission rates exceeding 0.5 gram of particulate per kilogram of glass produced (g/kg) as measured according to paragraph (e) of this section for container glass, flat glass, and pressed and blown glass with a soda-lime recipe melting furnaces.

(2) Particulate matter at emission rates exceeding 1.0 g/kg as measured