15A NCAC 02D .0528 TOTAL REDUCED SULFUR FROM KRAFT PULP MILLS

(a) For the purpose of this Regulation, the following definitions apply:

(1) "Total reduced sulfur (TRS)" means the sum of the sulfur compounds hydrogen sulfide, methyl mercaptain, dimethyl sulfide, and dimethyl disulfide, that are released during the kraft pulping operation.

(2) "Kraft pulp mill" means any facility that produces pulp from wood by cooking (digesting) wood chips in a water solution of sodium hydroxide and sodium sulfide (white liquor) at high temperature and pressure. Regeneration of cooking chemicals through a recovery process is also considered part of the kraft pulp mill.

(3) "Recovery furnace" means either a straight kraft recovery furnace or a cross recovery furnace and includes the direct-contact evaporator for a direct-contact furnace.

(4) "Cross recovery furnace" means a furnace used to recover chemicals consisting primarily of sodium and sulfur compounds by burning black liquor which on a quarterly basis contains more than seven percent by weight of the total pulp solids from the neutral sulfite semichemical process and has a green liquor sulfidity of more than 28 percent.

(5) "Straight kraft recovery furnace" means a furnace used to recover chemicals consisting primarily of sodium and sulfur compounds by burning black liquor which on a quarterly basis contains seven percent by weight or less of the total pulp solids from the neutral sulfite semichemical process or has green liquor sulfidity of 28 percent or less.

(6) "Old design recovery furnace" means a straight kraft recovery furnace that does not have membrane wall or welded wall construction or emission control designed air systems.

(7) "New design recovery furnace" means a straight kraft recovery furnace that has both membrane wall or welded wall construction and emission control designed air systems.

(8) "Neutral sulfite semichemical pulping operation" means any operation in which pulp is produced from wood by cooking (digesting) wood chips in a solution of sodium sulfite and sodium bicarbonate, followed by mechanical defibrating (grinding).

(9) "Digester system" means each continuous digester or each batch digester used for the cooking of wood in white liquor, and associated flash tanks, blow tanks, chip steamers and condensers.

(10) "Multiple-effect evaporator system" means the multiple-effect evaporators and associated condensers and hot wells used to concentrate the spent cooking liquid that is separated from the pulp (black liquor).

(11) "Lime kiln" means a unit used to calcine lime mud, which consists primarily of calcium carbonate, into quicklime, which is calcium oxide.

(12) "Condensate stripper system" means a column, and associated condensers, used to strip, with air or steam, total reduced sulfur compounds from condensate streams from various processes within a kraft pulp mill.

(13) "Smelt dissolving tank" means a vessel used for dissolving the smelt collected from the recovery furnace.

(14) "Black liquor solids" means the dry weight of the solids which enter the recovery furnace in the black liquor.

(15) "Green liquor sulfidity" means the sulfidity of the liquor which leaves the smelt dissolving tank.

(b) This Regulation shall apply to recovery furnaces, digester systems, multiple-effect evaporator systems, lime kilns, smelt dissolving tanks, and condensate stripping systems of kraft pulp mills not subject to Regulation .0524 of this Section.

(c) Emissions of total reduced sulfur from any kraft pulp mill subject to this Regulation shall not exceed:

(1) 20 parts per million from any old design recovery furnace;

(2) five parts per million from any new design recovery furnace;

(3) 25 parts per million from any cross recovery furnace;

(4) five parts per million from any digester system;

(5) five parts per million from any multiple-effect evaporator system;

(6) 20 parts per million from any lime kiln;

(7) five parts per million from any condensate stripping system; and

(8) 0.032 pounds per ton of black liquor solids (dry weight) from any smelt dissolving tank.

(d) The emission limitations given in Subparagraphs (c)(1) through (c)(7) of this Rule are measured as hydrogen sulfide on a dry gas basis and are averages of discrete contiguous 12-hour time periods. The emission limitations given in Subparagraphs (c)(1) through (c)(3) of this Rule are corrected to eight percent oxygen by volume. The emission limitations given in Subparagraph (c)(6) of this Rule is corrected to 10 percent oxygen by volume.

(e) One percent of all 12-hour total reduced sulfur averages per quarter year in excess of the limitations given in Subparagraphs (c)(1) through (c)(3) of this Rule, in the absence of start-ups, shut-downs and malfunctions, shall not be considered in violation. Two percent of all 12-hour total reduced sulfur averages per quarter year in excess of the limitation

given in Subparagraph (c)(6) of this Rule, in the absence of start-ups, shut-downs, and malfunctions, shall not be considered in violation.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5);*
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