**Section 218.520 Emission Limitations for Air Oxidation Processes**

a) No person shall cause or allow the emission of VOM from any process vent stream unless the process vent stream is vented to a combustion device which is designed and operated either:

1) To reduce the volatile organic emissions vented to it with an efficiency of at least ninety eight percent (98%) by weight; or

2) To emit VOM at a concentration less than twenty parts per million by volume, dry basis.

b) Combustion Device at a Phthalic Anhydride Air Oxidation Process

1) Notwithstanding subsection (a) above, and subject to subsection (b)(2) below, no person shall cause or allow the emissions of VOM through an existing combustion device at a phthalic anhydride air oxidation process, unless the combustion device is operated to achieve:

A) 90% control of the volatile organic emissions vented to it; or

B) VOM emissions concentration of less than 50 parts per million by volume, dry basis.

2) Any existing combustion device subject to subsection (b)(1) above is required to meet the 98 percent emissions limit set forth in subsection (a) above either upon replacing the combustion device for any reasons, including, but not be limited to, normal maintenance, malfunction, accident, and obsolescence, or the date of December 31, 1999, whichever comes first. A combustion device is considered to be replaced when:

A) All of the device is replaced; or

B) When the cost of the repair of the device or the cost of replacement of part of the device exceeds 50% of the cost of replacing the entire device with a device which complies.

c) The limitations of subsection (a) above shall apply to any process vent stream or combination of process vent streams with a Total Resource Effectiveness Index (TRE) less than or equal to 6.0. TRE shall be determined by the following methods:

1) If an air oxidation process has more than one process vent stream, TRE shall be the more stringent of either the TRE based upon a combination of the process vent streams or the TRE based upon each individual process vent stream.

2) The TRE of a process vent stream and the TRE of a combination of process vent streams, whichever is applicable, shall be determined according to the following equation:



where:

|  |  |  |
| --- | --- | --- |
| n | = | 0.88; |
| TRE | = | Total resource effectiveness index; |
| F | = | Vent stream flowrate (scm/min), at a standard temperature of 20° C; |
| E | = | Hourly measured emissions in kg/hr; |
| H | = | Net heating value of vent stream (MJ/scm), where the net enthalpy per mole of offgas is based on combustion at 25° C and 760 mmHg, but the standard temperature for determining the volume corresponding to one mole is 20° C, as in the definition of "Flow"; |
| a,b,c,d,e and f | = | Coefficients obtained by use of Appendix D. |

3) For nonchlorinated process vent streams, if the net heating value, H, is greater than 3.6 MJ/scm, F shall be replaced by F' for purposes of calculating TRE. F' is computed as follows:



where F and H are as defined in subsection (c)(2) of this Section.

4) The actual numerical values used in the equation described in subsection (c)(2) shall be determined as follows:

A) All reference methods and procedures for determining the flow (F), hourly emissions (E), and net heating (H), value shall be in accordance with Appendix C.

B) All coefficients described in subsection (c)(2) of this Section shall be in accordance with Appendix D.

(Source: Renumbered from Section 218.525 and amended at 18 Ill. Reg. 16950, effective November 15, 1994)