**Section 215.525 Emission Limitations for Air Oxidation Processes**

a) No person shall cause or allow the emission of volatile organic material (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 volatile organic material at a concentration less than twenty parts per million by volume, dry basis.

b) Air oxidation facilities for which an existing combustion device is employed to control process VOM emissions are not required to meet the 98 percent emissions limit until the combustion device is replaced for other reasons, which shall be considered to include, but not be limited to, normal maintenance, malfunction, accident, and obsolescence. The combustion device is considered to be replaced when:

1) All of the device is replaced; or

2) 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) do not apply to any process vent stream or combination of process vent streams which has a Total Resource Effectiveness Index (TRE) greater than 1.0, as determined by the following methods:

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

2) TRE of a process vent stream shall be determined according to the following equation:

|  |  |  |
| --- | --- | --- |
| TRE | = | E-1 [a + bFn + cF + dFH + e(FH)n + fF0.5] |
|  |
| 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 the vent stream (MJ/scm), where the net enthalpy per mole of offgas is based on combustion at 25 C and 760 mm Hg, 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 F. |
|  |  |  |
|  |  |  |

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:

|  |  |  |
| --- | --- | --- |
| F' | = | FH / 3.6 |

where f and H are as defined in subsection (c)(2).

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 E.

B) All coefficients described in subsection (c)(2) shall be in accordance with Appendix F.

(Source: Added at 11 Ill. Reg. 20829, effective December 14, 1987)