

**15A NCAC 02D .0943 SYNTHETIC ORGANIC CHEMICAL AND POLYMER MANUFACTURING**

(a) For the purposes of this Rule, the following definitions shall apply:

- (1) "Closed vent system" means a system that is not open to the atmosphere and is composed of piping, connections, and if necessary, flow inducing devices that transport gas or vapor from a fugitive emission source to an enclosed combustion device or vapor recovery system.
- (2) "Enclosed combustion device" means any combustion device that is not open to the atmosphere such as a process heater or furnace, but not a flare.
- (3) "Fugitive emission source" means each pump, valve, safety/relief valve, open-ended valve, flange or other connector, compressor, or sampling system.
- (4) "In gas vapor service" means that the fugitive emission source contains process fluid that is in the gaseous state at operating conditions.
- (5) "In light liquid service" means that the fugitive emission source contains a liquid having:
  - (A) a vapor pressure of one or more of the components greater than 0.3 kilopascals at 20 degrees C; and
  - (B) a total concentration of the pure components having a vapor pressure greater than 0.3 kilopascals at 20 degrees C equal to or greater than 10 percent by weight, and the fluid is a liquid at operating conditions.
- (6) "Open-ended valve" means any valve, except safety/relief valves, with one side of the valve seat in contact with process fluid and one side that is open to the atmosphere, either directly or through open piping.
- (7) "Polymer manufacturing" means the industry that produces, as intermediates or final products, polyethylene, polypropylene, or polystyrene.
- (8) "Process unit" means equipment assembled to produce, as intermediates or final products, polyethylene, polypropylene, polystyrene, or one or more of the chemicals listed in 40 CFR 60.489. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the final product.
- (9) "Quarter" means a three-month period. The first quarter concludes at the end of the last full month during the 180 days following initial start-up.
- (10) "Synthetic organic chemical manufacturing" means the industry that produces, as intermediates or final products, one or more of the chemicals listed in 40 CFR Part 60.489.

(b) This Rule applies to synthetic organic chemicals manufacturing facilities and polymer manufacturing facilities.

(c) The owner or operator of a synthetic organic chemical manufacturing facility or a polymer manufacturing facility shall not cause, allow, or permit:

- (1) any liquid leakage of volatile organic compounds; or
- (2) any gaseous leakage of volatile organic compound of 10,000 ppm or greater from any fugitive emission source.

The owner or operator of these facilities shall control emissions of volatile organic compounds from open-ended valves as described in Paragraph (f) of this Rule.

(d) The owner or operator shall visually inspect each week every pump in light liquid service. If there are indications of liquid leakage, the owner or operator shall repair the pump within 15 days after detection, except as provided in Paragraph (k) of this Rule.

(e) Using procedures in 15A NCAC 02D .2600, the owner or operator shall monitor each pump, valve, compressor and safety/relief valve in gas/vapor service or in light liquid service for gaseous leaks at least once each quarter. The owner or operator shall monitor safety/relief valves after each overpressure relief to ensure the valve has properly reseated. If a volatile organic compound concentration of 10,000 ppm or greater is measured, the owner or operator shall repair the component within 15 days after detection, except as provided in Paragraph (k) of this Rule. Exceptions to the quarterly monitoring frequency are provided for in Paragraphs (h), (i), and (j) of this Rule.

(f) The owner or operator shall install on each open-ended valve:

- (1) a cap;
- (2) a blind flange;
- (3) a plug; or
- (4) a second closed valve that shall remain attached to seal the open end at all times except during operations requiring process fluid flow through the opened line.

(g) If any fugitive emission source appears to be leaking on the basis of sight, smell, or sound, it shall be repaired within 15 days after detection, except as provided in Paragraph (k) of this Rule.

(h) If after four consecutive quarters of monitoring, no more than two percent of the valves in gas/vapor service or in light liquid service are found leaking more than 10,000 ppm of volatile organic compounds, then the owner or operator may monitor valves for gaseous leaks only every third quarter. If the number of these valves leaking more than 10,000 ppm of volatile organic compounds remains at or below two percent, these valves need only be monitored for gaseous leaks every third quarter. However, if more than two percent of these valves are found leaking more than 10,000 ppm of volatile organic compounds, they shall be monitored every quarter until four consecutive quarters are monitored that have no more than two percent of these valves leaking more than 10,000 ppm of volatile organic compounds.

(i) When a fugitive emission source is unsafe to monitor because of extreme temperatures, pressures, or other reasons, the owner or operator of the facility shall monitor the fugitive emission source only when process conditions are such that the fugitive emission source is not operating under extreme conditions. The Director may allow monitoring of these fugitive emission sources less frequently than each quarter, provided they are monitored at least once per year.

(j) Any fugitive emission source more than 12 feet above a permanent support surface shall be monitored once per year.

(k) The repair of a fugitive emission source may be delayed until the next turnaround if the repair is technically infeasible without a complete or partial shutdown of the process unit.

(l) The owner or operator of the facility shall maintain records in accordance with 15A NCAC 02D .0903, which shall include:

- (1) an identification of the source being inspected or monitored;
- (2) the dates of inspection or monitoring;
- (3) the results of inspection or monitoring;
- (4) the action taken if a leak was detected;
- (5) the type of repair made and when it was completed; and
- (6) if the repair was delayed, an explanation as to why.

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