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**Section 219.481 Control of Reactors, Distillation Units, Crystallizers, Centrifuges and Vacuum Dryers**

a) The owner or operator shall equip all reactors, distillation units, crystallizers, centrifuges and vacuum dryers that are used to manufacture pharmaceuticals with surface condensers or other air pollution control equipment listed in subsection (b) of this Section. If a surface condenser is used, it shall be operated such that the condenser outlet gas temperature does not exceed:

1) 248.2° K (-13°F) when condensing VOM of vapor pressure greater than 40.0 kPa (5.8 psi) at 294.3° K (70°F), or

2) 258.2° K (5°F) when condensing VOM of vapor pressure greater than 20.0 kPa (2.9 psi) at 294.3° K (70°F), or

3) 273.2° K (32°F when condensing VOM of vapor pressure greater than 10.0 kPa (1.5 psi) at 294.3° K (70°F), or

4) 283.2° K (50°F) when condensing VOM of vapor pressure greater than 7.0 kPa (1.0 psi) at 294.3° K (70°F), or

5) 298.2°K (77° F) when condensing VOM of vapor pressure greater than 3.45 kPa (0.5 psi) at 294.3° K (70°F).

b) If a scrubber, carbon adsorber, thermal afterburner, catalytic afterburner, or other air pollution control equipment other than a surface condenser is used, such equipment shall provide a reduction in the emissions of VOM of 90 percent or more.

c) The owner or operator shall enclose all centrifuges used to manufacture pharmaceuticals and that have an exposed VOL surface, where the VOM in the VOL has a vapor pressure of 3.45 kPa (0.5 psi) or more at 294.3°K (70°F), except as production, sampling, maintenance, or inspection procedures require operator access.

(Source: Amended at 17 Ill. Reg. 16918, effective September 27, 1993)