

## § 84.254

to paragraph (b)(4) of this section shall not exceed 1 ppm vinyl chloride.

(6) The single-use respirators, equilibrated and stored as described in paragraphs (b)(2) and (b)(3) of this section, will be tested on an apparatus that allows a test atmosphere at  $85 \pm 5$  percent relative humidity and  $25 \pm 5$  °C to be cycled through the respirator by a breathing machine at a concentration of 10 ppm vinyl chloride monomer at the rate of 24 respirations per minute at a minute volume of  $40 \pm 0.6$  liters. Air exhaled through the respirator will be  $35 \pm 2$  °C with  $94 \pm 3$  percent relative humidity.

(7) The maximum allowable penetration after 144 minutes testing of respirators, according to paragraph (b)(6) of this section, shall not exceed 1 ppm vinyl chloride.

### § 84.254 Powered air-purifying respirators; requirements and tests.

(a) Except for the tests prescribed in § 84.207, the minimum requirements and performance tests for powered air-purifying respirators prescribed in subpart L of this part are applicable to vinyl chloride powered air-purifying respirators.

(b) The following bench tests are applicable to cartridges designed for use with powered air-purifying respirators for entry into and escape from vinyl chloride atmospheres containing adequate oxygen to support life:

(1) Four cartridges will be equilibrated at  $25 \pm$  °C by passing  $85 \pm 5$  percent relative humidity air through them at 115 liters per minute for tight-fitting facepieces and 170 liters per minute for loose-fitting hoods and helmets, for six hours.

(2) The equilibrated cartridges will be resealed, kept in an upright position at room temperature and tested according to paragraph (b)(3) of this section within 18 hours.

(3) The cartridges equilibrated and stored as described in paragraphs (b) (1) and (2) of this section will be tested on an apparatus that allows the test atmosphere at  $85 \pm 5$  percent relative humidity and  $25 \pm 5$  °C to enter the cartridge continuously at a concentration of 25 ppm vinyl chloride monomer at a total flow rate of 115 liters per minute for tight-fitting facepieces and 170 li-

## 42 CFR Ch. I (10–1–10 Edition)

ters per minute for loose-fitting hoods and helmets.

(4) The maximum allowable penetration after six hours of testing according to paragraph (b)(3) of this section shall not exceed 1 ppm vinyl chloride.

### § 84.255 Requirements for end-of-service-life indicator.

(a) Each canister or cartridge submitted for testing and approval in accordance with §§ 84.252, 84.253, and 84.254 shall be equipped with a canister or cartridge end-of-service-life indicator which shows a satisfactory indicator change or other obvious warning before 1 ppm vinyl chloride penetration occurs. The indicator shall show such change or afford such warning at  $80 \pm 10$  percent of the total service life to 1 ppm leakage, as determined by continuing each test described in §§ 84.252(b), 84.253(b), and 84.254(b) until a 1 ppm leakage of vinyl chloride occurs.

(b) The applicant shall provide sufficient pretest data to verify the performance of the end-of-service-life indicator required in paragraph (a) of this section.

### § 84.256 Quality control requirements.

(a) In addition to the construction and performance requirements specified in §§ 84.251, 84.252, 84.253, 84.254, and 84.255, the quality control requirements in paragraphs (b), (c), and (d) of this section apply to approval of gas masks, chemical cartridge respirators, and powered air-purifying respirators for entry into and escape from vinyl chloride atmospheres containing adequate oxygen to support life.

(b) The respirators submitted for approval as described in paragraph (a) of this section shall be accompanied by a complete quality control plan meeting the requirements of subpart E of this part.

(c)(1) The applicant shall specify in the plan that a sufficient number of samples will be drawn from each bulk container of sorbent material and that where activated carbon is used, the following specific tests will be performed:

- (i) Apparent density;
- (ii) Iodine number;
- (iii) Moisture content;