approximately 25 °C. to enter the

of flow, and that has means for

determining the test life of the

parallel on a chemical cartridge

respirator, the bench test will be

than to the individual cartridges.

cartridges will be removed from

(c) Three cartridges or pairs of

containers and tested as received from

(d) Two air purifying cartridges or

pairs of cartridges will be equilibrated at

room temperature by passing 25 percent

relative humidity air through them at

(e) Two air purifying cartridges or

pairs of cartridges will be equilibrated

air through them at the flow rate of 25

in an upright position, at room

temperatures, and tested within 18

meet the minimum requirements set

forth in Table 11 of this subpart.

by passing 85 percent relative humidity

(f) All cartridges will be resealed, kept

(g) Cartridges will be tested and shall

the flow rate of 25 liters per minute

predetermined concentrations and rates

(b) Where two cartridges are used in

performed with the cartridges arranged

in parallel, and the test requirements

will apply to the combination rather

cartridges continuously at

cartridges.

the applicant.

(l.p.m.) for 6 hours.

l.p.m.

hours.

<sup>2</sup> Same as inhalation.

# § 84.204 Exhalation valve leakage test; minimum requirements.

(a) Dry exhalation valves and valve seats will be subjected to a suction of 25 mm. water-column height while in a normal operating position.

(b) Leakage between the valve and valve seat shall not exceed 30 milliliters per minute.

# §84.205 Facepiece test; minimum requirements.

(a) The complete chemical cartridge respirator will be fitted to the faces of persons having varying facial shapes and sizes.

(b) Where the applicant specifies a facepiece size or sizes for the respirator together with the approximate measurement of faces they are designed to fit, the Institute will provide test subjects to suit such facial measurements.

(c) Any chemical cartridge respirator part which must be removed to perform the facepiece or mouthpiece fit test shall be replaceable without special tools and without disturbing facepiece or mouthpiece fit.

(d) The facepiece or mouthpiece fit test using the positive or negative pressure recommended by the applicant and described in his instructions will be used before each test.

(e) (1) Each wearer will enter a chamber containing 100 p.p.m. isoamyl acetate vapor for half-mask facepieces, and 1,000 p.p.m. for full facepieces, mouthpieces, hoods, and helmets.

(2) The facepiece or mouthpiece may be adjusted, if necessary, in the test chamber before starting the test. (3) Each wearer will remain in the chamber for 8 minutes while performing the following activities:

(i) Two minutes, nodding and turning head;

(ii) Two minutes, calisthenic arm movements;

(iii) Two minutes, running in place; and

(iv) Two minutes, pumping with a tire pump into a 28-liter (1 cubic-foot) container.

(4) Each wearer shall not detect the odor of isoamyl-acetate vapor during the test.

# §84.206 Particulate tests; respirators with filters; minimum requirements; general.

(a) Three respirators with cartridges containing, or having attached to them, filters for protection against particulates will be tested in accordance with the provisions of § 84.207.

(b) In addition to the test requirements set forth in paragraph (a) of this section, three such respirators will be tested, as appropriate, in accordance with the provisions of §§ 84.179 through 84.183; however, the maximum allowable resistance of complete particulate, and gas, vapor, or gas and vapor chemical cartridge respirators shall not exceed the maximum allowable limits set forth in § 84.203.

### §84.207 Bench tests; gas and vapor tests; minimum requirements; general.

(a) Bench tests will be made on an apparatus that allows the test atmosphere at  $50\pm5$  percent relative humidity and room temperature,

#### **Tables to Subpart L of Part 84**

TABLES 9 AND 10 [RESERVED]

TABLE 11-CARTRIDGE BENCH TESTS AND REQUIREMENTS

[42 CFR part 84, subpart L]

Cartridge	Test condition	Test atmosphere		Flowmate	Number of	Penetra-	Minimum
		Gas or vapor	Concentra- tion (p.p.m.)	(l.p.m.)	tests	tion <sup>1</sup> (p.p.m.)	life <sup>2</sup> (min.)
Ammonia	As received	NH <sub>3</sub>	1000	64	3	50	50
Ammonia	Equilibrated	NH <sub>3</sub>	1000	32	4	50	50
Chlorine	As received	$CI_2$	500	64	3	5	35
Chlorine	Equilibrated	Cl <sub>2</sub>	500	32	4	5	35
Hydrogen chloride	As received	HCI	500	64	3	5	50
Hydrogen chloride	Equilibrated	HCI	500	32	4	5	50
Methylamine	As received	CH <sub>3</sub> NH <sub>2</sub>	1000	64	3	10	25
Methylamine	Equilibrated	CH <sub>3</sub> NH <sub>2</sub>	1000	32	4	10	25
Organic vapors	As received	CCl <sub>4</sub>	1000	64	3	5	50
Organic vapors	Equilibrated		1000	32	4	5	50
Sulfur dioxide	As received	$SO_2$	500	64	3	5	30
Sulfur dioxide	Equilibrated	SO <sub>2</sub>	500	32	4	5	30

<sup>1</sup> Minimum life will be determined at the indicated penetration.