

APPENDIX C

RESPIRATOR DRYING CABINET

One 18 by 36 by 78-in. three-shelf steel cabinet with double doors

Three 15-3/4 by 35-3/4 in. pieces of 1/4-in. stainless steel mesh for shelves

One 10 by 10 in. piece of window screen for exhaust port

One small portable electric heater with fan, 115 Vac, 1650 W

Thirty-two size 10 eyebolts

Thirty-two clothespins with metal hanging clips

Thirty-two spring clips

0 to 180°F thermometer

Size 10 nuts and bolts.

CABINET MODIFICATION

On one side, near the bottom, cut a hole and bolt the heater in place. Make sure the heater has a three-wire (grounded) plug. In the top of the cabinet, cut an 8 by 8-in. exhaust port and cover it with win-

dow screen. Cut away each shelf, leaving 1-1/2 in. at each edge, and bolt the stainless steel mesh in place. On the bottom and second shelves, screw the small eye bolts into this mesh about 3 in. apart, and spaced so that 16 masks can hang in a double row from each shelf without touching each other. The clothespins hang from the eyebolts by specially fabricated metal clips. The thermometer is suspended by a small clamp.

The temperature inside the cabinet is kept at 120 to 140°F. After the cabinet has been loaded with masks, the temperature averages about 125°F on the top shelf to 135°F at the bottom of the low-hanging masks.

The normal cabinet load is 10 to 15 full-face and 24 half-mask respirators and their filter holders. The greatest practical capacity, using both hangers and shelves, is 30 full-face or 60 half-mask respirators. The average drying time is 1 to 1-1/2 h. The total cost of materials and labor is less than \$150.00. Figures C-1 through C-3 show this cabinet.

§ 11.183-2 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.

§ 11.183-3 Facepiece test; minimum requirements.

(a) The complete pesticide 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 his respirator together with the approximate measurements of faces they are designed to fit, the Bureau will provide test subjects to suit such facial measurements.

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

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

(e) (1) Each wearer will enter a chamber containing 1,000 p.p.m. isoamyl-acetate vapor for a respirator equipped with a full facepiece, mouthpiece, hood, or helmet and 100 p.p.m. isoamyl-acetate vapor for a respirator equipped with a half-mask facepiece.

(2) The facepiece, mouthpiece, hood, or helmet may be adjusted, if necessary, in the test chamber before starting the test.

(3) Each wearer will remain in the chamber while performing the following activities:

(i) Two minutes, nodding and turning head;

(ii) Two minutes, callsthenic 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 during the test.

§ 11.183-4 Silica dust test; minimum requirements.

Three completely assembled pesticide respirators will be tested with a mechanical-testing apparatus as follows:

(a) Temperature in the test chamber will be approximately 25° C.

(b) Continuous airflow through the respirator will be 32 liters per minute for front-mounted, back-mounted, and chin-style gas mask pesticide respirators and chemical cartridge pesticide respirators, and not less than 115 (4 cubic feet) liters per minute to tight-fitting facepieces and 170 liters (6 cubic feet) per minute to loose-fitting hoods and helmets of powered air-purifying respirators.

(c) The test aerosol will contain 50-60 milligrams of 99+ percent free silica per cubic meter of air.

(d) The particle size distribution of the test suspension will have a geometric mean diameter of 0.4 to 0.6 micrometer, with a standard geometric deviation less than 2.

(e) Front-mounted, back-mounted, and chin-style gas mask pesticide respirators and chemical cartridge pesticide respirators will be tested for 90 minutes and powered air-purifying respirators will be tested for 4 hours.

§ 11.183-5 Lead fume test; minimum requirements.

Three completely assembled pesticide respirators will be tested with a mechanical-testing apparatus as follows:

(a) Continuous airflow through the respirator will be 32 liters per minute for front-mounted, back-mounted, and chin-style gas mask pesticide respirators and chemical cartridge pesticide respirators and not less than 115 liters (4 cubic feet) per minute, for powered air-purifying respirators with tight-fitting facepieces, and not less than 170 liters (6 cubic feet) per minute for powered air-purifying respirators with loose-fitting hoods and helmets.

(b) The test aerosol will contain 15-20 milligrams of freshly generated lead-oxide fume, calculated as lead, per cubic meter of air.

(c) The fume will be generated by impinging an oxygen-gas flame on molten lead.

(d) Front-mounted, back-mounted, and chin-style gas mask pesticide respirators and chemical cartridge pesticide respirators will be tested for 90 minutes and powered air-purifying pesticide respirators will be tested for 4 hours.

(e) The total amount of unretained test suspension, which is analyzed and calculated as lead, shall not exceed: (1) 0.43 milligram for any 90-minute test; (2) 4.8 milligrams for any 4-hour test made at 115 liters (4 cubic feet) per minute; or (3) 6.2 milligrams for any 4-hour test made at 170 liters (6 cubic feet) per minute.

§ 11.183-6 Diocetyl-phthalate test; minimum requirements.

(a) All canisters submitted for use with front-mounted and back-mounted

gas mask pesticide respirators will be tested in an atmospheric concentration of 100 micrograms of diocetyl-phthalate per liter of air at continuous flow rates of 32 and 85 liters per minute for a test period of 5 to 10 seconds.

(b) The DOP leakage through the canister shall not exceed 0.03 percent of the ambient DOP concentration.

§ 11.183-7 Bench tests; minimum requirements.

(a) (1) Bench tests will be made on an apparatus that allows the test atmosphere at 50±5 percent relative humidity and at room temperature (25°±2.5° C.) to enter the canister or cartridge at predetermined concentrations and rates of flow, and that has a means for determining the test life of the canister or cartridge against carbon tetrachloride.

(2) Canisters and cartridges will be tested as they are used on each pesticide respirator, either singly or in pairs.

(3) Three canisters or cartridges or pairs of cartridges will be removed from containers and tested as received from the applicant.

(4) Two canisters, cartridges, or pairs of cartridges will be equilibrated at room temperature by passing 25 percent relative humidity air through them at the following flow rates (expressed as liters per minute (l.p.m.)) for 6 hours:

Type of canister or cartridge	Airflow rate, l.p.m.
Air-purifying canister.....	64
Air-purifying cartridge.....	25
Powered air-purifying with tight-fitting facepiece.....	115
Powered air-purifying with loose-fitting hood or helmet.....	170

(5) Two canisters, cartridges, or pairs of cartridges will be equilibrated at room temperature by passing 85 percent relative humidity air through them at the flow rates stated in subparagraph (4) of this paragraph for 6 hours.

(6) The equilibrated canisters or cartridges will be resealed, kept in an upright position at room temperature, and tested within 18 hours.

(b) Canisters and cartridges tested in accordance with the provisions of this section shall meet the requirements specified in Table 12.

TABLE 12.—CARBON TETRACHLORIDE BENCH TESTS AND REQUIREMENTS FOR CANISTERS AND CARTRIDGES
(30 CFR Part 11, Subpart M, § 11.183-7)

Type of pesticide respirator	Test concentration, p.p.m. CCl ₄	Flow rate, l.p.m.	Number of tests	Minimum life, minutes ¹
Chest-mounted or back-mounted gas mask (as received).....	20,000	64	3	12
Chest-mounted or back-mounted gas mask (equilibrated).....	20,000	32	4	12
Chin-style gas mask (as received).....	4,000	64	3	9
Chin-style gas mask (equilibrated).....	4,000	32	4	9
Chemical-cartridge respirator (as received).....	1,000	64	3	60
Chemical-cartridge respirator (equilibrated).....	1,000	32	4	60
Powered air-purifying respirator (tight-fitting facepiece, as received).....	1,000	115	3	60
Powered air-purifying respirator (tight-fitting facepiece, equilibrated).....	1,000	115	4	5
Powered air-purifying respirator (loose-fitting hood or helmet as received).....	1,000	170	3	60
Powered air-purifying respirator (loose-fitting hood or helmet, equilibrated).....	1,000	170	4	28

¹ Minimum life will be determined at 5 p.p.m. leakage.

² The flow rate shall be the effective flow rate of the device, but shall be not less than 115 l.p.m.

³ The flow rate shall be the effective flow rate of the device, but shall be not less than 170 l.p.m.

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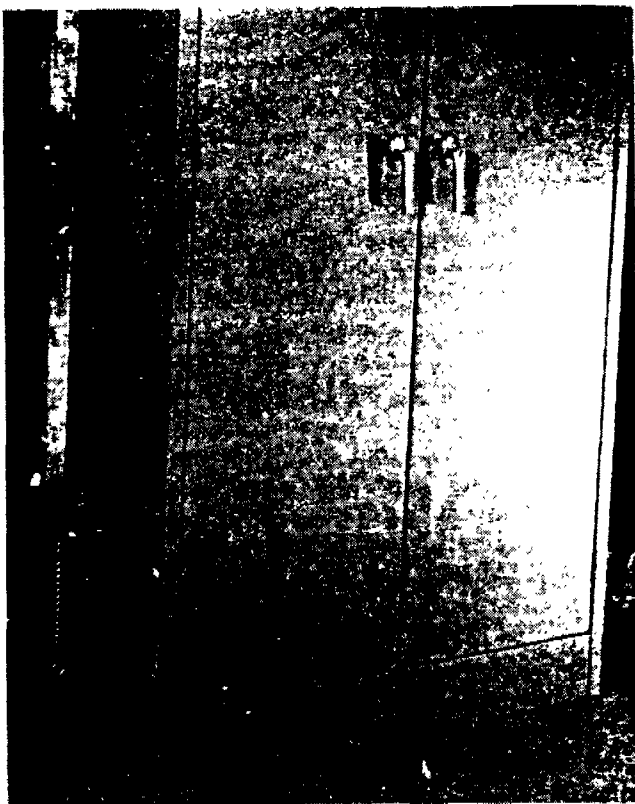
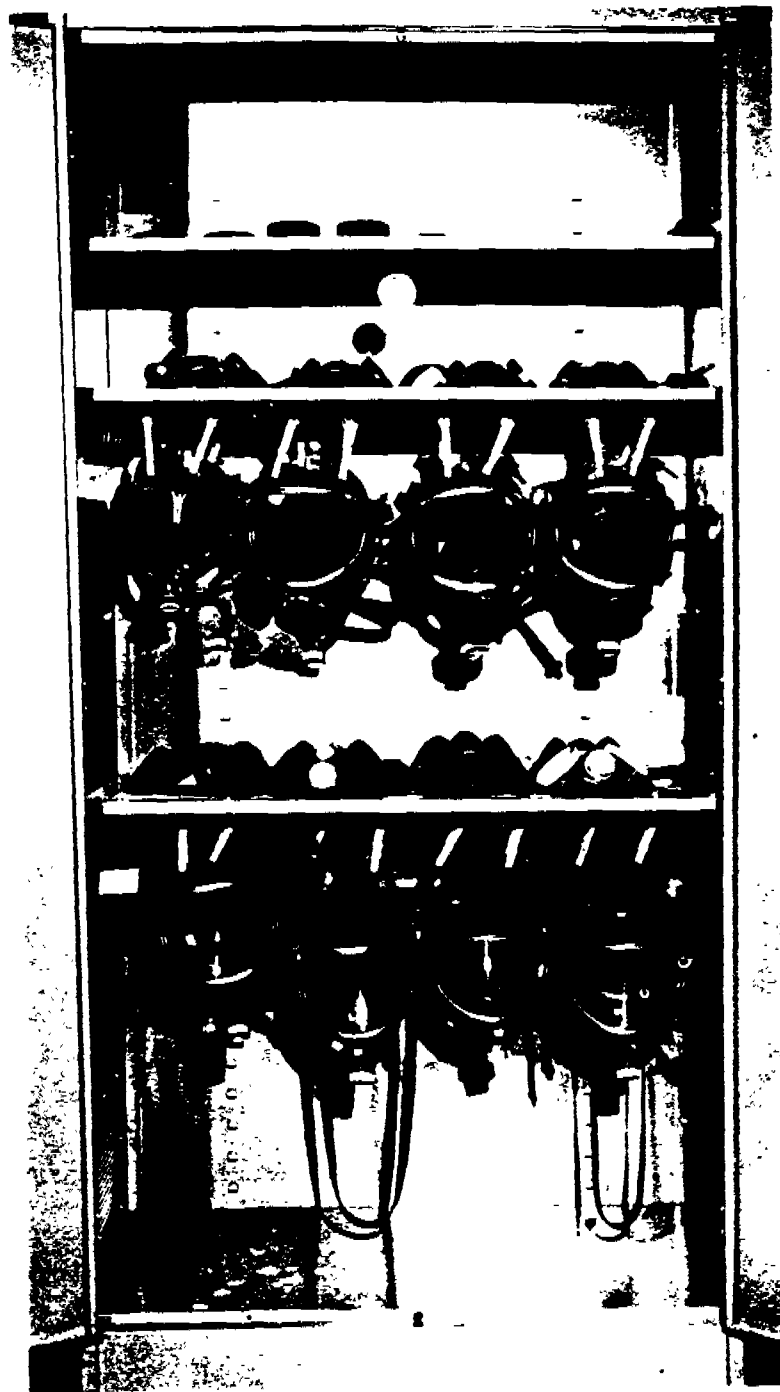


Figure C-1.
Outside of cabinet showing heater unit.



Figure C-2.
Unloaded cabinet.



*Figure C-3.
Cabinet loaded with masks.*