§ 23.1445 Oxygen distribution system.

(a) Except for flexible lines from oxygen outlets to the dispensing units, or where shown to be otherwise suitable to the installation, nonmetallic tubing must not be used for any oxygen line that is normally pressurized during flight.

(b) Nonmetallic oxygen distribution lines must not be routed where they may be subjected to elevated temperatures, electrical arcing, and released

(c) If demand equipment is installed for use by flight crewmembers, the minimum mass flow of supplemental oxygen required for each flight crewmember may not be less than the flow required to maintain, during inspiration, a mean tracheal oxygen partial pressure of 122 mm Hg up to and including a cabin pressure altitude of 35,000 feet, and 95 percent oxygen between cabin pressure altitudes of 35,000 and 40,000 feet, when breathing 20 liters per minutes BTPS. In addition, there must be means to allow the flight crew to use undiluted oxygen at their discretion.

(d) If first-aid oxygen equipment is installed, the minimum mass flow of oxygen to each user may not be less than 4 liters per minute, STPD. However, there may be a means to decrease this flow to not less than 2 liters per minute, STPD, at any cabin altitude. The quantity of oxygen required is based upon an average flow rate of 3 liters per minute per person for whom first-aid oxygen is required.

(e) As used in this section:

(1) BTPS means Body Temperature, and Pressure, Saturated (which is 37 °C, and the ambient pressure to which the body is exposed, minus 47 mm Hg, which is the tracheal pressure displaced by water vapor pressure when the breathed air becomes saturated with water vapor at 37 °C).

(2) STPD means Standard, Temperature, and Pressure, Dry (which is 0 °C at 760 mm Hg with no water vapor).

§ 23.1449 Means for determining use of oxygen.

There must be a means to allow the crew to determine whether oxygen is

above 25,000 feet (MSL), the dispensing units must meet the following:

1. The dispensing units for passengers must be connected to an oxygen supply terminal and be immediately available to each occupant wherever seated.

2. The dispensing units for crewmembers must be automatically presented to each crewmember before the cabin pressure altitude exceeds 15,000 feet, or the units must be of the quick-donning type, connected to an oxygen supply terminal that is immediately available to crewmembers at their station.

3. If certification for operation above 30,000 feet is requested, the dispensing units for passengers must be automatically presented to each occupant before the cabin pressure altitude exceeds 15,000 feet.

4. If an automatic dispensing unit (hose and mask, or other unit) system is installed, the crew must be provided with a manual means to make the dispensing units immediately available in the event of failure of the automatic system.

5. If the airplane is to be certified for operation above 41,000 feet, a quick-donning oxygen mask system, with a pressure demand, mask mounted regulator must be provided for the flight crew. This dispensing unit must be immediately available to the flight crew when seated at their station and installed so that it:

1. Can be placed on the face from its ready position, properly secured, sealed, and supplying oxygen upon demand, with one hand, within five seconds and without disturbing eyeglasses or causing delay in proceeding with emergency duties; and

2. Allows, while in place, the performance of normal communication functions.