4731.2700 ASSIGNED PROTECTION FACTORS FOR RESPIRATORS.

Subpart 1. **Applicability.**

A. The assigned protection factors in subpart 2 apply only in a respiratory protection program that meets the requirements of this chapter. They are applicable only to airborne radiological hazards and may not be appropriate to circumstances when chemical or other respiratory hazards exist instead of, or in addition to, radioactive hazards. Selection and use of respirators for such circumstances must also comply with United States Department of Labor regulations.

B. Radioactive contaminants for which the concentration values in part 4731.2750, subpart 7, Table 1, column 3, are based on internal dose due to inhalation may, in addition, present external exposure hazards at higher concentrations. Under these circumstances, limitations on occupancy may have to be governed by external dose limits.

Subp. 2. **Table of protection factors.**

A. Air purifying respirators [particulate only]

	Operating Mode	Assigned Protection Factors
(1) Filtering facepiece disposable	Negative pressure	-
(2) Facepiece, half	Negative pressure	10
(3) Facepiece, full	Negative pressure	100
(4) Facepiece, half	Powered air-purifying respirators	50
(5) Facepiece, full	Powered air-purifying respirators	1000
(6) Helmet/hood	Powered air-purifying respirators	1000
(7) Facepiece, loose-fitting	Powered air-purifying respirators	25

B. Atmosphere supplying respirators [particulate, gases and vapors]:

(1) Air-line respirator:

(a) Facepiece, half	Demand	10
(b) Facepiece, half	Continuous flow	50
(c) Facepiece, half	Pressure demand	50
(d) Facepiece, full	Demand	100
(e) Facepiece, full	Continuous flow	1000

(f) Facepiece, full	Pressure demand	1000
(g) Helmet/hood	Continuous flow	1000
(h) Facepiece, loose-fitting	Continuous flow	25
(i) Suit	Continuous flow	-

(2) Self-contained breathing apparatus (SCBA):

(a) Facepiece, full	Demand	100
(b) Facepiece, full	Pressure demand	10,000
(c) Facepiece, full	Demand, recirculating	100
(d) Facepiece, full	Positive pressure recirculating	10,000

C. Combination respirators:

Any combination of air-purifying and atmosphere-supplying respirators	Assigned protection factor for type and mode of operation as listed above

Subp. 3. **Explanations.**

A. Subpart 2, item A: Air purifying respirators with APF<100 must be equipped with particulate filters that are at least 95 percent efficient. Air purifying respirators with APF=100 must be equipped with particulate filters that are at least 99 percent efficient. Air purifying respirators with APF> 100 must be equipped with particulate filters that are at least 99.97 percent efficient.

B. Subpart 2, item A: A licensee may apply to the commissioner for the use of an APF greater than 1 for sorbent cartridges as protection against airborne radioactive gases and vapors, such as radioiodine.

C. Subpart 2, item A, subitem (1): Licensees may permit individuals to use this type of respirator who have not been medically screened or fit tested on the device, provided that no credit be taken for their use in estimating intake or dose. It is also recognized that it is difficult to perform an effective positive or negative pressure pre-use user seal check on this type of device. All other respiratory protection program requirements under part 4731.2260 apply. An assigned protection factor has not been assigned for these devices. However, an APF equal to ten may be used if the licensee can demonstrate a fit factor of at least 100 by use of a validated or evaluated, qualitative or quantitative fit test.

D. Subpart 2, item A, subitem (2): Under-chin type only. No distinction is made in this part between elastomeric half-masks with replaceable cartridges and those designed with the filter medium as an integral part of the facepiece, for example, disposable or reusable disposable. Both types are acceptable so long as the seal area of the latter contains some substantial type of seal-enhancing material such as rubber or plastic, the two or more suspension straps are adjustable, the filter medium is at least 95 percent efficient, and all other requirements of this chapter are met.

E. Subpart 2, item B: The assigned protection factors for gases and vapors are not applicable to radioactive contaminants that present an absorption or submersion hazard. For tritium oxide vapor, approximately one-third of the intake occurs by absorption through the skin so that an overall protection factor of 3 is appropriate when atmosphere-supplying respirators are used to protect against tritium oxide. Exposure to radioactive noble gases is not considered a significant respiratory hazard and protective actions for these contaminants should be based on external (submersion) dose considerations.

F. Subpart 2, item B, subitem (1), unit (i): A National Institute for Occupational Safety and Health approval schedule is currently not available for atmosphere supplying suits. This equipment may be used in an acceptable respiratory protection program as long as all the other minimum program requirements under part 4731.2260, with the exception of fit testing, are met.

G. Subpart 2, item B, subitem (2), units (a) and (c): A licensee should implement institutional controls to ensure that these devices are not used in areas immediately dangerous to life or health.

H. Subpart 2, item B, subitem (2), units (b) and (d): This type of respirator may be used as an emergency device in unknown concentrations for protection against inhalation hazards. External radiation hazards and other limitations to permitted exposure such as skin absorption must be taken into account in these circumstances. The device may not be used by any individual who experiences perceptible outward leakage of breathing gas while wearing the device.

Statutory Authority: *MS s 144.1202; 144.1203*

History: *29 SR 755*

Published Electronically: *March 12, 2009*