

TABLE 2-18 Extant Standards and Guidelines for Carbon Monoxide

Guideline	Exposure Duration				
	10 min	30 min	1 h	4 h	8 h
AEGL-1	N.R. ^a	N.R.	N.R.	N.R.	N.R.
AEGL-2	420 ppm	150 ppm	83 ppm	33 ppm	27 ppm
AEGL-3	1700 ppm	600 ppm	330 ppm	150 ppm	130 ppm
ERPG-1 (AIHA) ^b			200 ppm		
ERPG-2 (AIHA)			350 ppm		
ERPG-3 (AIHA)			500 ppm		
EEGL (NRC) ^c	1500 ppm	800 ppm	400 ppm		50 ppm (24 h)
IDLH (NIOSH) ^d		1,200 ppm			
REL-TWA (NIOSH) ^e					35ppm (200 ppm ceiling)
PEL-TWA (OSHA) ^f					50ppm
TLV-TWA (ACGIH) ^g					25ppm
MAK (Germany) ^h					30 ppm
MAK Spitzenbegrenzung (Germany) ⁱ		60 ppm			
Einsatztoleranzwert (Germany) ^j				100 ppm	
MAC (The Netherlands) ^k					25 ppm
Air Quality Guideline (WHO) ^l	87 ppm for 15 min	52 ppm	26 ppm		9 ppm
National Ambient Air Quality Standard (U.S.) ^m			35 ppm		9 ppm
Ambient Air Limit Value (EU) ⁿ					9 ppm

^aN.R., not recommended because susceptible persons may experience more serious effects (equivalent to AEGL-2) at concentrations, which do not yet cause AEGL-1 effects in the general population.

^bERPG (emergency response planning guidelines, American Industrial Hygiene Association) (AIHA 1999). The ERPG-1 is the maximum airborne concentration below which nearly all individuals could be exposed for up to 1 h without experiencing other than mild, transient adverse health effects or without perceiving a clearly defined objectionable odor. The ERPG-1 value is based on a COHb of 5-6%, which, based on the original CFK model using a ventilation rate at rest, is considered to be produced by 1 h CO exposure to 200 ppm. This exposure level is not expected to produce any effects during a 1 h exposure period. While delayed transient effects, such as headache, are possible, no permanent effects in more susceptible individuals are expected. The ERPG-2 is the maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to 1 h without experiencing or developing irreversible or other serious health effects or symptoms that could impair an individual's ability to take protective action. The ERPG-2 value is based on a COHb of 10-12%, which, based on the original CFK model using a ventilation rate at rest, is considered to be produced by 1 h CO exposure to 350 to 500 ppm. This exposure level is expected to cause slight neurologic symptoms (increased threshold of visual light) in healthy individuals and chest pain at less exertion in heart patients. (Comment: The ERPG derivation does not discuss the CO effects on children. Moreover, model calculation for deriving ERPG values assumed a resting