

**§12-202-6 Exposure for more than 8 hours. (a)** The permissible exposure limit to hazardous substances described or listed in this chapter for shifts greater than 8 hours shall be the PEL for greater-than-8-hour exposure.

**(b)** This formula shall be used to compute the TWA for greater-than-8-hour exposure:

$$\text{TWA} = \text{ppm-hours} / \text{total hours exposed.}$$

For example, suppose an employee was exposed to 9.3 ppm-hours of chlorine over a 10-hour span. Then:

$$\text{TWA} = 9.3 \text{ ppm-hours} / 10.0 \text{ hours} = 0.93 \text{ ppm.}$$

However, this TWA cannot be compared to the PEL-TWA in table 202-1 to determine whether the PEL-TWA has been exceeded.

**(c)** A substance greater-than-8-hours-exposure PEL shall be computed from the following general formula:

$$\text{substance } >8 \text{ hour PEL} = \text{maximum concentration-hours} / \text{total hours exposure.}$$

- (1) Since the maximum concentration-hours (in either ppm-hours or mg/m<sup>3</sup>-hours) is calculated from the appropriate substance PEL-TWA of table 202-1 multiplied by 8 hours, the above formula is equivalent to the following formula:

$$\text{substance } >8 \text{ hour PEL} = \text{PEL-TWA (table 202-1)} \times 8 \text{ hours} / \text{total hours exposure.}$$

- (2) In the chlorine example above, therefore, where the chlorine PEL-TWA in table 202-1 is 0.5 ppm, the chlorine 10-hour exposure PEL is calculated in ppm as follows:

$$\begin{aligned} \text{chlorine 10-hour PEL} &= 0.5 \text{ ppm} \times 8 \text{ hours} / 10.0 \text{ hours} \\ &= \text{ppm-hours} / 10.0 \text{ hours} \\ &= 0.4 \text{ ppm;} \end{aligned}$$

similarly, for example, note that (in ppm) the:

$$\begin{aligned} \text{chlorine 12-hour PEL} &= 0.33 \text{ ppm;} \text{ and} \\ \text{chlorine 20-hour PEL} &= 0.2 \text{ ppm.} \end{aligned}$$

The chlorine 10-hour TWA (i.e., 0.93 ppm, computed in subsection (b) above) is greater than the chlorine 10-hour PEL of 0.4 ppm; therefore, the employee was exposed to an unacceptable level of chlorine. [Eff. 7/12/82; am 6/16/84; am 3/22/91]  
(Auth: HRS §396-4) (Imp: HRS §396-4)

**§12-202-7 Short-term limits (STLs).** REPEALED. [Eff 7/12/82;  
am 6/16/84] (Auth: HRS §396-4) (Imp: HRS §396-4)

**§12-202-7.01 Short term exposure levels (STELs).** REPEALED.  
[Eff 7/12/82; am 6/16/84; am 8/5/88; R 3/22/91] (Auth: HRS §396-4) (Imp:  
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