

Computation formulae.

For one Contaminant:

- ⦿ The computation formula which shall apply to employee exposure to more than one substance for which 8-hour time weighted averages are listed in subpart Z of 29 CFR Part 1910 in order to determine whether an employee is exposed over the regulatory limit is as follows:
- ⦿ Time weighted average concentration is measured by taking one or more measurements of concentration over a work shift.

$$\text{TWA} = \frac{\sum_{i=1}^n C_i T_i}{\sum_{i=1}^n T_i}$$

The cumulative exposure for an **8-hour work shift** shall be computed as follows:

Where: **E** is the equivalent exposure for the working shift.

C is the concentration during any period of time **T** where the concentration remains constant.

T is the duration in hours of the exposure at the concentration **C**.

Assume that Substance **A** has an 8-hour time weighted average limit of 100 ppm and assume that an employee is subject to the following exposure: *Two hours exposure at 150 ppm, Two hours exposure at 75 ppm and Four hours exposure at 50 ppm.*

Substituting this information in the formula, we have: $(2 \times 150 + 2 \times 75 + 4 \times 50) \div 8 = 81.25$ ppm. Since 81.25 ppm is less than 100 ppm, the 8-hour time weighted average limit, ***the exposure is acceptable.***