

minutes to 4 hours) with exposures to 3,430–5,000 mg/m³ of JP-8 or JP-5 in the vapor/aerosol form (MacEwen and Vernot 1985; Wolfe et al. 1996; Whitman et al. 2001) with support from the studies using repeated exposures to 1,000 mg/m³ (Mattie et al. 1991; Briggs 2001; Rossi et al. 2001) were used as the basis for the AEGL-2. No uncertainty factors were applied to the 1,000 mg/m³ concentration because there were no adverse effects and the exposures were repeated for up to 90 days. The higher concentrations of JP-8, 3430 and 4,440 mg/m³, and of JP-5, 5,000 mg/m³, were divided by an interspecies factor of 1 (there were no species differences) and by an intraspecies uncertainty factor of 3 to protect potentially sensitive individuals. An intraspecies uncertainty factor of 3 is considered adequate because the thresholds for both sensory irritation and central nervous system

depression to solvents do not generally differ by more than 3-fold. The resulting value is 1,100 mg/m³ (1,100–1,700 mg/m³), approximately the same concentration as in the no-adverse-effect repeated exposure studies. No information was available for time scaling. Central nervous system depression is a concentration-related effect. Therefore, the 1,100 mg/m³ value was used for the 4-hour and shorter time period. But, because the exposures to 1,000 mg/m³ were repeated for up to 90 days, the 1,100 mg/m³ value can also be used for the longest AEGL exposure duration of 8 hours. The fact that the exposures in most of these studies, especially at the higher concentrations, were to both the vapor and the more toxic aerosol supports the appropriateness of the derived value.

It should be noted that, because of its relatively low vapor pressure, JP-8

might not attain a sustained vapor concentration high enough to cause death. In a laboratory study reported by Wolfe et al. (1996), the highest vapor concentration of JP-8 that could be attained was 3,430 mg/m³. The highest vapor/aerosol concentration that could be attained was 4,440 mg/m³. The highest vapor/aerosol attainable under ambient concentrations has been estimated at 700 mg/m³. However, higher concentrations might be attained in closed spaces at high temperatures. A concentration of 500 mg/m³ is assumed to be the upper bound for a stable cloud of inhalable dust (and aerosols). Based on the likelihood that lethal concentrations of JP-8 cannot be sustained under ambient conditions, an AEGL-3 was not determined.

The proposed AEGL values are listed in Table 7 of this unit.

TABLE 7.—SUMMARY OF PROPOSED AEGL VALUES FOR JP-8 (MG/M³)^{A, B}

Classification	10-minutes	30-minutes	1-hour	4-hours	8-hours	Endpoint (Reference)
AEGL-1 (Nondisabling)	290	290	290	290	290	Slight sensory irritation in humans (mouse RD ₅₀ test) (Whitman et al. 2001)
AEGL-2 (Disabling)	1,100	1,100	1,100	1,100	1,100	No clinical signs during repeated exposures to 1,000 mg/m ³ —rats and mice (Mattie et al. 1991; Briggs 2001; Rossi et al. 2001); sensory irritation at >3,430 mg/m ³ —rats and mice (Wolfe et al. 1996; Whitman et al. 2001)
AEGL-3 (Lethal)	Not determined	Not determined	Not determined	Not determined	Not determined	^C No data

^a The values apply to JP-8 vapor or vapor/aerosol and not to the pure aerosol.

^b The values apply to JP-8 vapor and not to JP-8+100.

^c A lethal concentration was not attained in the available toxicity studies; the low vapor pressure of JP-8 may preclude attainment of a lethal concentration.

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7. *Methyl ethyl ketone—i. Description.* Methyl ethyl ketone (MEK) is a volatile solvent with a sweet/sharp acetone-like odor. MEK is widely used as a solvent in common household products such as inks, paints, cleaning fluids, varnishes, and glues. In most industrial applications it is used as a component of a mixture of organic solvents. It has also been detected in a wide variety of