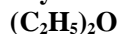


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Ethyl ether



[CAS No. 60-29-7]

**OEL-M 400 ppm (1,200 mg/m³)
(proposed in 1997)**

1. Ethyl ether (diethyl ether) is a very volatile colorless transparent liquid with so-called 'ether smell': Molecular weight, 74.12; melting point - 116°C; boiling point, 34.6°C. The ether is extremely flammable.
2. Ethyl ether is used as an extractant and a solvent¹⁾ in industries.
3. Ethyl ether has a narcotic potential, as well known through its clinical application for inhalation anesthesia. Ethyl ether, when in contact with air, will form peroxide(s) which is irritative to the respiratory tract. Thus, the irritability of the ether varies depending on its purity, especially depending on the extent of the peroxide(s) formation²⁾. Furthermore the peroxide(s) are explosive, posing a serious problem in work safety²⁾.
4. In 1966, This Society (then The Association) proposed 400 ppm (1,200 mg/m³) as the occupational exposure limit for ethyl ether²⁾. The proposal of this concentration took narcotic action of this chemical into consideration, and probably based on the opinions of Amor³⁾ and Cook⁴⁾ that the working condition is unsatisfactory when the exposure to ethyl

ether is in excess of 500 ppm.

5. According to the experiences in clinical anesthesia, sense of pain and then consciousness will be lost when exposed at 2,800 to 10,000 ppm, and surgical anesthesia will be maintained at about 40,000 ppm⁵⁾. Such experiences suggest that the safety margin at 400 ppm will be several times larger for the former concentration and about 100 times larger for the latter.
6. No opinion against the proposal has ever been expressed since 1966.
7. Thus, there is no positive reason at present to change the occupational exposure limit for ethyl ether from the proposed value of 400 ppm.

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