

DOCUMENTATION OF
THRESHOLD LIMIT VALUES



**AMERICAN CONFERENCE OF
GOVERNMENTAL INDUSTRIAL HYGIENISTS**

COMMITTEE ON THRESHOLD LIMIT VALUES

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BENZENE

25 ppm (Approximately 80 mg/m³)

Winslow (1) first proposed a limit of 100 ppm based on extensive examination of exposed workmen and animal inhalation. After emphasizing marked loss in weight and damage to blood forming organs caused by a higher concentration (460 ppm) he recognized that chronic poisoning would develop even at the 100 ppm level but believed it would progress slowly enough to be detected by periodic medical examinations, and arrested by removal from exposure.

The effect of acute benzene poisoning is anesthesia, and chronic poisoning is characterized primarily by injury to the bone marrow. Benzene is particularly insidious because its effects can progress to a fatal outcome after all exposure ceases Smyth (2).

Patty (3) states that 100 ppm has only a faint odor.

Elkins (4) states that more than 140 fatal cases of benzene poisoning have been recorded, several from exposures around 100 ppm or even less, and attributes the decline since 1940 primarily to its replacement by safer solvents in many industries.

The threshold limit value for benzene is recorded as 100 ppm in the 1946 proceedings of the A.C.G.I.H. Since the value has been successively reduced to 50 ppm, 35 ppm and is currently 25 ppm (5).

References

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5. Proc. Ann. Meet. A.C.G.I.H. (1946, p.40; 1947, p.44; 1948, p. 31; 1957, p. 47).