Maleic Anhydride
(2,5-Furandione; cis-Butenedioic anhydride; 2,5-Dihydrofuran-2,5-dione; 2,5-Dioxofuran; toxilic anhydride; maleic acid anhydride, MA)
\[\text{C}_4\text{H}_2\text{O}_3\]
[CAS No. 108-31-6]
OEL-M: 0.1 ppm, 0.4 m/m³
OEL-C: 0.2 ppm, 0.8 mg/m³
Occupational sensitizer: Airway Group 2; Skin Group 2
No change

Summary of occupational exposure limits documentation

Adverse health effects of maleic anhydride (MA) are sensitization and irritation. Such conditions reportedly occur in humans at 1 mg/m³ (0.25 ppm)\(^1\). The epidemiologic studies about the sensitizing potential and respiratory disorder in the mixed-acid anhydride exposure have been reported, but no reports to date have been published about the exposure only to MA. There have been three case reports about the respiratory sensitizing potential\(^2\text{–4}\), but two of them did not mention the exposure levels. Asthma developed in one of four workers after 0.83 mg/m³ of MA exposure for one month\(^2\). In animal experiments, nose and eye irritation and inflammatory change depending on concentrations were found, and LOAEL was thought to be 1.1 mg/m³\(^5\). Since paranasal squamous metaplasia was considered reversible, an uncertainty factor estimated to be three, NOAEL became 0.4 mg/m³.

Taking these findings together, mean occupational exposure limit (OEL-M) and maximum occupational exposure limit (OEL-C) are proposed as 0.4 mg/m³ (0.1 ppm) and 0.8 mg/m³ (0.2 ppm), respectively, then OELs are not revised. There is no evident epidemiological evidence of the sensitizing potential in humans; from the available data, it should then be classified in Occupational Sensitizer Airway and Skin Group 2 from multiple case reports and animal experiment results.

Year of proposal (revision): 2015 no change
Year of proposal: 2000 (OEL-M 0.1 ppm, 0.4 mg/m³, OEL-C 0.2 ppm, 0.8 mg/m³, Occupational Sensitizer Airway Group 2, Skin Group 2)

References