# 1-Methoxy-2-propanol acetate

| CAS number: | 108-65-6 |
| --- | --- |
| Synonyms: | Propylene glycol 1‐methyl ether‐2‐acetate, PGMEA, 2‑Acetoxy-1-methoxypropane |
| Chemical formula: | C6H12O3 |
| Structural formula: | — |

Workplace exposure standard (retained)

| TWA: | **50 ppm (274 mg/m3)** |
| --- | --- |
| STEL: | **100 ppm (548 mg/m3)** |
| Peak limitation: | **—** |
| Notations: | **—** |
| IDLH: | **—** |
| **Sampling and analysis:** The recommended value is quantifiable through available sampling and analysis techniques. | |

## Recommendation and basis for workplace exposure standard

A TWA of 50 ppm (274 mg/m3) is recommended to protect for respiratory tract irritation and toxic degeneration of the olfactory epithelium in exposed workers.

A STEL of 100 ppm (548 mg/m3) is recommended to protect for acute respiratory tract irritation and toxic degeneration of the olfactory epithelium in exposed workers.

## Discussion and conclusions

1-Methoxy-2-propanol acetate is used primarily in inks, coatings, cleaners and as a solvent.

Critical effects of exposure are respiratory tract irritation and toxic degeneration of the olfactory epithelium.

A LOAEC of 300 ppm is identified in a 14-day animal study for irritation of the olfactory epithelium (DFG 1991, SCOEL 1995). A NOAEC of 1,000 ppm is identified in a two-year rat study for body weight decrease. This study was for chronic toxicity and carcinogenicity and therefore irritation symptoms were not noted (ECHA 2011).

Given the absence of available exposure data, a TWA of 50 ppm and STEL of 100 ppm are recommended as reported by DFG (1991) and SCOEL (1995). These values are considered sufficiently low to limit irritant effects. Investigation of additional data sources is recommended at the next scheduled review to address the absence of chronic data.

## Recommendation for notations

Not classified as a carcinogen according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Not classified as a skin sensitiser or respiratory sensitiser according to the GHS.

There are insufficient data to recommend a skin notation. Based on conflicting information from chemical analogy to PGME, SCOEL (1995) considered dermal absorption is possible. Further review of the literature is recommended.

# Appendix

### Primary sources with reports

| Source Year set Standard |
| --- |
| SWA 1991 TWA: 50 ppm (274 mg/m3); STEL: 100 ppm (548 mg/m3) | |
|  |
| ACGIH NA NA |
| No report. |
| DFG 1991 MAK: 50 ppm (270 mg/m3) |
| MAK recommended to minimise the risk of respiratory tract irritation and toxic degeneration of the olfactory epithelium. Repeated exposure at higher levels causes mild liver and kidney damage.  Summary of data:  Animal data:   * LC50: 16,000 mg/m3 (rats, 6 h) * LD50: 8,500 mg/kg (rats, oral) * LD50: >5,000 mg/kg (rabbits, dermal) * Exposure at 0, 300, 1,000 and 3,000 ppm (rats, mice, 14 d, inhalation): * 3,000 ppm: increase on liver weights * >1,000 ppm: eosinophilic granules in kidneys, exudative nostril inflammation * >300 ppm: degenerative lesions in olfactory epithelium (LOAEC) |
| SCOEL 1995 TWA: 50 ppm (275 mg/m3); STEL: 100 ppm (550 mg/m3) |
| A LOAEC of 300 ppm for irritation of the olfactory epithelium of mice was the basis for occupational exposure limits (as detailed in DFG evaluation). An uncertainty factor of 5 considered appropriate to allow for the absence of a NOAEC.  Skin notation recommended as dermal absorption could contribute substantially to the total body burden by analogy to inhalation and percutaneous absorption of PGME (no further information provided). |
| OARS/AIHA 2005 TWA: 50 ppm |
| No report available. |
| HCOTN NA NA |
| No report. |

### Secondary source reports relied upon

| Source |  | Year | Additional information |
| --- | --- | --- | --- |
| ECHA |  | 2011 | * Negative results *in vivo* sensitisation study on guinea pigs * NOAEL 1,000 mg/kg/d (rats, 41–45 d, oral) for, ophthalmological, biochemical, gross pathological and histopathologic changes or changes in diet, body or organ weight * NOAEL 3,000 ppm (rats, 6 h/d, 5 d/wk, 2 yr, inhalation) for carcinogenicity. An overall NOAEL of 1,000 ppm for body weight, ophthalmoscopy examination, haematology, clinical chemistry, urinalysis, organ weights, gross pathology, histopathology. |

### Carcinogenicity — non-threshold based genotoxic carcinogens

| Is the chemical mutagenic? | Insufficient data |
| --- | --- |
| Is the chemical carcinogenic with a mutagenic mechanism of action? | Insufficient data |
| **Insufficient data are available to determine if the chemical is a non-threshold based genotoxic carcinogen.** | |

## Notations

| Source | Notations |
| --- | --- |
| SWA | — |
| HCIS | — |
| NICNAS | NA |
| EU Annex | NA |
| ECHA | — |
| ACGIH | NA |
| DFG | — |
| SCOEL | Skin |
| HCOTN | NA |
| IARC | NA |
| US NIOSH | NA |

NA = not applicable (a recommendation has not been made by this Agency); — = the Agency has assessed available data for this chemical but has not recommended any notations

### Skin notation assessment

| Calculation |
| --- |
| |  |  |  |  | | --- | --- | --- | --- | | Adverse effects in human case study: | no |  |  | | Dermal LD50 ≤1000 mg/kg: | no |  |  | | Dermal repeat-dose NOAEL ≤200 mg/kg: | no | -3.00 |  | | Dermal LD50/Inhalation LD50 <10: |  |  |  | | *In vivo* dermal absorption rate >10%: |  |  |  | | Estimated dermal exposure at WES >10%: |  |  |  | |  |  | -3 | **a skin notation is not warranted** | |

### IDLH

| Is there a suitable IDLH value available? | No |
| --- | --- |

## Additional information

| Molecular weight: | 132.16 |
| --- | --- |
| Conversion factors at 25°C and 101.3 kPa: | 1 ppm = Number mg/m3; 1 mg/m3 = Number ppm |
| This chemical is used as a pesticide: |  |
| This chemical is a biological product: |  |
| This chemical is a by-product of a process: |  |
| A biological exposure index has been recommended by these agencies: | ACGIH  DFG  SCOEL |

## Workplace exposure standard history

| Year | Standard |
| --- | --- |
| Click here to enter year |  |

## References

American Conference of Industrial Hygienists (ACGIH®) (2018) TLVs® and BEIs® with 7th Edition Documentation, CD-ROM, Single User Version. Copyright 2018. Reprinted with permission. See the [*TLVs® and BEIs® Guidelines section*](http://www.acgih.org/tlv-bei-guidelines/policies-procedures-presentations) on the ACGIH website.

Deutsche Forschungsgemeinschaft (DFG) (2000) 1-Methoxypropylacetat-2 – MAK value documentation.

European Chemicals Agency Regulation (ECHA) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

EU Scientific Committee on Occupational Exposure Limits (SCOEL) (1995) Recommendation from the Scientific Committee on Occupational Exposure Limits for 1-Methoxypropyl-2-acetate. SCOEL/SUM/39.