# Methyl n-amyl ketone

| CAS number: | 110-43-0 |
| --- | --- |
| Synonyms: | n-Amyl methyl ketone, 2 -Heptanone, Heptan-2-one, MAK, methyl pentyl ketone |
| Chemical formula: | C7H14O |
| Structural formula: | — |

Workplace exposure standard (retained)

| TWA: | 50 ppm (233 mg/m3) |
| --- | --- |
| STEL: | — |
| Peak limitation: | — |
| Notations: | — |
| IDLH: | 800 ppm |
| 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 (233 mg/m3) is recommended to protect for irritation of the skin, eyes and upper respiratory tract in exposed workers.

## Discussion and conclusions

Methyl n-amyl ketone is used as a solvent in perfumes. It is also used as a flavouring agent and food additive. It also occurs naturally in clove and cinnamon bark oil.

Critical effects of exposure are irritation to the mucus membranes and narcosis as observed in animal studies include (ACGIH, 2008).

There is lack of human exposure data and very limited toxicological evidence is available in humans and animals. SCOEL (1991) established a TWA using sub-chronic inhalation studies in rats and monkeys which identified an approximated NOAEC of 1,000 ppm (4,750 mg/m3). ACGIH (2018) used this same study to assign its TLV-TWA and concluded no adverse effects were seen in rats and monkeys after repeated inhalation at 131 ppm and 1,025 ppm, respectively. The recommended occupational exposure limit is consistent across all primary sources.

The current TWA of 50 ppm, consistent with ACGIH (2018) and SCOEL (1991), is recommended to be retained and considered sufficiently low to minimise potential irritant effects in exposed workers.

## 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.

# Appendix

### Primary sources with reports

| Source Year set Standard |
| --- |
| SWA 1991 TWA: 50 ppm (233 mg/m3) | |
|  |
| ACGIH 2001 TLV-TWA: 50 ppm (233 mg/m3) |
| TLV-TWA recommended to minimise the potential for eye and skin irritation in exposed workers.  Summary of data:  No human data available.  Animal data:   * LD50: 1,670 mg/kg (rats, oral) * Exposure at 1,500 ppm for 890 min (14 h and 40 min) in guinea pigs caused irritation of mucus membranes: * at 2,000 ppm narcosis and some deaths * at 4,800 ppm narcosis and death in 4–8 h * NIOSH (1978) reported a summary of study where rats inhaling 1600 ppm demonstrated significant reductions in fixed interval response rates; no additional information * No clinical signs of toxicity or neurological impairment and no histopathologic effects in rats and monkeys exposed at 131 ppm or 1,025 ppm, respectively for 6 h/d, 5 d/wk for 9 mo * Some dermal irritation in rabbit (shaved skin).   Insufficient data to recommend skin, SEN or carcinogenicity notations or TLV-STEL. |
| DFG NA NA |
| No report. |
| SCOEL 1991 TWA: 50 ppm (238 mg/m3) |
| Summary of additional data:   * Negative result in sensitisation study on human volunteers * No data available on mutagenicity or carcinogenicity * Overall NOAEC ≈1,000 ppm (4,750 mg/m3) from sub-chronic studies of rats and monkeys; oral and inhalation routes; based on effects on kidney, liver, cardiopulmonary system and nervous system; 9–10 mo duration.   Derived a TWA of 50 ppm (238 mg/m3), based on the NOAEC divided by an UF of 20 to account for lack of human data and limited animal studies. |
| OARS/AIHA NA NA |
| No report. |
| HCOTN NA NA |
| No report. |

### Secondary source reports relied upon

NIL.

### 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 | NA |
| HCIS | NA |
| NICNAS | NA |
| EU Annex | NA |
| ECHA | NA |
| ACGIH | NA |
| DFG | NA |
| SCOEL | NA |
| 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

| Insufficient data to assign a skin notation. |
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### IDLH

| Is there a suitable IDLH value available? | Yes |
| --- | --- |

## Additional information

| Molecular weight: | 114.18 |
| --- | --- |
| 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.

EU Scientific Committee on Occupational Exposure Limits (SCOEL) (1991) Recommendation from the Scientific Committee on Occupational Exposure Limits for heptan-2-one. SEG/SUM/7.

US National Institute for Occupational Safety and Health (NIOSH) (1994) Immediately dangerous to life or health concentrations – methyl (n-amyl) ketone.