

DIETHYL KETONE

CAS number: 96-22-0

Synonyms: 3-Pentanone, pentan-3-one, DEK, dimethylacetone, metacetone, methacetone, propione

Chemical formula: C₅H₁₀O

Workplace exposure standard (amended)

TWA: 200 ppm (705 mg/m³)

STEL: 300 ppm (1,057 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 200 ppm (705 mg/m³) is recommended to protect for irritation and bronchoconstriction in exposed workers.

A STEL of 300 ppm (1,057 mg/m³) is recommended to protect for acute irritant effects and bronchoconstriction in acutely exposed workers.

Discussion and conclusions

Diethyl ketone is used as a solvent, in organic synthesis, and in pharmaceuticals.

No human data were identified for diethyl ketone. Data from studies with the isomer methyl propyl ketone (MPK) studies are considered by the ACGIH (ACGIH, 2018) to be applicable to development of a TLV-TWA for diethyl ketone. Occupational exposure to MPK is associated with eye and upper respiratory tract irritation. Narcosis and irritation are reported in animal studies. MPK produced short-term bronchoconstriction in one volunteer exposed at 200 ppm and in two of four volunteers tested at 400 ppm. Ocular irritation at 400 ppm for 15 seconds is also reported (ACGIH, 2018).

Due to the absence of data, the recommended TWA and STEL have been adopted directly from the current TLV-TWA of ACGIH (2018) which was based on isomer methyl propyl ketone and the TLV-STEL based on homologous series of ketones. These concentrations are considered protective of irritation effects and bronchoconstriction 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 sensitizer or respiratory sensitizer according to the GHS.

A skin notation is not recommended based on the available data.

APPENDIX

Primary sources with reports

Source	Year set	Standard
SWA	1991	TWA: 200 ppm (705 mg/m³)
ACGIH	2001	TLV-TWA: 200 ppm (705 mg/m³); TLV-STEL: 300 ppm (1057 mg/m³)
<p>TLV-TWA and TLV-STEL recommended to minimise the potential for eye and upper respiratory tract irritation and narcosis.</p> <p>Summary of data:</p> <p>Human data:</p> <ul style="list-style-type: none"> No published data identified Occupational exposure to MPK is associated with eye and upper respiratory tract irritation; narcosis and irritation are identified with experimental animal exposures Data from MPK considered by ACGIH to be applicable to development of a TLV for diethyl ketone MPK - short-term irritant effect of bronchoconstriction in 1 volunteer exposed to 200 ppm and 2 of 4 volunteers at 400 ppm; ocular irritation reported at 400 ppm MPK for 15 sec Odour threshold of 2 ppm. <p>Animal data:</p> <ul style="list-style-type: none"> LD₅₀: 2.14 g/kg (rats, oral) Inhalation of 8,000 ppm for 4 h lethal to 4/6 rats. <p>TLV-TWA adopted from MPK.</p> <p>TLV-STEL based on homologous series of ketones.</p>		
DFG	NA	NA
No report.		
SCOEL	NA	NA
No report.		
OARS/AIHA	NA	NA
No report.		
HCOTN	2004	TWA: 200 ppm (705 mg/m³)
<p>Summary of additional data:</p> <ul style="list-style-type: none"> LD₅₀: 2,100 mg/kg (rats, dermal) 		

Secondary source reports relied upon

NIL.

Carcinogenicity — non-threshold based genotoxic carcinogens

Is the chemical mutagenic?

No

The chemical is not a non-threshold based genotoxic carcinogen.

Notations

Source	Notations
SWA	—
HCIS	NA
NICNAS	NA
EU Annex	NA
ECHA	—
ACGIH	—
DFG	NA
SCOEL	NA
HCOTN	—
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:

Dermal LD₅₀ ≤ 1000 mg/kg: no

Dermal repeat-dose NOAEL ≤ 200 mg/kg:

Dermal LD₅₀/Inhalation LD₅₀ < 10:

In vivo dermal absorption rate > 10%:

Estimated dermal exposure at WES > 10%:

a skin notation is not warranted

IDLH

Is there a suitable IDLH value available?

No



Additional information

Molecular weight:	86.13
Conversion factors at 25°C and 101.3 kPa:	1 ppm = 3.5 mg/m ³ ; 1 mg/m ³ = 0.28 ppm
This chemical is used as a pesticide:	<input type="checkbox"/>
This chemical is a biological product:	<input type="checkbox"/>
This chemical is a by-product of a process:	<input type="checkbox"/>
A biological exposure index has been recommended by these agencies:	<input type="checkbox"/> ACGIH <input type="checkbox"/> DFG <input type="checkbox"/> 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](#) on the ACGIH website.

Health Council of the Netherlands (HCOTN) (2004) Pentan-3-one. Health-based calculated occupational cancer risk values. The Hague: Health Council of the Netherlands; publication no. 2000/15OSH/107.