



## DIPROPYL KETONE

**CAS number:** 123-19-3

**Synonyms:** 4-Heptanone, Di-*n*-propyl ketone, DPK

**Chemical formula:** C<sub>7</sub>H<sub>14</sub>O

### Workplace exposure standard (retained)

**TWA:** 50 ppm (233 mg/m<sup>3</sup>)

**STEL:** —

**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 (233 mg/m<sup>3</sup>) is recommended to protect for irritation and, at higher concentrations, central nervous system (CNS) depression in exposed workers.

### Discussion and conclusions

Dipropyl ketone is used as a solvent and in food flavourings.

As with other ketones, critical effects are irritation of the eyes, skin and mucous membranes. At higher concentrations, narcosis and slight liver damage are reported in rats (ACGIH, 2018).

The available dataset is limited to acute and subchronic animal inhalation or oral dose studies, which indicate a similar toxicity to methyl isopropyl ketone (ACGIH, 2018). The available data indicate that acute irritational effects occur at 400 ppm and marked CNS depression at 825 ppm (ACGIH, 2018; HCOTN, 2000).

The current TWA of 50 ppm sourced from (ACGIH (2018) is considered protective of these effects and is recommended to be retained.

### 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
<b>SWA</b>	<b>1991</b>	<b>TWA: 50 ppm (233 mg/m<sup>3</sup>)</b>
<b>ACGIH</b>	<b>2001</b>	<b>TLV-TWA: 50 ppm (233 mg/m<sup>3</sup>)</b>
<p>TLV-TWA intended to protect for irritation of the eyes, skin and mucous membranes, narcosis and liver toxicity.</p> <p>Summary of data:</p> <p>TLV-TWA recommended by analogy to structurally related methyl isobutyl ketone with comparable irritational toxic endpoints.</p> <p>Human data:</p> <ul style="list-style-type: none"> <li>None presented.</li> </ul> <p>Animal data:</p> <ul style="list-style-type: none"> <li>Oral LD<sub>50</sub>: 3,050 mg/kg (rats); &gt;3,200 mg/kg (mice)</li> <li>LC<sub>50</sub>: 2,690 ppm (rats, 6 h): <ul style="list-style-type: none"> <li>decreased respiration at 400 ppm, CNS depression at 825 ppm, and narcosis at 1,600 ppm</li> <li>irritation to eyes, skin, and mucous membranes observed in all animals</li> </ul> </li> <li>Decreased response to stimulation at 1,200 in repeat inhalation study (unspecified species, 6 h, 5 d/wk, 2 wk): <ul style="list-style-type: none"> <li>marginal liver enlargement reported, but no changes to haematological, clinical, or pathological parameters noted</li> </ul> </li> <li>No data on carcinogenicity or mutagenicity presented.</li> </ul> <p>Insufficient data to assign a TLV-STEL, nor notations for carcinogenicity, skin absorption and sensitisation.</p>		
<b>DFG</b>	<b>NA</b>	<b>NA</b>
No report.		
<b>SCOEL</b>	<b>NA</b>	<b>NA</b>
No report.		
<b>OARS/AIHA</b>	<b>NA</b>	<b>NA</b>
No report.		
<b>HCOTN</b>	<b>2000</b>	<b>TWA: 50 ppm (233 mg/m<sup>3</sup>)</b>
<p>Summary of additional information:</p> <p>Insufficient data available to comment on the justification of the existing administrative 8 h TWA of 50 ppm.</p> <p>Human data:</p> <ul style="list-style-type: none"> <li>None presented.</li> </ul> <p>Animal data:</p> <ul style="list-style-type: none"> <li>LD<sub>50</sub>: 4,624 mg/kg (rabbits, dermal)</li> </ul>		



Source	Year set	Standard
		<ul style="list-style-type: none"> <li>25–50% congestion in the lungs when a lethal dose of 817 mg/kg was introduced into lungs (rats, 24 h); some animals had blood clots in the heart</li> <li>Severe CNS depression and reduced bw gain at 2,000 mg/kg in repeat gavage study (rats, 5 d/wk, unspecified duration): <ul style="list-style-type: none"> <li>lethal cardiorespiratory failure reported for 1 rat</li> <li>reduction of exposure to 1,000 mg/kg reversed bw loss and adverse clinical effects over 12 wk; liver and kidney damage reported, haematological parameters were normal except for reduced glucose level</li> <li>study is unpublished and insufficiently documented to be used in agency's assessment.</li> </ul> </li> <li>No data on carcinogenicity or mutagenicity presented.</li> </ul>

## 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	—
HCIS	—
NICNAS	NA
EU Annex	—
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

Insufficient data to assign a skin notation.

### IDLH

Is there a suitable IDLH value available? No

### Additional information

Molecular weight:	114.19
Conversion factors at 25°C and 101.3 kPa:	1 ppm = 4.66 mg/m <sup>3</sup> ; 1 mg/m <sup>3</sup> = 0.215 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 7<sup>th</sup> Edition Documentation, CD-ROM, Single User Version. Copyright 2018. Reprinted with permission. See the [TLVs® and BEIs® Guidelines section](#) on the ACGIH website.

European Chemicals Agency (ECHA) (2019) Dipropyl ketone – REACH assessment.

Health Council of the Netherlands (HCOTN) (2000) Dipropyl ketone. Health-based calculated occupational cancer risk values. The Hague: Health Council of the Netherlands; publication no. 2000/15OSH/005.