# o-sec-Butylphenol

| CAS number: | 89-72-5 |
| --- | --- |
| Synonyms: | 2-sec-butylphenol, 2-(1-methylpropyl)phenol,  o-sec-butylphenol, phenol,o-sec-butyl |
| Chemical formula: | C10H14O |
| Structural formula: | — |

Workplace exposure standard (interim)

| TWA: | **5 ppm (31 mg/m3)** |
| --- | --- |
| STEL: | **—** |
| Peak limitation: | **—** |
| Notations: | **Sk.** |
| 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 5 ppm (31 mg/m3) is recommended to protect for respiratory irritation and skin corrosion in exposed workers.

Given the limited data available from the primary sources, it is recommended that a review of additional sources be conducted at the next scheduled review.

## Discussion and conclusions

O-sec-butylphenol is used as a chemical intermediate in resins, plasticisers and surface-active agents. Phenols and cresols are considered similar analogues for toxicity.

The critical effect is irritation of the respiratory tract and skin. However, limited toxicological evidence exists for humans and animals. As such, the ACGIH have based the recommendation for the TLV‑TWA by analogy to phenol and cresol (ACGIH, 2018).

It is recommended that the current TWA be retained in the interim and that a review of additional data sources be carried out at the next scheduled review. The recommended TWA is sufficiently low to minimise the potential for respiratory irritation and skin burns 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.

A skin notation is recommended based on dermal uptake data in animals.

# Appendix

### Primary sources with reports

| Source Year set Standard |
| --- |
| SWA 1991 TWA: 5 ppm (31 mg/m3) | |
|  |
| ACGIH 2001 TLV-TWA: 5 ppm (31 mg/m3) |
| TLV-TWA recommended to minimise the potential for respiratory irritation and skin burns.  Summary of data:  Human data:   * Acute exposure results in skin burns and mild respiratory irritation (no further information).   Animal data:   * LD50: 0.6–2.4 g/kg (guinea pigs, oral and dermal) * LD50: 2.7 g/kg (rats, oral) * LD50: 63 mg/kg (rats, ip) * LD50: 60 mg/kg (rats, iv) * 24 h dermal exposure (500 mg) in rabbits reported severe burns * 7 h exposure to a saturated vapour atmosphere (rats), no fatalities.   TVL-TWA recommendation primarily by analogy to phenol and cresol; noting the properties of alkyl benzene derivatives change depending on the number and length of alkyl groups.  Insufficient data to assign a carcinogen or sensitiser notation. |
| DFG NA NA |
| No report. |
| SCOEL NA NA |
| No report. |
| OARS/AIHA NA NA |
| No report. |
| HCOTN 2002 TWA: 5 ppm (30 mg/m3) |
| Insufficient information available.  Summary of additional data:   * LC50: 1,810 mg/m3 (rats, 4 h) * LD50: 0.32 g/kg (rats, oral) * LD50: 5.56 g/kg bw (rabbits, dermal) * Negative mutagenicity results in several strains of *S. typhimurium* with and without metabolic activation * No information on the derivation of value presented * Insufficient data to assign a carcinogen or sensitiser notation. |

### 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 | NA |
| HCIS | NA |
| NICNAS | NA |
| EU Annex | NA |
| ECHA | NA |
| ACGIH | Skin |
| DFG | NA |
| SCOEL | NA |
| HCOTN | Skin |
| 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: | yes | 3.00 |  |  | | Dermal repeat-dose NOAEL ≤200 mg/kg: |  |  |  |  | | Dermal LD50/Inhalation LD50 <10: |  |  |  |  | | *In vivo* dermal absorption rate >10%: |  |  |  |  | | Estimated dermal exposure at WES >10%: |  |  |  |  | |  |  | 3 | **consider assigning a skin notation** | | |

### IDLH

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

## Additional information

| Molecular weight: | 150.24 |
| --- | --- |
| Conversion factors at 25°C and 101.3 kPa: | 1 ppm = Number mg/m3; 1 mg/m3 = Click or tap here to enter text. 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.

Health Council of the Netherlands (HCOTN) (2002) 2-sec-Butylphenol. Health-based reassessment administrative occupational exposure limit. The Hague: Health Council of the Netherlands; publication no. 2000/15OSH/044.