# Metribuzin

| CAS number: | 21087-64-9 |
| --- | --- |
| Synonyms: | 4-Amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5(4H)-one, Bayer 94337. Lexone, Sencor |
| Chemical formula: | C8H14N4OS |
| Structural formula: | — |

Workplace exposure standard (retained)

| TWA: | **5 mg/m3** |
| --- | --- |
| 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 5 mg/m3 is recommended to protect for potential liver, kidney and blood effects in exposed workers.

## Discussion and conclusions

Metribuzin is used as a herbicide to control grasses and broad-leaf weeds infesting food and grain crops.

Critical effects of exposure include liver effects and kidney and blood changes.

Toxicological data are very limited and no human inhalation exposure data are available. Patch testing showed no irritation or dermal sensitisation in humans. A NOEL of 100 ppm (878 mg/m3) is reported in a two‑year feeding study in rats and dogs. A NOAEC of 31 mg/m3 is reported ina three week sub-chronic inhalation study in rats (ACGIH, 2018).

A TWA of 5 mg/m3 is recommended, consistent with ACGIH (2018). The recommended TWA is protective of potential liver, kidney and blood 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: 5 mg/m3 | |
|  |
| ACGIH 2001 TLV-TWA: 5 mg/m3 |
| TLV-TWA recommended to minimise potential liver effects and kidney and blood changes in exposed workers (no further information on derivation of TLV-TWA).  Summary of data:  Human data:   * No irritation or dermal sensitisation in patch tests * No cases of poisoning reported.   Animal studies:   * Low acute toxicity * LD50: 1,090–5,000 mg/kg (male and female rats, oral) * LD50: 245 mg/kg (male guinea pigs, oral); 274 mg/kg (female guinea pigs, oral) * LD50: >2,000 mg/kg (rats and rabbits, dermal) * Very slight eye and dermal irritant in rabbits and no sensitisation effect in guinea pigs * Single, high doses showed CNS depression effects; no information on doses, animal model and route of exposure * Repeat, high doses caused thyroid effects and stimulation of metabolising enzymes in the liver; no information on doses, animal model and route of exposure * NOAEC of 31 mg/m3 in rats exposed for 3 wk, inhalation, 6 h/d, 5 d/wk; no further information * NOEL: 100 ppm (rats and dogs, oral, 2 yr); no further information * No tumours reported in long-terms studies with rats, mice and dogs * Not mutagenic.   Insufficient data to recommend skin or SEN notations or TLV-STEL. |
| DFG NA NA |
| No report. |
| SCOEL NA NA |
| No report. |
| OARS/AIHA NA NA |
| No report. |
| HCOTN NA NA |
| No report. |

### Secondary source reports relied upon

| Source |  | Year | Additional information |
| --- | --- | --- | --- |
| NICNAS |  |  | * Excluded from assessment due to its agricultural use. |
| US EPA |  | 1987 | * NOEL: 800 ppm (mice, 2 yr oncogenic study). |
| ECHA |  | 2019 | * No additional data. |

### 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 | — |
| NICNAS | NA |
| EU Annex | NA |
| ECHA | NA |
| ACGIH | Carcinogenicity – A4 |
| 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 |
| --- |

### IDLH

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

## Additional information

| Molecular weight: | 214.29 |
| --- | --- |
| 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.

European Chemicals Agency Regulation (ECHA) (2019) Metribuzin (ISO) Infocard.

US Environmental Protection Authority (US EPA) (1987) Integrated Risk Information System (IRIS) Chemical Assessment Summary – Metribuzin.