# Ammonium sulfamate

| CAS number: | 7773-06-0 |
| --- | --- |
| Synonyms: | Ammate, ammonium sulphamidate, ammonium sulphamate |
| Chemical formula: | NH4SO3NH2 |
| Structural formula: |  |

Workplace exposure standard (retained)

| TWA: | **10 mg/m3** |
| --- | --- |
| STEL: | **—** |
| Peak limitation: | **—** |
| Notations: | **—** |
| IDLH: | **1,500 mg/m3** |
| Sampling and analysis: | The recommended value is readily quantifiable through currently available sampling and analysis techniques. |

## Recommendation and basis for workplace exposure standard

A TWA of 10 mg/m3is recommended to protect for potential irritant effects in exposed workers.

## Discussion and conclusions

Ammonium sulfamate is commonly used as a broad-spectrum herbicide. Limited data from both human and animal studies indicate negligible acute, chronic and dermal toxicity (ACGIH, 2001).

No inhalational toxicity data is currently available (NIOSH, 1994). Available data consists of oral dose studies in animals (NIOSH, 1994).

Based on the available data, the critical effects of exposure to ammonium sulfamate are unclear. The current TWA is recommended to be retained based on data available from the ACGIH (2018) supported by evidence from the US EPA (1989) and NIOSH (1994) to limit irritant effects.

## 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 not recommended as there is no indication of systemic effects resulting from skin absorption.

# Appendix

### Primary sources with reports

| Source Year set Standard |
| --- |
| SWA Year TWA: 10 mg/m3 | |
|  |
| ACGIH 2001 TLV-TWA: 10 mg/m3 |
| TLV-TWA recommended to minimise the potential for irritation.  Summary of data:   * Low acute, chronic and dermal toxicity * Insufficient data available to recommend skin, sensitiser or carcinogenicity notations * Insufficient data to derive TLV-STEL.   Human studies:   * No irritation following repeat application to skin on arm in 5 subjects (5 d, 4% solution; solvent and concentration expression not specified).   Animal studies:   * Oral LD50: 3,900 mg/kg (rats); 5,760 mg/kg (mice); no further information * Intraperitoneal injection of 800 mg/kg caused death in 6/10 rats; effects noted as stimulation of respiration followed by prostration * No effect in continuous feeding study (1% diet, rats, 105 d) * growth inhibition noted in analogous study (2% diet, rats, duration unspecified) * No irritation or signs of toxicity following repeat application to shaven skin (20% and 50% solutions rats); concentration expression, frequency and duration unspecified. |
| DFG 2018 NA |
| Listed as substance for which no MAK value can be established at present. |
| SCOEL NA NA |
|  |
| OARS/AIHA NA NA |
|  |
| HCOTN NA NA |
|  |

### Secondary source reports relied upon

| Source |  | Year | Additional information |
| --- | --- | --- | --- |
| US EPA |  | 1989 | Summary of studies used to derive oral reference dose (RfD):   * NOAEL of 214.3 mg/kg/d and LOAEL of 428.6 mg/kg/d in continuous feeding study (rats, 90 d, 6 d/wk, measured by bw) * study noted reduced food intake and increased water intake in high dose group (428.6 mg/kg/d) * no significant change in relative organ weights indicated * Reproductive NOAEL: 500 ppm, 25 mg/kg/d (rats, 3 generations) * No systemic effects observed in continuous feeding study with dogs (1000 mg/d, 6 d). |
| US NIOSH |  | 1994 | * TWA of 10 mg/m3 (total dust) and 5 mg/m3 (respirable dust) * No short-term exposure guideline developed * IDLH: 1,500 mg/m3 based on acute oral toxicity data in animals, no inhalational toxicity data available * Summary of studies used to derive IDLH level: * LD50: 2,000 mg/kg (rats, no further information) * LD50: 3,100 mg/kg (mice, no further information) * LD50: 3,900 mg/kg (rats, no further information) * LD50: 5,760 mg/kg (mice, no further information). |

### 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 | NA |
| ACGIH | — |
| DFG | — |
| SCOEL | NA |
| HCOTN | NA |
| IARC | NA |
| US NIOSH | — |

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: | 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? | Yes |
| --- | --- |

## Additional information

| Molecular weight: | 114.13 |
| --- | --- |
| 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.

Deutsche Forschungsgemeinschaft (DFG) (2018) List of MAK and BAT Values 2018: Permanent Senate Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area. Report 54

US Environmental Protection Agency (US EPA) (1989) IRIS chemical assessment summary – Ammonium sulfamate

US National Institute for Occupational Safety and Health (NIOSH) (1994) Immediately dangerous to life or health concentrations – Ammonium sulfamate.