

AMMONIUM SULFAMATE

CAS number: 7773-06-0

Synonyms: Ammate, ammonium sulphamidate, ammonium sulphamate

Chemical formula: $\text{NH}_4\text{SO}_3\text{NH}_2$

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/m³ is 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
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[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.

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.