DIMETHYLAMINOETHANOL

CAS number: 108-01-0

Synonyms: 2-(Dimethylamino)ethanol, deanol

Chemical formula: $C_4H_{11}O$

Structural formula: —

Workplace exposure standard (retained)

TWA: **2 ppm (7.4 mg/m^3)**

STEL: **6 ppm (22 mg/m^3)**

Peak limitation: **—**

Notations: **DSEN**

IDLH: **—**

Sampling and analysis: The recommended value is quantifiable through available sampling and analysis techniques.

Recommendation and basis for workplace exposure standard

The TWA of 2 ppm (7.4 mg/m^3) is recommended to protect for irritation of the eyes, nose and upper airways in exposed workers.

The STEL of 6 ppm (22 mg/m^3) is recommended to protect for acute irritation of the eyes, nose and upper airways in acutely exposed workers.

Discussion and conclusions

Dimethylaminoethanol is used as a component of adhesives and binding agents, and in colouring agents in commercial and domestic products.

Very limited toxicological data exists. Critical effects are irritation and repeated exposure to vapours may cause transient eye effects. A case report states that a spray painter suffered from respiratory symptoms including wheezing and dyspnoea. A 13 week inhalation study in rats identified a NOAEC of 8 ppm for local effects on the eye (NICNAS, 2013).

There is sufficient evidence to retain the TWA and STEL as it is considered adequately protective.

Recommendation for notations

Not classified as a carcinogen according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Classified as a skin sensitiser but not respiratory sensitiser according to the GHS.

A skin notation is not recommended based on evidence in animals.

APPENDIX

Primary sources with reports

Source	Year set	Standard
SWA	***1991***	***TWA: 2 ppm (7.4 mg/m^3); STEL: 6 ppm (22 mg/m^3)***
ACGIH	***NA***	***NA***
No report.		
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	✓	2013	Used as a component of adhesives and binding agents, and in colouring agents in commercial and domestic products; used in cosmetic products. Human data: • Case report states that a spray painter suffered from respiratory symptoms including wheezing and dyspnoea. Animal data: • NOAEC for systemic effects was 24 ppm • NOAEC of 8 ppm for local effects on the eye; rats exposed 6 h/d, 5 d/wk for 13 wk • LD_{50}: 1,220 mg/kg (rabbits, dermal). Critical effect is corrosive nature and irritation; repeated exposure to vapours may cause transient eye effects. Not considered genotoxic.

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	Skin sensitisation – category 1
NICNAS	Skin sensitisation
EU Annex	NA
ECHA	—
ACGIH	NA
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

Calculation	
Adverse effects in human case study:	
Dermal LD_{50} ≤1000 mg/kg:	no
Dermal repeat-dose NOAEL ≤200 mg/kg:	
Dermal LD_{50}/Inhalation LD_{50} <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?	No

Additional information

Molecular weight:	89.14
Conversion factors at 25°C and 101.3 kPa:	1 ppm = Number mg/m^3; 1 mg/m^3 = 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* on the ACGIH website.

National Industrial Chemicals Notification and Assessment Scheme (NICNAS) (2013) Ethanol, 2-(dimethylamino)-: Human health tier II assessment – IMAP report.