

GLYCERIN MIST

CAS number: 56-81-5

Synonyms: Propane-1,2,3-triol, 1,2,3-propanetriol, glycerol, glycerine

Chemical formula: $C_3H_8O_3$

Structural formula: —

Workplace exposure standard (retained)

TWA: 10 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 10 mg/m³ is recommended to protect for local effects in the throat 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

Glycerin is widely used in the food, pharmaceutical and lubricant industries and is also a major component e-cigarette liquid.

Limited toxicological data are available from primary sources. Critical effects of exposure are nonspecific local effects to the throat and the potential for systemic effects. A LOAEL of approximately 1,500 mg/kg/day is reported in humans for an increase in plasma triglycerides. In rats, a NOAEC of 662 mg/m³ for local (effects on the epiglottis) and systemic effects were identified in a 13-week inhalation study. There was no increase in the incidence and severity of effects between two-week exposure at 1,000 mg/m³ and the 13-week exposure at 662 mg/m³. Glycerin was not found to be irritating to the eye in rabbits (DFG, 2016).

The current TWA of 10 mg/m³ is recommended to be retained to limit local effects in the throat and potential systemic effects as described by the DFG (2016). Given the limited data from primary sources, it is recommended that a review of additional data sources be conducted at the next scheduled review.

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.

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APPENDIX

Primary sources with reports

Source	Year set	Standard
SWA	1991	TWA: 10 mg/m³
ACGIH	NA	NA
No report.		
DFG	2015	MAK: 200 mg/m³
<p>The MAK is recommended based on local effects in the larynx.</p> <p>Summary of data:</p> <p>Human data:</p> <ul style="list-style-type: none"> • LOAEL of approximately 1,500 mg/kg/d for increased plasma triglycerides; no further information. <p>Animal data:</p> <ul style="list-style-type: none"> • NOAEC 662 mg/m³ in rats for local and systemic effects; 6 h/d, 5 d/wk for 13 wk: <ul style="list-style-type: none"> ◦ no increase in the incidence and severity of the effects between 2 wk exposure (1,000 mg/m³) and the 13 wk exposure (662 mg/m³) • Slight but statistically significant increase in squamous metaplasia of the epiglottis; not regarded as adverse • NOAEC: 3,910 mg/m³ in rats for local and systemic effects; 6 h/d, 5 d/wk for 2 wk • Not irritating or, only very slightly irritating to the eye based on tests in rabbits. <p>MAK based on half the NOAEC of 662 mg/m³ and rounded according to DFG methodology; 200 mg/m³; at such high concentrations, annoyance and the formation of mists at the workplace could occur.</p>		
SCOEL	NA	NA
No report.		
OARS/AIHA	NA	NA
No report.		
HCOTN	NA	NA
No report.		

Secondary source reports relied upon

NIL.

Carcinogenicity — non-threshold based genotoxic carcinogens

Is the chemical mutagenic?

No

The chemical is a non-threshold based genotoxic carcinogen.

Notations

Source	Notations
SWA	—
HCIS	NA
NICNAS	NA
EU Annex	NA
ECHA	NA
ACGIH	NA
DFG	—
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

Insufficient data to recommend a skin notation.

IDLH

Is there a suitable IDLH value available? No

Additional information

Molecular weight:	92.09
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:	<input type="checkbox"/>
This chemical is a biological product:	<input type="checkbox"/>
This chemical is a by-product of a process:	✓
A biological exposure index has been recommended by these agencies:	<input type="checkbox"/> ACGIH <input type="checkbox"/> DFG <input type="checkbox"/> SCOEL



Workplace exposure standard history

Year	Standard
Click here to enter year	

References

Deutsche Forschungsgemeinschaft (DFG) (2016) Glycerin – MAK value documentation.

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