CHLOROACETONE

CAS number:	78-95-5
Synonyms:	Chloropropanone, acetonyl chloride, 1-chloro-2-propanone, monochloroacetone
Chemical formula:	C_3H_5ClO
Structural formula:	

Workplace exposure standard (retained)

TWA:	**—**
STEL:	**—**
Peak limitation:	**1 ppm (3.8 mg/m^3)**
Notations:	**Sk.**
IDLH:	**—**
Sampling and analysis:	The recommended value is quantifiable through available sampling and analysis techniques.

Recommendation and basis for workplace exposure standard

A peak limitation of 1 ppm (3.8 mg/m^3) is recommended to protect for severe eye, skin and respiratory tract irritation in exposed workers.

Discussion and conclusions

Chloroacetone is used in colour photography and is a common intermediate in chemical manufacturing.

Limited exposure data are available. Observations following acute exposures in humans report immediate and severe irritation of the eyes skin and respiratory tract. Symptoms of lacrimation are reported at approximately 5 ppm. Exposure at 26 ppm is reported as intolerable after one minute. Even small amounts in the eyes can result permanent damage.

Based on the critical effect being immediate and severe the current peak limitation of 1 ppm (3.8 mg/m^3) is recommended.

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 recommended as evidence indicates adverse effects associated with dermal exposure in humans and animals.

APPENDIX

Primary sources with reports

Source	Year set	Standard
SWA	***1991***	***Peak limitation: 1 ppm (3.8 mg/m³)***
ACGIH	***2001***	***TLV-Ceiling: 1 ppm (3.8 mg/m³)***
TLV-Ceiling recommended to reduce the potential for irritation of the eyes, skin and respiratory tract in acutely exposed workers. Summary of data: Human data: • Highly irritating vapour with symptoms of lacrimation reported at ≈5 ppm, followed by irritation of upper respiratory tract and a burning sensation on exposed skin • Permanent damage to eyes reported following exposure to 'small amounts' • No pulmonary oedema reported at low concentrations • Exposure to 26 ppm intolerable after 1 min • Lethality reported at 605 ppm for 10 min. Animal data: • LD_{50}: 141 mg/kg (rabbits, dermal) • LC_{50}: 262 ppm (rats, 1h) • Tumour initiator in mouse skin when treated subsequently with croton oil (dose not stated; 1947 – no additional studies reported) • Negative results in bacterial mutagenicity tests • One study reported increase in frequency of sex-linked recessive lethal alleles in *Drosophila* exposed by inhalation • Dermal exposure to hot liquid (concentration not stated) immediately irritating, followed by blistering starting after 8 h with exposed area completely blistered after 24 h ○ all effects reversible within 7 d • Sufficient data not available to recommend carcinogenicity or sensitisation notations.		
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

NIL.

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	Skin
HCIS	NA
NICNAS	NA
EU Annex	NA
ECHA	—
ACGIH	Skin
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:	yes
Dermal LD_{50} ≤1000 mg/kg:	yes
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 warranted

IDLH

Is there a suitable IDLH value available?	No

Additional information

Molecular weight:	92.52
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
1991	Peak limitation: 1 ppm (3.8 mg/m^3)

References

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