# Chloroacetone

| CAS number: | 78-95-5 |
| --- | --- |
| Synonyms: | Chloropropanone, acetonyl chloride, 1-chloro-2-propanone, monochloroacetone |
| Chemical formula: | C3H5ClO |
| Structural formula: |  |

 Workplace exposure standard (retained)

| TWA: | **—** |
| --- | --- |
| STEL: | **—** |
| Peak limitation: | **1 ppm (3.8 mg/m3)** |
|  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/m3) 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/m3) 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:* LD50: 141 mg/kg (rabbits, dermal)
* LC50: 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 | 4.00 |   |   |
| Dermal LD50 ≤1000 mg/kg: | yes | 3.00 |   |   |
| Dermal repeat-dose NOAEL ≤200 mg/kg: |   |   |   |   |
| Dermal LD50/Inhalation LD50 <10: |   |   |   |   |
| *In vivo* dermal absorption rate >10%: |   |   |   |   |
| Estimated dermal exposure at WES >10%: |   |   |   |   |
|   |   | 3 | **a skin notation is warranted** |

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### 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/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 |
| --- | --- |
| 1991 | Peak limitation: 1 ppm (3.8 mg/m³) |

## References

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