# Diglycidyl resorcinol ether

| CAS number: | 101-90-6 |
| --- | --- |
| Synonyms: | NCI-C54966, RDGE, DGRE,  resorcinol diglycidyl ether, resorcinol glycidyl ether |
| Chemical formula: | C12H14O4 |
| Structural formula: | — |

Workplace exposure standard (interim)

| TWA: | **—** |
| --- | --- |
| STEL: | **—** |
| Peak limitation: | **—** |
| Notations: | **Carc. 2, DSEN** |
| IDLH: | **10 ppm** |
| **Sampling and analysis:** **N/A** | |

## Recommendation and basis for workplace exposure standard

A TWA is not recommended due to insufficient data.

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

Diglycidyl resorcinol ether is used in a variety of commercial products such as adhesives, surface treatments, paints and varnishes, and in construction materials (NICNAS, 2015).

Critical effects include severe skin irritation on contact and sensitisation in humans. Contact with mucous membranes of the eye caused severe irritation in rabbits. Positive result for mutagenicity in adequately conducted assays (DFG, 2005; HCOTN, 1999)

Evidence in animals suggest that carcinogenicity may act through a mutagenic mechanism and DFG (2005) note it is a proven genotoxic carcinogen. However, the cancers reported in animals are not relevant for humans and there is a lack of data available to confirm this effect in humans through the inhalational route. Therefore, it is unclear if a non-threshold mechanism for cancer is a critical effect in recommending a TWA. A review of additional data sources is recommended at the next scheduled review.

## Recommendation for notations

Classified as a category 2 carcinogen according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

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

There are insufficient data to recommend a skin notation.

# Appendix

### Primary sources with reports

| Source Year set Standard |
| --- |
| SWA NA NA | |
| No report. |
| ACGIH NA NA |
| No report. |
| DFG 2005 Not assigned |
| No MAK recommended as substance is a proven genotoxic carcinogen.  Summary of data:  Human data:   * Limited data in humans * Contact causes severe skin irritation and sometimes sensitisation in humans.   Animal data:   * LD50: 980 mg/kg (mice, oral) * Contact with mucous membranes of the eye caused severe irritation in rabbits * High incidence of papillomas and carcinomas in the forestomach of rats and mice after 103 wk oral administration.   Positive for mutagenicity in *S. typhimurium*, L5178Y mouse lymphoma and *Drosophila melanogaster*. |
| SCOEL NA NA |
| No report. |
| OARS/AIHA NA NA |
| No report. |
| HCOTN 1999 Not assigned |
| Insufficient data to estimate the additional cancer risk and therefore a TWA.   * Review referred to DFG (2005) with no additional data located * No inhalation carcinogenicity studies available * LOAEL inducing a statistically significant increase in forestomach tumours was 12 mg/kg/d in rats. |

### Secondary source reports relied upon

| Source |  | Year | Additional information |
| --- | --- | --- | --- |
| NICNAS |  | 2015 | * Used in adhesives, surface treatments, paints and varnishes, and in construction materials * Dermal penetration is expected to be very low (<1%) * Reported to not be a skin sensitiser in Dunkin-Hartley albino guinea pigs * Critical health effects include systemic long-term effects (potential carcinogenicity and mutagenicity) and local effects (skin sensitisation). |

### Carcinogenicity — non-threshold based genotoxic carcinogens

| Is the chemical mutagenic? | Yes |
| --- | --- |
| Is the chemical carcinogenic with a mutagenic mechanism of action? | Insufficient data |
| **Insufficient data are available to determine if the chemical is a non-threshold based genotoxic carcinogen.** |  |

## Notations

| Source | Notations |
| --- | --- |
| SWA | NA |
| HCIS | Carcinogenicity – category 2, Skin sensitisation – category 1, |
| NICNAS | Carc. Cat 3, Skin sensitisation, |
| EU Annex | Carcinogenicity – category 2, Skin sensitisation – category 1 |
| ECHA | Carc. 2, Skin Sens. 1 |
| ACGIH | NA |
| DFG | Carcinogenicity – 2, H (skin), Sh (dermal sensitiser) |
| SCOEL | NA |
| HCOTN | Carcinogenicity – category 2, Skin sensitiser |
| IARC | Carcinogenicity – Group 2B |
| 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 assign a skin notation. |

### IDLH

| Is there a suitable IDLH value available? | Yes |
| --- | --- |

## Additional information

| Molecular weight: | 222.24 |
| --- | --- |
| 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 |
| --- | --- |
| 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*](http://www.acgih.org/tlv-bei-guidelines/policies-procedures-presentations) on the ACGIH website.

Deutsche Forschungsgemeinschaft (DFG) (2006) Diglycidylresorcinether – MAK value documentation.

European Chemicals Agency (ECHA) (2019) Diglycidyl resorcinol ether– REACH assessment.

Health Council of the Netherlands (HCOTN) (1999) Diglycidyl resorcinol ether (DGRE). Health-based calculated occupational cancer risk values. The Hague: Health Council of the Netherlands; publication no. 1999/09OSH.

International Agency for Research on Cancer (IARC) (1999) Diglycidyl resorcinol ether. IARC Monographs on the evaluation of the carcinogenic risk to humans.

National Industrial Chemicals Notification and Assessment Scheme (NICNAS) (2015) Diglycidyl resorcinol ether: Human health tier II assessment – IMAP report.

Tenth Adaptation to Technical Progress Commission Regulation (EU) No 2017/776 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures (the CLP Regulation).