# Oil mist, refined mineral

| CAS number: | 8012-95-1 |
| --- | --- |
| Synonyms: | Petroleum liquid, mineral oil, white oil, paraffin oil |
| Chemical formula: | — |
| Structural formula: | — |

Workplace exposure standard (interim)

| TWA: | **5 mg/m3** |
| --- | --- |
| STEL: | **—** |
| Peak limitation: | **—** |
| Notations: | **—** |
| IDLH: | **2,500 mg/m3** |
| **Sampling and analysis:** The recommended value is quantifiable through available sampling and analysis techniques. | |

## Recommendation and basis for workplace exposure standard

A TWA of 5 mg/m3 is recommended in the interim to limit adverse lung effects in exposed workers.

A review of additional data sources is recommended at the next scheduled review.

## Discussion and conclusions

Mineral oils are primarily used in the lubrication of motor vehicles. Mineral oils are also used in a variety of applications such as the cutting, grinding, drawing, rolling and press-forming of metals; as coolants; and as solvents in the printing industry.

Critical effects are adverse effects on the respiratory tract. Limited data exists; however, there may be possible carcinogenic effect in humans.

No loss in respiratory function reported in humans at a mean concentration of 3.7 mg/m3 and a maximum of 110 mg/m3. No effects reported in a five-year study where printer workers in pressrooms were exposed at 1 mg/m3 and total mist aerosol of 7 mg/m3 (SWA, 1991). No adverse effect reported in animals exposed to repeat six-hour daily exposures at 5 mg/m3. Some mineral oils have been linked to cancers of the skin and scrotum; carcinogenic effects maybe attributable to contaminants in the oil, such as polycyclic aromatic hydrocarbons and certain additives (SWA, 1991; US NIOSH, 1989).

Given the limited available data, the TWA of 5 mg/m3 is recommended to be retained in the interim to limit adverse effects. A review of additional data sources is recommended 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.

# Appendix

### Primary sources with reports

| Source Year set Standard |
| --- |
| SWA 1991 TWA: 5 mg/m3 | |
| Summary of data:  Human data:   * No loss in respiratory functions reported at a mean concentration of 3.7 mg/m3 and a maximal of 110 mg/m3 * 5 yr study on printers in pressrooms exposed to a respirable mist of 1.0 mg/m3 and total mist aerosol of 7mg/m3; no effects reported.   Animal data:   * Animals exposed for 12–26 mo at 100 mg/m3 of oil mist showed raised activity in lung and in serum of alkaline phosphatase enzymes * No effects in animals exposed at 5 mg/m3 for ~12–26 mo. |
| ACGIH NA NA |
| No report.  Adopted Documentation and TLVs were withdrawn for this chemical. |
| 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 |  | ND | * CAS number search returns: Paraffin oils: Human health tier I assessment * Mineral oil hydrocarbon solvent (petroleum); Liquid paraffin; Mineral oil (saturated paraffin oil); Paraffinic oil; White oil. |
| NTP |  | ND | * Report on Carcinogens, Fourteenth Edition for Mineral Oils: Untreated and Mildly Treated; no CAS assigned * Mineral oils include lubricant base oils and products derived from them * Untreated and mildly treated mineral oils are known to be human carcinogens based on sufficient evidence of carcinogenicity from studies in humans * An analysis of a series of 344 cases of scrotal cancer occurring from 1936 to 1976 in the West Midlands region of England reported that 62% of the men had been exposed to mineral oils. |
| US NIOSH |  | 1989 | * TWA of 5 mg/m3 to protect exposed employees against the significant risks of eye and respiratory tract irritation potentially associated with exposures to mineral oil mist * Studies in animals have shown repeated 6 h daily exposures to 5 mg/m3 caused no adverse effect * Some mineral oils have been linked to cancers of the skin and scrotum; carcinogenic effects maybe attributable to contaminants in the oil, such as polycyclic aromatic hydrocarbons and certain additives. |

### Carcinogenicity — non-threshold based genotoxic carcinogens

| Is the chemical mutagenic? | Insufficient data |
| --- | --- |
| 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 | — |
| HCIS | NA |
| NICNAS | NA |
| EU Annex | NA |
| ECHA | NA |
| 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 |
| --- |
| Insufficient data to assign a skin notation |

### IDLH

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

## Additional information

| Molecular weight: | — |
| --- | --- |
| 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.

National Toxicology Program (NTP) (2016) NTP-RoC: mineral oils: untreated and mildly treated.

US National Institute for Occupational Safety and Health (NIOSH) (1994) Immediately dangerous to life or health concentrations – oil mist (mineral).

US National Institute for Occupational Safety and Health (NIOSH) (1989) Criteria for a recommended standard: occupational exposure to oil mist.