# Cotton dust, raw

| CAS number: | — |
| --- | --- |
| Synonyms: | — |
| Chemical formula: | — |
| Structural formula: | — |

Workplace exposure standard (amended)

| TWA: | **0.1 mg/m3** |
| --- | --- |
| STEL: | — |
| Peak limitation: | — |
| Notations: | — |
| IDLH: | **100 mg/m3** |
| Sampling and analysis: | There is uncertainty regarding quantification of the recommended value with available sampling and/or analysis techniques. |

## Recommendation and basis for workplace exposure standard

A TWA of 0.1 mg/m3 is recommended to protect forbyssinosis and changes in lung function in exposed workers.

## Discussion and conclusions

Cotton dust is dispersed during the processing of cotton and cotton fibres and is associated with byssinosis and chronic lung effects. Byssinosis is a lung disease caused by cotton dust with intermittent symptoms of coughing, chest tightness, difficulty breathing and shortness of breath.

No effects in workers are reported at several concentrations. No effect on the rate of lung function decline is reported in textile workers exposed at 0.15 mg/m3, and very low prevalence of byssinosis and no effect on annual lung function decline is reported in non-smoking textile workers at 0.2 mg/m3. Another study reported no health effects in cotton textile workers exposed to 0.455 mg/m3. Accordingly, ACGIH recommended a TWA of 0.1 mg/m3 based on the studies of byssinosis and chronic lung function changes in workers (ACGIH, 2018).

Based on this evidence, a TWA of 0.1 mg/m3 is considered sufficiently low to minimise the potential for effects in the lungs of exposed workers.

## 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 2016 TWA: 0.2 mg/m3 | |
|  |
| ACGIH 2010 TLV-TWA: 0.1 mg/m3 (thoracic particulate matter) |
| TLV-TWA recommended to minimise potential for byssinosis and chronic lung function changes.  Summary of data:  Human data:   * Study in textile workers reported very low prevalence of byssinosis and no effect on annual FEV decline in non-smokers at 0.2 mg/m3 * A synergistic effect for cotton dust exposure and smoking on the annual decline in lung function is reported at 0.197 mg/m3 * no health effects reported at 0.455 mg/m3 * No effect on the rate of lung function decline observed in textile workers at 0.15 mg/m3 * No conclusive evidence of increased cancer risk in cotton dust workers.   Animal data:   * Report of acute airway response with bronchoconstriction, airway inflammation and “Monday” responses (first exposure after 2 d without exposure) in guinea pigs exposed at 16–24 mg/m3, 5 d/wk for 6 wk * Breathing rate and depth changes, with “Monday” reactions reported with exposure of guinea pigs at 21 mg/m3 for 6 h/d, 5 d/wk for 52 wk.   TLV-TWA based on studies of byssinosis and chronic lung function changes in workers.  Insufficient data to recommend skin or sensitiser notations or a TLV-STEL. |
| DFG 2002 MAK: 1.5 mg/m3 |
| MAK recommended to protect for byssinosis.  Summary of additional data:   * MAK set in 1973 based on correlation between total dust and the occurrence of byssinosis; no further relevant information provided in 2002 follow up assessment. |
| 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 | NA |
| HCIS | NA |
| NICNAS | NA |
| EU Annex | NA |
| ECHA | NA |
| ACGIH | Carcinogenicity – A4 |
| 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.

Deutsche Forschungsgemeinschaft (DFG) (2002) Baumwollstaub – MAK value documentation.

US National Institute for Occupational Safety and Health (NIOSH) (1994) Immediately dangerous to life or health concentrations – cotton dust (raw).