

SECTION I: FORMAL PETITION FOR RULEMAKING

1. Introduction and Executive Summary

Pursuant to California Labor Code Section 142.2, this petition respectfully requests that the Occupational Safety and Health Standards Board (OSHSB) initiate rulemaking to amend **Title 8, California Code of Regulations, Section 5155 (Table AC-1)**. The petitioner requests a reduction of the current **Permissible Exposure Limit (PEL) for wood dust from 2 mg/m³ to a health-based limit of 1 mg/m³** (measured as the inhalable fraction), applicable to all softwood and hardwood species.

While California's current standard was a historical step forward from federal guidelines, it no longer aligns with modern epidemiological data. Recent data establishes that a 2 mg/m³ limit leaves thousands of California workers vulnerable to severe, debilitating respiratory diseases, including work-related asthma (WRA), chronic bronchitis, and significantly reduced lung function (Section IV, 1). By lowering the PEL to 1 mg/m³, OSHSB will successfully capture severe non-malignant respiratory health hazards while aligning California with international best practices established by the **Health Council of the Netherlands**, ANSES (Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail) (**France**), and **AGS/BAuA** (Ausschuss für Gefahrstoffe/Bundesanstalt für Arbeitsschutz und Arbeitsmedizin)(**Germany**).

Wood Dust Exposure Impact on Worker Respiratory Health

[Current Cal/OSHA PEL: 2.0 mg/m³] ---> High rates of asthma & chronic bronchitis
[Proposed Cal/OSHA PEL: 1.0 mg/m³] ---> Significant reduction in respiratory disease
[Ideal Dutch Health Target: 0.1 mg/m³] ---> Lowest risk of chronic tract irritation (Section IV, 1)

2. Epidemiological Evidence: Severe Non-Malignant Respiratory Health Data

The core justification for lowering the PEL relies heavily on the documented prevalence of non-malignant respiratory illnesses among wood-processing workers even when exposures remain below 2 mg/m³. (Section IV, [Malo, J. L., & Vandenplas, O.], [Perez-Rios, M. et al.])

A. Work-Related Asthma (WRA)

Wood dust is a potent, globally recognized occupational sensitizer.

- **California-Specific Data:** Data from the California Department of Public Health (CDPH) Work-Related Asthma Prevention Program (WRAPP) identifies wood product manufacturing as the **5th highest rate of asthma of any industry in California**. (Section IV, 1) WRAPP has tracked hundreds of active cases directly linked back to workplace wood dust inhalation among carpenters, sawmill workers, and others.
- **Global Prevalence:** Peer-reviewed meta-analyses published via the National Institutes of Health (NIH) state that the **global prevalence of asthma among woodworkers ranges from 6% to 18% (Perez-Rios et al.)**, driven heavily by cumulative particulate exposure. Wood dust triggers an IgE-mediated immune response, inducing permanent bronchial hyper-responsiveness. Once a worker is sensitized, even microscopic exposures well under the current 2 mg/m³ threshold trigger severe, life-threatening asthma attacks.

B. Chronic Bronchitis and Chronic Obstructive Pulmonary Disease (COPD)

Continuous inhalation of fine wood particulates causes chronic mechanical and chemical irritation of the mucosal linings.

- **Dose-Response Declines:** A longitudinal, multi-year cohort study tracking woodworkers over a six-year period demonstrated that reducing wood dust exposure by 40% resulted in immediate, measurable drops in chronic coughing (by 4.9%) and **chronic bronchitis (by 2%)**. (**Schlünssen et al.**)
- **Elevated Risk Ratios:** Rigorous systematic reviews tracking occupational hazards show a clear, statistically significant correlation between wood dust inhalation and adult-onset chronic bronchitis (**Odds Ratio [OR] of 1.26**). Furthermore, data indicates a clear **OR of 1.13 to 1.43** for developing full-scale COPD directly tied to prolonged wood dust exposure, causing irreversible damage to the lower airways. (**Goldsmith & Shy**)
- **Spirometric Impairment:** Pulmonary function data reveals that workers exposed to wood dust exhibit steep, statistically significant drops in Forced Vital Capacity (FVC), Forced Expiratory Volume in 1 second (FEV1), and Peak Expiratory Flow Rates (PEFR) compared to unexposed control populations. (**Contreras & Chan-Yeung**)

3. International Scientific Benchmarks & Precedents

European regulatory frameworks utilize advanced health-risk assessments that demonstrate the necessity of a stricter standard:

- **Health Council of the Netherlands (DECOS):** The Dutch Expert Committee rejects arbitrary limits and establishes a health-based **Target Risk Level of 0.1 mg/m³** for inhalable dust to mitigate lifetime chronic respiratory tract irritation and nasal cancer.
- **ANSES (France):** Recognizing that broader European baselines were insufficient to curb respiratory diseases, France implemented a binding national occupational exposure limit of **1 mg/m³** for all inhalable wood dust.
- **AGS / BAuA (Germany):** Under the Technical Rules for Hazardous Substances (TRGS 900), Germany enforces a strict risk-acceptance framework. It heavily penalizes and restricts facilities that fail to lower workplace wood dust concentrations below an operational threshold of **1 mg/m³**.

4. Technical and Economic Feasibility

Lowering the PEL to 1 mg/m³ is entirely achievable utilizing the Hierarchy of Controls:

1. **Engineering Controls:** Modern wood-processing equipment is readily available with integrated, source-capture Local Exhaust Ventilation (LEV). Retrofitting existing machinery with optimized hoods and high-efficiency dust collection systems reliably suppresses airborne dust below 1 mg/m³.
2. **Administrative Practices:** Implementing strict prohibitions on using compressed air lines for housekeeping—shifting instead to HEPA-filtered industrial vacuums or wet sweeping—safely prevents the re-entrainment of fine particles into workers' breathing zones.

5. Conclusion and Request for Action

The scientific evidence is clear: California's workers face an elevated risk of asthma, occupational bronchitis, and permanent respiratory disability under the current 2 mg/m³ limit.

Therefore, the petitioner requests that the Board:

1. **Grant this petition** to initiate a formal review of Title 8, Section 5155 (Table AC-1).
2. **Draft a revised rule** establishing an 8-hour PEL of **1 mg/m³** for all wood dust fractions.

SECTION IV: BIBLIOGRAPHY AND REFERENCES CITED

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- **Health Council of the Netherlands (Gezondheidsraad).** (2026). [Wood Dust: Evaluation of Health Hazards as Basis for an Occupational Exposure Limit](#). Dutch Expert Committee on Occupational Safety (DECOS) [C4].

2. National Institutes of Health (NIH) / National Library of Medicine (PubMed) Peer-Reviewed Literature

- **Malo, J. L., & Vandenplas, O.** (2023). *Wood dust and asthma: Epidemiology, clinical determinants, and underlying mechanisms*. *Current Opinion in Allergy and Clinical Immunology*, 23(2), 75-81. National Center for Biotechnology Information (NCBI) PubMed ID: 36821481 [C4].
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- **Vandenplas, O., Campo, P., & Letterick, G.** (2023). *Wood dust, occupational sensitizers, and immunological mechanisms driving bronchial hyper-responsiveness*. *Journal of Occupational Medicine and Toxicology*, 18(4). National Center for Biotechnology Information (NCBI) PMC Archive PMCID: PMC9977320 [C8].
- **Contreras, G. R., & Chan-Yeung, M.** (1997). *Asthma, Bronchitis, and Chronic Obstructive Pulmonary Disease (COPD) in relation to specific species of wood dust exposure*. *American Journal of Industrial Medicine*, 32(3), 241-253. National Center for Biotechnology Information (NCBI) PubMed ID: 9470465 [C9].