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Heat Illness Prevention in Indoor Places of Employment

Heat Illness Prevention in Indoor Places of Employment

GENERAL INDUSTRY SAFETY ORDERS,
New Section 3396

Status	
Public hearing:	May 18, 2023
45-day comment period:	Mar. 31, 2023 - May 18, 2023
Filed with Secretary of State:	
Effective date:	

Rulemaking Documents









- [Notice / informative digest](#)

- [Notice of Informative Advice](#)
- [Proposed regulation](#)
- [Initial statement of reasons](#)

Documents Relied Upon

1. U.S. Supreme Court. American Textile Mfrs. Inst., Inc. v. Donovan, 452 U.S. 490 (1981). 452 U.S. 490.
<https://supreme.justia.com/cases/federal/us/452/490/> [↗](#)
2. Arbury S, Jacklitsch B, Farquah O, et al. Heat Illness and Death Among Workers – United States, 2012-2013. Centers for Disease Control and Prevention MMWR Morbidity and Mortality Weekly Report, August 8, 2014; 63(31):661-665. <https://www.cdc.gov/mmwr/pdf/wk/mm6331.pdf> [↗](#)
3. Bonauto D, Rauser E, Lim L. Occupational Heat Illness in Washington State, 2000-2009. April 2010. Safety & Health Assessment & Research for Prevention Program, Washington State Department of Labor & Industries; Technical Report Number 59-2-2010.
4. Bonauto D, Anderson R, Rauser E, and Burke B . Occupational Heat Illness in Washington State, 1995-2005. American Journal of Industrial Medicine, December 2007, 50(12),: 940-950.
<https://onlinelibrary.wiley.com/doi/10.1002/ajim.20517> [↗](#)
5. Department of Industrial Relations/Occupational Safety & Health Standards Board. Attachment to Economic and Fiscal Impact Statement (STD 399) for Heat Illness Prevention in Indoor Places of Employment. 2022.
6. Chapman CL, Johnson BD, Vargas NT, et al. Both hyperthermia and dehydration during physical work in the heat contribute to the risk of acute kidney injury. Journal of Applied Physiology. April 1, 2020; 128(4): 715-728. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7191500/> [↗](#)
7. Division of Workers' Compensation (DWC) email from Meitong Jin, DWC, to Amalia Neidhardt, Cal/OSHA, October 9, 2019.
8. Cal/OSHA Heat Illness Prevention in Indoor Places of Employment Advisory Committee Meetings. Meeting minutes including list of attendees. February 28, 2017 (<https://www.dir.ca.gov/dosh/doshreg/Heat-Illness-Prevention-Indoors/Minutes.2017-02-28.pdf>), May 25, 2017 (<https://www.dir.ca.gov/dosh/doshreg/Heat-Illness-Prevention-Indoors/Minutes-2017-05-25.pdf>), and February 8, 2018 (<https://www.dir.ca.gov/dosh/doshreg/Heat-Illness-Prevention-Indoors/Minutes-2018-02-08.pdf>)
9. Flouris AD, Dinas PC, Ioannou LG, et al. Workers' health and productivity under occupational heat strain: a systematic review and meta-analysis. The Lancet, Planetary Health. December 1, 2018; Volume 2, Issue 12, E521-E531. PMID: 30526938.

[https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(18\)30237-7/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(18)30237-7/fulltext) 

10. Gubernot DM, Anderson GB and Hunting KL. Characterizing Occupational Heat-Related Mortality in the United States, 2000-2010: An Analysis Using the Census of Fatal Occupational Injuries Database. *American Journal of Industrial Medicine*, February 2015; 58: 203-211. <https://onlinelibrary.wiley.com/doi/10.1002/ajim.22381> 
11. Hansen A, Pisaniello D, Varghese B, et al. What Can We Learn about Workplace Heat Stress Management from a Safety Regulator Complaints Database? *International Journal of Environmental Research and Public Health*, March 6, 2018, 15(3), 459. <https://doi.org/10.3390/ijerph15030459> 
12. Hansson E, Glaser J, Jakobsson K, et al. Pathophysiological Mechanisms by which Heat Stress Potentially Induces Kidney Inflammation and Chronic Kidney Disease in Sugarcane Workers. *Nutrients*. 2020; 12(6): 1639. <https://doi.org/10.3390/nu12061639> 
13. Heinzerling A, Law R, Frederick, M, et al. Risk factors for occupational heat-related illness among California workers, 2000-2017. *American Journal of Industrial Medicine*, December 2020; 63(12):1145-1154. <https://onlinelibrary.wiley.com/doi/10.1002/ajim.23191> 
14. Senate Bill (SB) 1167 Employment safety: indoor workers: heat regulations. Bill Analysis, June 20, 2016 - Assembly Labor and Employment. https://leginfo.ca.gov/faces/billAnalysisClient.xhtml?bill_id=201520160SB1167 
15. Maung Z, Tustin AW. The Heat Death Line: Proposed Heat Index Alert Threshold for Preventing Heat-Related Fatalities in the Civilian Workforce. *New Solutions: A Journal of Environmental and Occupational Health Policy*. August 2020;30(2):138-145. https://journals.sagepub.com/doi/10.1177/1048291120933819?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%20pubmed 
16. Mix J, Elon L, Vi Thien Mac V, et al. Hydration Status, Kidney Function, and Kidney Injury in Florida Agricultural Workers. *Journal of Occupational and Environmental Medicine*. May 2018; 60(5), e253-e260. <https://doi.org/10.1097/JOM.0000000000001261> 
17. Morris CE, Gonzales RG, Hodgson MJ, Tustin AW. Actual and simulated weather data to evaluate wet bulb globe temperature and heat index as alerts for occupational heat-related illness. *Journal of Occupational and Environmental Hygiene*. January 2019; 16(1):54-65. doi: 10.1080/15459624.2018.1532574. <https://pubmed.ncbi.nlm.nih.gov/30285564/> 
18. Moyce S, Mitchell D, Armitage T, et al. Heat strain, volume depletion and kidney function in California agricultural workers. *Occupational and*

environmental medicine. January 2017; 74, 402-409.

<https://doi.org/10.1136/oemed-2016-103848>

19. Nerbass FB, Pecoits-Filho R, Clark WF, et al. Occupational Heat Stress and Kidney Health: From Farms to Factories. *Kidney International Reports*. August 29, 2017; 2, 998-1008.
<https://doi.org/10.1016/j.ekir.2017.08.012>
20. Jacklitsch B, Williams WJ, Musolin K, et al. Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments: Revised Criteria 2016. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (NIOSH). February 2016; DHHS (NIOSH) Publication 2016-106. <https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf?id=10.26616/NIOSH PUB2016106I>
21. Occupational Safety and Health Review Commission (OSHRC). United States Postal Service OSHRC Docket No.: 16-1713. Page 48. July 29, 2020. https://www.oshrc.gov/assets/1/6/16-1713_Decision_and_Order_-_dated.pdf
22. United States Department of Labor, Federal OSHA Occupational Heat Exposure website. Overview: Working in Outdoor and Indoor Heat Environments. Accessed on September 27, 2021.
<https://www.osha.gov/SLTC/heatstress/>
23. Park J, Pankratz N., and Behrer AP. Temperature, Workplace Safety, and Labor Market Inequality. IZA Institute of Labor Economics, Discussion Paper No. 14560, July 2021. <https://ftp.iza.org/dp14560.pdf>
24. Peterson, M., Rising Heat is Making Workers Sick, Even Indoors. KQED, November 9, 2018. <https://www.kqed.org/science/1934110/rising-heat-is-making-workers-sick>
25. Presentation by Dr. Amy Heinzerling, California Department of Public Health. Risk Factors for Heat-Related Illness Among Workers – California, 2000-2017. 68th Annual EIS Conference, April 29, 2019.
26. Metz D, Prier S, Miller BM. RAND Corporation. Standardized Regulatory Impact Assessment (SRIA) of the Proposed California Regulation for Heat Illness Prevention in Indoor Places of Employment. September 2021. <https://dof.ca.gov/wp-content/uploads/sites/352/Forecasting/Economics/Documents/Indoor-Heat-Illness-Prevention-SRIA.pdf>
27. Tannis C. Letter to the editor: Heat illness and renal injury in mail and package delivery workers. *American Journal of Industrial Medicine* 63:1059-1061. August 24, 2020.
<https://onlinelibrary.wiley.com/doi/10.1002/ajim.23169>
28. Heat Illness Prevention Final Statement Of Reasons, Title 8 Section 3395 of the General Industry Safety Orders, page 6 of 67, Response to Comment #5. Permanent standard effective July 27, 2006.

29. Tustin AW, Lamson GE, Jacklitsch BL, et al. Evaluation of Occupational Exposure Limits for Heat Stress in Outdoor Workers – United States, 2011-2016. MMWR Morbidity and Mortality Weekly Report, July 6, 2018; 67(26):733-737. <http://dx.doi.org/10.15585/mmwr.mm6726a1> ↗
30. Wesseling C, Glaser J, Rodríguez-Guzmán J, et al. Chronic kidney disease of non-traditional origin in Mesoamerica: a disease primarily driven by occupational heat stress. Rev Panam Salud Publica. 2020; 44:e15. <https://doi.org/10.26633/RPSP.2020.15> ↗
31. Xiang J, Bi P, Pisaniello D, Hansen A. Health Impacts of Workplace Heat Exposure: An Epidemiological Review. Industrial Health 2014, 52, 91–101. Published online December 21, 2013. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4202759/pdf/indhealth-52-091.pdf> ↗
32. United States Department of Labor. Advance notice of proposed rulemaking (ANPRM), Heat Injury and Illness Prevention in Outdoor and Indoor Work Settings, Docket No. OSHA-2021-0009. 2021. <https://www.federalregister.gov/d/2021-23250> ↗
33. Phylmar Regulatory Roundtable. Written comments to California Division of Occupational Safety and Health. 2018. <https://dir.ca.gov/dosh/doshreg/Heat-Illness-Prevention-Indoors/Comments-4/Phylmar-Regulatory-Roundtable.pdf>

* Please contact OSHSB@dir.ca.gov to request a copy of the Advisory Committee handwritten attendance sheets.

Contact the [OSHSB Public Records Officer](#) to request any Documents Relied Upon.

Updated: March 2023

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