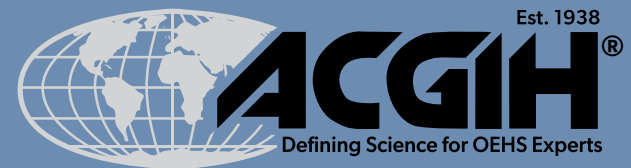


2023

Guide to Occupational Exposure Values

Compiled by
ACGIH[®]



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INTRODUCTION

The *Guide to Occupational Exposure Values* is a readily accessible reference for comparison of published values from ACGIH®; the U.S. Occupational Safety and Health Administration (OSHA); the U.S. National Institute for Occupational Safety and Health (NIOSH); Deutsche Forschungsgemeinschaft (DFG), Federal Republic of Germany, Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area; the American Industrial Hygiene Association (AIHA); and Occupational Alliance for Risk Science (OARS). Provided below are the sources of the values cited in this *Guide*, including publication dates, and the uniform resource locator (URL) if verified online (Reviewed 2019).

- ACGIH Threshold Limit Values (TLVs®) for Chemical Substances
 - *2023 TLVs® and BEIs®: Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*. ACGIH®, Cincinnati, OH (2023).
- OSHA Permissible Exposure Limits (PELs)
 - Occupational Safety and Health Administration (OSHA): Occupational Safety and Health Standards, Toxic and Hazardous Substances, Limits for Air Contaminants. Specified in Tables Z-1, Z-2, and Z-3. Title 29 CFR 1910.1000–1910.1200. Reviewed at: <https://www.osha.gov/dsg/annotated-pels/index.html>.
- NIOSH Recommended Exposure Limits (RELs)
 - NIOSH Pocket Guide to Chemical Hazards: Introduction. Available online at: <http://www.cdc.gov/niosh/npg/pgintrod.html> (Reviewed 2020).
 - See also: Ludwig HR; Cairelli SG; Whalen JJ (Eds): Documentation for Immediately Dangerous to Life or Health Concentrations (IDLH): Introduction. NTIS Pub. No. PB-94-195047 (1994). Available online at: <http://www.cdc.gov/niosh/idlh/idlintr.html>.
 - See also: Wittaker C; Rice F; McKernan L; et al.: Current intelligence bulletin 68: NIOSH chemical carcinogen policy. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (NIOSH), DHHS, Publication No. 2017-100 (2017). Available online at: <https://www.cdc.gov/niosh/docs/2017-100/pdf/2017-100.pdf>.
- DFG Maximum Concentrations at the Workplace (MAKs)
 - List of MAK and BAT Values 2022: Report No. 58. Permanent Senate Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area. Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, FRG (2022).
- AIHA Workplace Environmental Exposure Levels (WEELs™)
- OARS Workplace Environmental Exposure Levels (WEELs™)
 - Occupational Alliance for Risk Science (OARS) Workplace Environmental Exposure Levels (WEELs™) managed by Toxicological Excellence for Risk Assessment (TERA), Cincinnati, OH. Available online at tera.org/OARS/index.html (Reviewed 2022).