

**National Institute for Occupational Safety and Health (NIOSH)**  
**Comments on the Interagency Science Consultation**  
**Draft IRIS Toxicological Review of Hexavalent Chromium**  
**Dated February 2022**

Date: 03/22/2022

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Comment about the Inhalation Unit Risk (IUR): The IUR justification is well-supported and updates the 1998 IUR. The methods seem sound and describe the uncertainties adequately.

Editorial comments:

1. References NIOSH 2013a and NIOSH 2013b are the same document—the NIOSH criteria document on hexavalent chromium: <https://www.cdc.gov/niosh/docs/2013-128/>. The EPA draft toxicological review and the 2018 systematic review document both cite the NIOSH document that way; it is unclear why “a” and “b” designations are needed when it is the same document/publication.
2. Page R-2, the correct citation for Almaguer and Kramkowski (1983) is NIOSH (1983): NIOSH [1983]. Modine Manufacturing, McHenry, Illinois. By Almaguer D, Kramkowski R. Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Health Hazard Evaluation Report 82-116-1319. <https://www.cdc.gov/niosh/hhe/reports/pdfs/82-116-1319.pdf>
3. Page R-2, the correct citation for Andrews and O’Connor (2020) is NIOSH (2022): NIOSH [2022]. NIOSH manual of analytical methods (NMAM), 5th edition. Andrews R, O’Connor, PF, eds. Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, <https://www.cdc.gov/niosh/nmam/default.html>
4. Page R-9, the correct citation for Ceballos et al. (2017) is NIOSH (2017): NIOSH [2017]. Evaluation of chromium, hexavalent chromium, cadmium, and isocyanate exposures in an aircraft refinishing plant. By Ceballos D, West C, Methner M, Gong W. Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Health Hazard Evaluation Report 2013-0011-3278, <http://www.cdc.gov/niosh/hhe/reports/pdfs/2013-0011-3278.pdf>
5. Page R-11, the correct citation for Cohen and Kramkowski (1973) is NIOSH (1973): NIOSH [1973]. Marsh Plating Corporation, Ypsilanti, Michigan. By Cohen S, Kramkowski R. Cincinnati, OH: U.S. Department of Health, Education, and Welfare, Center for Disease Control, National Institute for Occupational Safety and Health, Health Hazard Evaluation Report 72-118-104, <https://www.cdc.gov/niosh/hhe/reports/pdfs/72-118-104.pdf>

6. Page R-28, the correct citation for Lucas, JB (1976) is NIOSH (1976):  
NIOSH [1976]. Cook Paint and Varnish Company, North Kansas City, Missouri. By Lucas JB. Cincinnati, OH: U.S. Department of Health, Education, and Welfare, Center for Disease Control, National Institute for Occupational Safety and Health, Health Hazard Evaluation Determination Report 74-111-283, <https://www.cdc.gov/niosh/hhe/reports/pdfs/74-111-283.pdf>
7. Page R-28, the correct citation for Lucas and Kramkowski (1975) is NIOSH (1975):  
NIOSH [1975]. Industrial Platers, Inc., Columbus, Ohio. By Lucas J, Kramkowski R. Cincinnati, OH: U.S. Department of Health, Education, and Welfare, Center for Disease Control, National Institute for Occupational Safety and Health, Health Hazard Evaluation Determination Report 74-87-221, <https://www.cdc.gov/niosh/hhe/reports/pdfs/74-87-221.pdf>
8. Page R-55, the correct citation for Zey and Lucas (1985) is NIOSH (1985):  
NIOSH [1985]. United Catalysts, Inc. South Plant, Louisville, KY. By Zey J, Lucas C. Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Health Hazard Evaluation Report 82-358-1558, <https://www.cdc.gov/niosh/hhe/reports/pdfs/82-358-1558.pdf>