

A
STATEMENT OF SCIENTIFIC FACTS
Lindell Tinsley

1. According to the American Dental Association (ADA), Council on Scientific Affairs "To date, there is no evidence to suggest that mercury released from dental amalgams result in any adverse effect to health in the general population."¹
2. According to the American Dental Association (ADA), Council on Scientific Affairs "minute levels of mercury are released from amalgam restorations; but no health consequences from exposure to such low levels of mercury released from amalgam have been demonstrated."²
3. The National Institute for Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA) have adopted a threshold limit value (TLV) of 50ug mercury vapor per cubic meter of the breathing zone air for eight hours per day, 40 hours per week.^{3 4}
4. The World Health Organization (WHO) has adopted a lower limit of 25ug/m³ as the (TLV) Threshold Limit Value⁵
5. The Agency for Toxic Substance and Disease Registry has established the Minimal Risk Level (MRL) at 0.3ug/m³ for long-term human exposure to mercury in ambient air.⁶

¹ 500 JDA, Vol. 129, April 1998

² 500 JDA, Vol. 129, April 1998

³ National Institute for Occupational Safety and Health. Criteria for a recommended standard: Occupational exposure to inorganic mercury. Washington, D.C.: National Institute for Occupational Safety and Health; 1973. U.S. Department of Health, Education and Welfare publication no. HSM 73-11024. GPO No. 017-033-00022

⁴ Occupational Safety and Health Administration. Mercury (aryl and inorganic compounds). Federal Register 1989-54(1212414-6).

⁵ Fawer RF, DeRibaupiere Y, Guillemin M. Measurement of hand tremor induced by industrial exposure to metallic mercury. Br J Ind Med 1983;40:204-8.

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6. The MRL is defined as the level of mercury vapor below which a person can continuously be exposed with no harmful health effects.
7. The Environmental Protection Agency (EPA) also uses 0.3ug/m³ as the inhalation reference concentration for elemental mercury in air.⁷⁸
8. It is well established that both the placement and the removal of amalgam can result in significant levels of intraoral mercury vapor.⁹ ¹⁰
9. The American Dental Association recognizes that in the field of dentistry, chronic exposure to mercury vapor can become a potential health hazard in the work place, if dental amalgam is improperly handled.¹¹ ¹² ¹³

⁶ Agency for Toxic Substances and Disease Registry Toxicological profile for mercury. U.S. Public Health Service, 1989:PHS publication no. ATSDR/TP-98/16.

⁷ U.S. Public Health Service, Committee to Coordinate Environmental Health and Related Programs. Dental amalgam: A scientific review and recommended public health service strategy for research, education and regulation. Final report of the Subcommittee on Risk Management. Washington, D.C.: U.S. Government Printing Office, 1939: PHS publication no. 342-322/60025

⁸ U.S. Environmental Protection Agency Interim methods of development of inhalation reference concentrations. Research Triangle Park, N.C. Environmental Protection Agency Office of Research and Development, Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office: August 1990:PHS publication no. EPA/600/8-90/066a.

⁹ Engle JH, Ferracane JL, Wichmann J, Okabe T. Quantitation of total mercury vapor released during dental procedures. Dent Matter 1992;8(3): 176-80.

¹⁰ Frykholm KO Mercury from dental amalgam: its toxic and allergic effects and some comments on occupational hygiene. Acta Odontol Scand 1957; 15(22): 5-108.

¹¹ U.S. Public Health Service, Committee to Coordinate Environmental Health and Related Programs. Dental amalgam: A scientific review and recommended public health service strategy for research, education and regulation. Final report of the Subcommittee on Risk Management. Washington, D.C.: U.S. Government Printing Office, 1939: PHS publication no. 342-322/60025

¹² Gonzalez-Remirez D, Mairino RM, Zuniga-Charles M. Sodium 23 dimercaptopropane-1-sulfonate challenge test for mercury in humans. II: urinary mercury, porphyrins and neurobehavioral changes of dental workers in Monterrey, Mexico. J. Pharmacol Exp Ther 1995; 272:264-74

¹³ 496 JDA, Vol. 129, April 1998

10. Minute levels of mercury are released from amalgam restorations; but no health consequences from exposure to such low levels of mercury released from amalgam restorations have been demonstrated.¹⁴
11. The overwhelming body of scientific evidence demonstrates amalgam to be a safe restorative material¹⁵
12. In 1983 the Environmental Protection Agency (EPA) declared amalgam to be a *hazardous substance* within the meaning of Section 107 of (CERCLA) According to the EPA's hazard summary the Office of Air Quality Planning and Standards, in its fact sheet entitled "MERCURY AND COMPOUNDS", obtained from the EPA'S Integrated Risk Information System (IRIS), a source of public exposure to this hazardous substance is released in the mouth from dental amalgam fillings. According to the EPA, exposure to amalgam results in harm to the central nervous system, gastrointestinal tract disorders respiratory disorders, kidney damage, and birth defects from pregnant women and is especially injurious to children.¹⁶
13. Dental Amalgam is classified as a hazardous material in the work place by OSHA, and excess dental amalgam must be disposed of according to OSHA's Material Safety Data Sheet ¹⁷
14. The ADA has never certified dental amalgam, only "amalgam alloy." The ADA is on record for saying:
 "...The specification is not for dental amalgam. It is only for the alloy for dental amalgam. The amalgam is not form until the Dentist mixes the alloy with mercury. Therefore dental amalgam per se cannot be certified. We cannot certify a reaction product made by the dentist¹⁸

¹⁴ 501 JDA, Vol. 129, April 1998

¹⁵ 500 JDA, Vol. 129, April 1998

¹⁶ ; "EPA Health Effects Notebook for Hazardous Air Pollutants-Draft", EPA-452/D-95-00, PB95-503579, December 1994; 42 U.S.C. 11002 et. seq.; 52 FR 13395, Apr 22, 1987; Superfund Amendments and Reauthorization Act of 1986; Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, (CERCLA). 40 CFR 355.10 et. Seq.

¹⁷ OSHA to Begin Enforcing "Hazard" Rule, 19 Am. Dental A. News 1 (Aug. 1, 1988)

¹⁸ Letter from John W. Stanford, Ph.D., Secretary Council on Dental Materials, Instrument and Equipment's ADA, 22 May 1986

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Comments: Statement of Scientific Facts Re: Mercury Dental Amalgam

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