

# **Comments of the Manganese Interest Group**

**For the November 2, 2010 meeting of the  
California Biomonitoring  
Scientific Guidance Panel**

**Regarding  
Potential Designated Chemical: Manganese**

Submitted on behalf of the Manganese Interest Group by:

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## Comments of the Manganese Interest Group

On behalf of the Manganese Interest Group (MIG),<sup>1</sup> we are pleased to offer the following comments regarding the potential designation of manganese as a chemical for inclusion under the California Environmental Contaminant Biomonitoring Program. MIG supports the efforts of the Office of Environmental Health Hazard Assessment (OEHHA) and the Scientific Guidance Panel (SGP) to improve the scientific understanding of the public's exposure to environmental contaminants. As the scientific background document "Manganese: Potential Designated Chemical" clearly recognizes, however, manganese is not only a potential environmental contaminant, but is also a naturally occurring essential nutrient required to maintain human health. This dual character complicates efforts to biomonitor environmental exposure because manganese is naturally present as an essential component of all bodily tissues.

To help determine whether to biomonitor for manganese and, if so, in what manner, MIG urges OEHHA and the SGP to consider important new scientific information not presently addressed in the scientific background document. The Hamner Institutes for Health Sciences has recently completed development of a physiologically-based pharmacokinetic (PBPK) model for manganese.<sup>2</sup> This human PBPK model, which has been subjected to extensive scientific peer review by staff at the U.S. Environmental Protection Agency (EPA) and an independent technical advisory panel, can be used to estimate changes in human manganese tissue levels as normal dietary intake and environmental or occupational exposures to manganese in air and water change over time. EPA officials have recognized the clear potential value of the human PBPK model for risk assessment and other related activities.<sup>3</sup>

The human PBPK model for manganese demonstrates, among other things, the existence of dose dependent triggers for the accumulation of manganese in key target tissues, such as the brain. At typical environmental inhalation exposure levels, for example, the model shows that chronic exposure does not materially alter tissue concentrations outside the normal fluctuations that occur due to changing dietary intakes. The human PBPK model for manganese

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<sup>1</sup> MIG is an *ad hoc* coalition of industrial users of manganese. Because notice of the availability of the scientific support document ("Manganese: Potential Designated Chemical") was posted on the OEHHA website on October 21, 2010, compliance with the request that comments be submitted 14 days in advance of the November 2, 2010, meeting was not possible. MIG appreciates the opportunity to submit these comments and apologizes for any inconvenience caused by submission of comments this close to the November 2, 2010 meeting date.

MIG's members include steel producers, metalworkers, chemical manufacturers, and other similar stakeholders, some of which operate in California. Group members include: the American Iron and Steel Institute, the National Slag Association, the Steel Manufacturers Association, the Specialty Steel Industry of North America, the International Manganese Institute, Afton Chemical Corporation, Eramet Marietta, Inc., Evraz-Oregon Steel Mills, Severstal, and U.S. Steel.

<sup>2</sup> A PowerPoint presentation describing the human PBPK model in detail was presented to the U.S. EPA in September 2010. A copy of the presentation can be obtained at [www.regulation.gov](http://www.regulation.gov) in docket EPA-HQ-OAR-2004-0074-0222.

<sup>3</sup> See Boyes WK. 2010. Essentiality, Toxicity, and Uncertainty in the Risk Assessment of Manganese. *Journal of Toxicology and Environmental Health Part A*, 73(2):159-165.

suggests, moreover, that blood and urine are not likely to be good biomarkers of manganese exposure at moderate to low levels of environmental exposure.

For these reasons, MIG recommends that OEHHA and the SGP review the human PBPK model for manganese before deciding (1) whether a biomonitoring program for manganese is likely to yield useful information, and (2) how to design such a biomonitoring program should a decision be made to proceed with the monitoring program.

MIG appreciates the opportunity to submit these comments and would be happy to provide additional information or address any questions OEHHA or the SGP may have. If MIG can be of any further assistance, please do not hesitate to contact me at (713) 470-6653 or [asantamaria@environcorp.com](mailto:asantamaria@environcorp.com) or Joseph Green from the Manganese Interest Group at (202) 342-8849 or [JGreen@KelleyDrye.com](mailto:JGreen@KelleyDrye.com).

Respectfully submitted,



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Attachment

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The Manganese Interest Group