

**The Effect of Chelators and Reductants on the Mobilization of Metals from Ambient Particulate Matter: More Transition Metals are Mobilized with PM2.5 than with PM10**

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Ambient urban particulate matters contain various transition metals. When the particulate matters are inhaled into the lung, not all but some part of metals from the particles might be mobilized to participate in a reaction that can damage various biomolecules, such as DNA and proteins. The dust particle size as well as organic acids may influence the metal mobilization. Thus, the mobilization of the metal from SRM1648 (NIST, USA) and urban particulate matters (PM2.5 and PM10) was measured in the presence of artificial or biological chelator with or without reductant. The degree of the mobilization was higher with the artificial or biological chelator than the control with saline. In some cases, a reductant increased the mobilization as much as about 5 times the control without the reductant. Especially, the mobilization of Fe was greatly influenced by the presence of reductants. In general, the degree of the mobilization of the transition metal was higher with PM2.5 than with PM10. Therefore, it is expected that, considering the previously known toxicities of the transition metals, the PM2.5 is more damaging to various biomolecules than PM10. The results also suggest that not the total amount but the mobilizable fraction of the metal in the dust particles should be considered with regard to the toxicity of the urban particulate matters.