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Did Hg from the Chicxulub impactor contribute to the K-Pg extinction?

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Some ordinary and carbonaceous chondrites contain high abundances of extraterrestrial Hg, of up to 100'000 ppb, far in excess of the expected cosmic abundance of ~300 ppb [1-4]. The process leading to these high concentrations is unknown, but a partial answer might be the redistribution of Hg within an asteroid heated by radioactive decay, leading to a ~1-10 km thick surface layer strongly enriched in Hg [3]. The ~10 km-sized Chicxulub impactor was likely a CM chondrite [5]. Hg abundances of up to 2500 and 15'000 ppb have been found for CM chondrites Murchison and Paris, respectively [3]. Due to the large size of the impactor, vaporized meteoritic Hg introduced into the surface environment of the biosphere can be far in excess of what is present today (ca. 6 Gmol). We report Hg isotopic data from K-Pg boundary layers and discuss heavy metal poisoning from impactor Hg as a potential "killing mechanism" for the K-Pg boundary extinction.

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