



Heavy metal concentrations, 2002-17

Title	Heavy metal concentrations, 2002-17
Publisher	New Zealand's Environment Reporting Series: The Ministry for the Environment and Statistics New Zealand
Description	<p>Inhaling particulate matter (PM) containing heavy metals can cause serious health effects (World Health Organization (WHO), 2013). Airborne arsenic is linked to lung cancers (WHO, 2013), and heart, liver, kidney, and nerve damage (Caussy, 2003). Nickel and vanadium are linked to lung and nasal sinus cancers. Lead can impair cognitive function in children and affect an adult's cardiovascular system, even at low blood levels (WHO, 2013). Heavy metals are also toxic to other organisms, and can bioaccumulate in animals, especially in aquatic ecosystems (Rahman, Hasegawa, & Lim, 2012). We don't know how much airborne heavy metal is deposited in New Zealand. We report on the concentrations of arsenic, lead, and vanadium in PM10 (PM 10 micrometres or less in diameter) from 2007-16 at Henderson - Auckland which were measured using a method directly comparable to relevant guidelines. We also report on arsenic, nickel, lead, and vanadium concentrations at 5 Auckland sites from 2005-16 that were measured using a method which cannot be directly compared to relevant guidelines but provides information on concentrations. Arsenic is emitted when burning wood treated with copper chromium arsenic preservative (eg building project offcuts). A 2012 Auckland study showed that 17 percent of households may burn such wood (Stones-Havas, 2014). Lead is emitted from burning wood coated with lead-based paint, by removing lead-based paint from buildings without proper safety precautions, and from industrial discharges (eg at metal smelters). In New Zealand, airborne nickel and vanadium concentrations are highest near ports and are associated with combustion exhaust from ships (Davy & Trompetter, 2018). Monitoring for lead has been limited since the fall in ambient lead concentrations after New Zealand's petrol became lead free in 1996. More information on this dataset and how it relates to our environmental reporting indicators and topics can be found in the attached data quality pdf.</p>
Source	GNS Science; Auckland Council
Rights	Creative Commons Attribution 4.0 New Zealand
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Rights	https://creativecommons.org/licenses/by/4.0/
Coverage	2002-17
Identifier	https://data.mfe.govt.nz/table/98416-heavy-metal-concentrations-200217/
Identifier	OA18/007
Type	Dataset
Language	eng-nz
Subject	Environmental reporting series: Our air 2023