



A COMMUNITY SCIENCE PROGRAM EXAMINING HOUSEHOLD DUST

DustSafe is a citizen-science initiative based in the Department of Environmental Sciences at Macquarie University. DustSafe is a local chapter of the global program: 360 Dust Analysis, which encompasses research groups in Australia, Asia, the United Kingdom, and the United States of America (Fig. 1).

Together, these programs are focussed on characterising household dust in an effort to understand the potential health exposure hazards residing in that dust.

PRELIMINARY FINDINGS

DustSafe has already received 378 household dust samples from all over Australia (Fig 1.). Preliminary investigations have been focussed on metal(loid) trace elements (hereafter metals) including As, Cd, Cr, Cu, Mn, Ni, Pb and Zn (Table 1). Based on the samples received so far Zn is the most abundant element. Lead makes up about 7% of the analysed composition. Cadmium has not been detected in any samples so far.

The median dust metal concentrations (Table 1) show that Cu, Mn, Pb and Zn are the most abundant in household dust. This is likely to be associated with paint and road dusts entering the home.

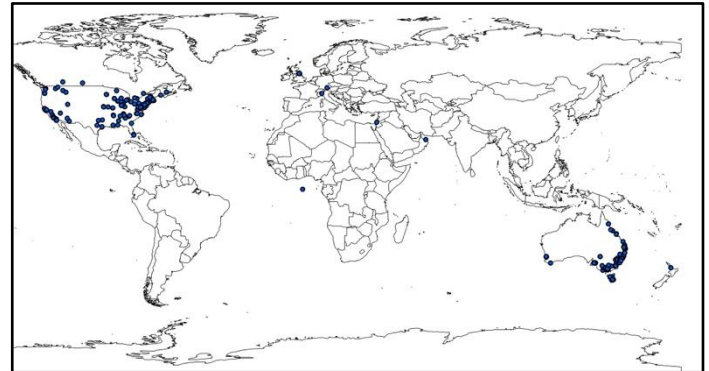


Figure 1. Analysed 360 Dust analysis sample locations.

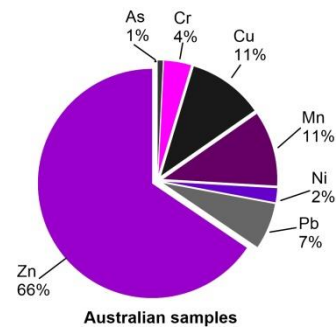


Figure 2. Percentage values represent total concentration of all metals/ individual metal fractions for Australian samples (n=378).

**Table 1. Median dust metal concentrations (mg/kg) LOD = limit of detection (4 mg/kg) Minimum and maximum values shown in brackets**

| Element        | Australia (n=378)  | Sydney (n=254)     |
|----------------|--------------------|--------------------|
| As (arsenic)   | 15 (<LOD - 196)    | 14 (<LOD - 147)    |
| Cd (cadmium)   | <LOD               | <LOD               |
| Cr (chromium)  | 74 (<LOD - 838)    | 72 (<LOD - 838)    |
| Cu (copper)    | 204 (35 - 1407)    | 221 (35 - 1407)    |
| Mn (manganese) | 203 (24 - 2738)    | 195 (24 - 2738)    |
| Ni (nickel)    | 39 (<LOD - 661)    | 38 (<LOD - 661)    |
| Pb (lead)      | 125 (7 - 9405)     | 128 (11 - 3805)    |
| Zn (zinc)      | 1253 (105 - 75367) | 1259 (105 - 75367) |

LOOKING AHEAD

DustSafe will look next at asbestos, anti-microbial resistance markers, micro-plastics and flame retardants in household dust samples.

GET INVOLVED

To get involved with DustSafe Australia or 360 Dust Analysis globally, simply scan the code below or log on to: [www.360dustanalysis.com](http://www.360dustanalysis.com)



Here you will find details about sample collection and how to collect and send your sample for analysis.

You can also follow the 360 Dust Analysis updates on Facebook: <https://www.facebook.com/pg/MQDustSafe>

