

# Contaminated Land Management User Guide

## Background/Typical concentrations of polycyclic aromatic hydrocarbons (PAHs) in Christchurch urban soils

An investigation was conducted into the background concentration of polycyclic aromatic hydrocarbons (PAH) in Christchurch urban soils.

Sampling and analysis of soil samples from 29 individual sites in the Christchurch urban area showed that PAHs were present in the soil at all sample sites. The composition of PAHs in the soil samples indicates that urban wood and petroleum fuelled combustion emissions were the predominant sources of the PAH contamination.

The results of the sampling, representing background concentrations of PAHs in Christchurch urban soils, are presented here.

For each PAH, and for the B(a)P equivalent, a 95% upper confidence limit (95% UCL) was calculated. In a simplified sense, a 95% UCL is the value which the true population mean falls below, 95% of the time.

### How to use the data:

The data can be used for comparison with site investigation data to determine if PAH compounds are elevated above Christchurch urban background concentrations.

To be considered background, the site data must comply with the following criteria:

1. No hotspot data can exist on the site.
2. The mean of the PAH data must be below the relevant 95% UCL presented here.
3. The soils must be sampled from the Christchurch urban area, as defined in the report.



Please refer to *Background concentrations of polycyclic aromatic hydrocarbons in Christchurch urban soils* (ECan 2007, Report No R07/19) for details of the methodology used in the study.

PAH Compound	95% UCL background concentration, mg/kg
Acenaphthene	0.055
Acenaphthylene	0.069
Anthracene	0.113
Benzo[a]anthracene	0.47
Benzo[a]pyrene (BAP)	0.595
Benzo[b]fluoranthene	0.947
Benzo[g,h,i]perylene	0.459
Benzo[k]fluoranthene	0.296
Chrysene	0.539
Dibenzo[a,h]anthracene	0.112
Fluoranthene	1.345
Fluorene	0.06
Indeno(1,2,3-c,d)pyrene	0.385
Naphthalene	0.029
Phenanthrene	0.703
Pyrene	1.362
B(a)P equivalent	0.922

### Other relevant references:

ECan 2007: Background concentrations of selected trace elements in Canterbury soils. Addendum 1: Additional samples and Timaru specific background levels. Report prepared by Tonkin and Taylor under contract to Environment Canterbury. Report number R07/1/2, ISBN: 978-1-86937-699-4

All the reports can be downloaded from:  
[www.ecan.govt.nz/ContaminatedLand](http://www.ecan.govt.nz/ContaminatedLand)

### Contact information:

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