**Lindane**

***Who is this guidance for?***

This guidance is primarily aimed at employers or individuals with delegated responsibility for managing workplace exposure to substances. Whilst it is not exhaustive, the information presented is intended to demonstrate how biomonitoring can help with this duty. Some simple advice is presented to help non-specialist users to get the most out of biomonitoring covering (1) when to take a sample to ensure reliable and comparable results over time; (2) putting the result into context with respect to background (environmental) levels or what can reasonably be achieved with good exposure control; and (3) some basic technical data that can help to evaluate an analytical service provider. For further information you should consult your chosen analytical service provider who should be happy to discuss your specific requirements and find solutions.

**Hazardous Substance:**

Lindane

CAS number: 58-89-9

Alternative names: Gamma hexachlorocyclohexane

**Lindane in plasma**

**BMGV**: 70 nmol lindane/L plasma

**Lindane is no longer licensed for agricultural use in the UK. However, it may be present in medications used for the treatment of scabies and lice infestation.**

***Biological Monitoring Guidance Value (BMGV)]***

70 nmol lindane/L plasma

Conversion: 1 mmol/L = 0.29 µg/L

***Other Guidance Values***

None

***Sample Collection***

Blood samples should be collected pre-shift or at the end of shift into 5mL EDTA-containing blood containers.

***Sample Transport to Laboratory***

Send samples to the laboratory by first class post (or equivalent) to arrive within 48 hours of collection. If any delay is anticipated, store samples refrigerated (not frozen). Packaging must comply with relevant postal regulations for biological samples (UN3373).

***Description of Suggested Method***

Plasma samples are extracted into hexane and analysed by gas-chromatography with mass-spectrometry detection.

***Elimination Half-Life***

Elimination half-life is a measure of the rate of removal of a substance that has been taken into the body. It helps to identify when it is best to take a sample following potential exposure and indicates the potential ‘exposure window’ that will be reflected by a result.

**Analytical Evaluation**

Detection limit: 5 nmol/L (3 x background)

Calibration range: Typically 0-172 µmol/L

Precision:

- within day <4% RSD at 77 nmol/L

- day to day <7% RSD at 77 nmol/L

Sample stability: 2 days at ambient temperature, >3 months at 20°C (plasma)

Analytical Interferences: None known

For lindane in plasma from a single exposure, approximately 20 hours. Longer for repeated exposures.

**Other Information**

***Confounding factors***

None known

***Unexposed level***

< 5 nmol/L

***Interpretation***

Blood or plasma lindane results reflect systematic exposure to lindane that may have entered the body by inhalation or through the skin. If biological monitoring results are greater than the guidance value, it does not necessarily mean that ill health will occur, but it does mean that exposure is not being adequately controlled. Under these circumstances employers will need to look at current work practices to see how they can be improved to reduce exposure.

***Links***

EH40 List of Approved Workplace Exposure Limits <http://www.hse.gov.uk/pubns/books/eh40.htm>

For further advice, please contact us:

Sample Registration, HSE, Harpur Hill, Buxton. SK17 9JN.

registration.sample@hse.gov.uk

0203 028 3383

**Biological Monitoring at HSE**

<https://www.hsl.gov.uk/online-ordering/analytical-services-and-assays/biological-monitoring>