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*CERTIFICATE OF ANALYSIS
Lot 034, Lot 035, Lot 037, Lot 038
Reference Material for Urine Lead*

This reference material was prepared from pooled human urine obtained from chelation therapy patients. The urine was lyophilized and target values determined by a consensus of reference laboratories using different analytical methods under good analytical control. A complete description of the procedure for preparing the material and target value assignment has been published¹. These materials may be used in the determination of urine lead (UPb).

TARGET VALUES:

Target values for UPb were obtained by pooling results from selected reference laboratories. A summary of target value assignment is available upon request from the program.

Lot 034	URINE LEAD $\mu\text{g/L} \pm\text{SD}$:	181 \pm13.3	(0.87 \pm0.06 $\mu\text{mol/L}$)
	ACCEPTABLE RANGE $\mu\text{g/L}$:	141 - 221	(0.68 - 1.07 $\mu\text{mol/L}$)
Lot 035	URINE LEAD $\mu\text{g/L} \pm\text{SD}$:	102 \pm13.4	(0.49 \pm0.06 $\mu\text{mol/L}$)
	ACCEPTABLE RANGE $\mu\text{g/L}$:	62 - 142	(0.30 - 0.69 $\mu\text{mol/L}$)
Lot 037	URINE LEAD $\mu\text{g/L} \pm\text{SD}$:	441 \pm29.8	(2.13 \pm0.14 $\mu\text{mol/L}$)
	ACCEPTABLE RANGE $\mu\text{g/L}$:	375 - 507	(1.81 - 2.45 $\mu\text{mol/L}$)
Lot 038	URINE LEAD $\mu\text{g/L} \pm\text{SD}$:	672 \pm47.9	(3.24 \pm0.23 $\mu\text{mol/L}$)
	ACCEPTABLE RANGE $\mu\text{g/L}$:	571 - 773	(2.76 - 3.73 $\mu\text{mol/L}$)

The urine lead target values were established using a consensus of 19 reference laboratories using either Graphite Furnace AAS, or Inductively-coupled plasma mass spectrometry methods. The uncertainty is expressed as \pm the sample standard deviation. However, the acceptable range is based on the fixed criteria of $\pm 40 \mu\text{g/L}$ for values $< 267 \mu\text{g/L}$ and $\pm 15\%$ for values $> 267 \mu\text{g/L}$. SI unit are given in parentheses. To convert values from $\mu\text{g/L}$ to SI units ($\mu\text{mol/L}$), multiply by 0.00483.

¹ Parsons, P.J., "Monitoring Human Exposure to Lead: An Assessment of Current Laboratory Performance for the Determination of Blood Lead" *Environmental Research* (1992) 87 149-162

RECONSTITUTION INSTRUCTIONS:

1. Allow the vial to reach ambient temperature.
2. Tap the bottom of the vial to dislodge most of the particles adhering to the stopper. Carefully remove the stopper from the vial.
3. Reconstitute the lyophilized sample by adding **5-mL** of high quality deionized water. The deionized water to be used must be free of detectable lead.
4. Replace the stopper and homogenize by continuous agitation with a mixing apparatus for at least 2 hours.
5. Store refrigerated. Materials should be stable for at least one month if stored under refrigeration but stability may be less if brought to room temperature and sampled on a daily basis.

STABILITY:

The stability of lyophilized material stored below -20°C has been documented and is at least 10 years from the date of preparation.

USES/APPLICATIONS:

This reference material may be used for the following purposes:

- as a secondary standard for the determination of urine lead using matrix-sensitive techniques such as Delves-cup AAS or some graphite furnace AAS methods without digestion.
- verification (accuracy) of analytical methodology for all urine lead methods, or to determine recovery of lead using APDC or NaDDC-MIBK extraction procedures.
- as quality control material for the determination of UPb.

AVAILABILITY:

This reference material was produced as the result of an R&D project. This batch of materials is limited in size, and is not renewable.

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