Trace Elements – Blood

Note to ordering physician: the preferred blood specimen type for each trace element is listed in the following table. Trace element testing on non-preferred specimen types requires review and approval by CLS Medical & Scientific Staff. Please contact CLS Referrals 403-770-3285 for further information on the approval process.

**CLS staff:**
- Testing is performed on the preferred specimen types serum and whole blood, as indicated in the Preferred Specimen table.
- If “erythrocyte,” “RBC” or “red blood cell” testing is written on the requisition, follow the collection and handling instructions in the Non-Preferred Specimen table.
- If any other specimen type is requested for the following trace elements, collect the preferred specimen type.

### Preferred Specimen

<table>
<thead>
<tr>
<th>Elements</th>
<th>Mnemonic</th>
<th>Specimen Type</th>
<th>Specimen Requirements</th>
<th>Specimen Handling</th>
<th>Testing Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum*</td>
<td>ALUM</td>
<td>Serum</td>
<td>1 x 6 mL BD royal blue top red band non-additive tube</td>
<td>Centrifuge, aliquot serum using a plastic pipette (not glass) to a plastic screwcap Sarstedt2 aliquot tube (aliquot tubes available from Referrals). Screw the caps on tightly to avoid leakage. Send aliquot at room temperature to DSC with a photocopy of the requisition. Extra-regional: freeze aliquots and transport to DSC on dry ice. DSC: freeze specimens upon receipt in lab; ensure frozen specimens do not thaw.</td>
<td>U of A</td>
</tr>
<tr>
<td>Barium</td>
<td>BA</td>
<td>These tests cannot be collected by Mobile Collection Services (MCS).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beryllium</td>
<td>BER</td>
<td>Whole Blood</td>
<td>1 x 6 mL Monoject royal blue top no band EDTA (Na₂) tube</td>
<td>Do not transfer to another container. Send whole blood tube. Send specimen at room temperature with a photocopy of the requisition. DSC: refrigerate specimens upon receipt in lab.</td>
<td>U of A</td>
</tr>
<tr>
<td>Chromium</td>
<td>CHRM</td>
<td>Serum</td>
<td>1 x 6 mL BD royal blue top red band non-additive tube</td>
<td>Centrifuge, aliquot serum using a plastic pipette (not glass) to a plastic screwcap Sarstedt2 aliquot tube (aliquot tubes available from Referrals). Screw the caps on tightly to avoid leakage. Send aliquot at room temperature to DSC with a photocopy of the requisition. Extra-regional: freeze aliquots and transport to DSC on dry ice. DSC: freeze specimens upon receipt in lab; ensure frozen specimens do not thaw.</td>
<td>U of A</td>
</tr>
<tr>
<td>Copper</td>
<td>CU</td>
<td>Serum</td>
<td>1 x 6 mL BD royal blue top red band non-additive tube</td>
<td>Centrifuge, aliquot serum using a plastic pipette (not glass) to a plastic screwcap Sarstedt2 aliquot tube (aliquot tubes available from Referrals). Screw the caps on tightly to avoid leakage. Send aliquot at room temperature to DSC with a photocopy of the requisition. Extra-regional: freeze aliquots and transport to DSC on dry ice. DSC: freeze specimens upon receipt in lab; ensure frozen specimens do not thaw.</td>
<td>U of A</td>
</tr>
<tr>
<td>Nickel</td>
<td>NI</td>
<td>Serum</td>
<td>1 x 6 mL BD royal blue top red band non-additive tube</td>
<td>Centrifuge, aliquot serum using a plastic pipette (not glass) to a plastic screwcap Sarstedt2 aliquot tube (aliquot tubes available from Referrals). Screw the caps on tightly to avoid leakage. Send aliquot at room temperature to DSC with a photocopy of the requisition. Extra-regional: freeze aliquots and transport to DSC on dry ice. DSC: freeze specimens upon receipt in lab; ensure frozen specimens do not thaw.</td>
<td>U of A</td>
</tr>
<tr>
<td>Selenium</td>
<td>SEL</td>
<td>Serum</td>
<td>1 x 6 mL BD royal blue top red band non-additive tube</td>
<td>Centrifuge, aliquot serum using a plastic pipette (not glass) to a plastic screwcap Sarstedt2 aliquot tube (aliquot tubes available from Referrals). Screw the caps on tightly to avoid leakage. Send aliquot at room temperature to DSC with a photocopy of the requisition. Extra-regional: freeze aliquots and transport to DSC on dry ice. DSC: freeze specimens upon receipt in lab; ensure frozen specimens do not thaw.</td>
<td>U of A</td>
</tr>
<tr>
<td>Zinc</td>
<td>ZINC</td>
<td>Serum</td>
<td>1 x 6 mL BD royal blue top red band non-additive tube</td>
<td>Centrifuge, aliquot serum using a plastic pipette (not glass) to a plastic screwcap Sarstedt2 aliquot tube (aliquot tubes available from Referrals). Screw the caps on tightly to avoid leakage. Send aliquot at room temperature to DSC with a photocopy of the requisition. Extra-regional: freeze aliquots and transport to DSC on dry ice. DSC: freeze specimens upon receipt in lab; ensure frozen specimens do not thaw.</td>
<td>U of A</td>
</tr>
</tbody>
</table>

### Non-Preferred Specimen

<table>
<thead>
<tr>
<th>Elements with RBC, erythrocyte, red blood cell specifically requested</th>
<th>Mnemonic</th>
<th>Specimen Type</th>
<th>Specimen Requirements</th>
<th>Specimen Handling</th>
<th>Testing Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>MISCREFB &amp; Misc Ref Test Name field: RBC</td>
<td>EDTA</td>
<td>Serum</td>
<td>1 x 6 mL BD royal blue top red band non-additive tube</td>
<td>Centrifuge within 30 minutes of collection. Aliquot plasma into a plastic screwcap Sarstedt2 aliquot tube (aliquot tubes available from Referrals) and screw the cap on tightly to avoid leakage. Discard buffy coat, and just a little of the red cells using a plastic pipette (not glass). Aliquot the remaining red cells to a plastic screwcap Sarstedt2 aliquot tube (aliquot tubes available from Referrals) and screw the cap on tightly to avoid leakage. Send both the plasma and red cell aliquots to DSC at room temperature. Extra-regional: freeze aliquots and transport to DSC on dry ice. DSC: freeze specimens upon receipt in lab; ensure frozen specimens do not thaw.</td>
<td>Dynacare</td>
</tr>
</tbody>
</table>

**Note to ordering physician:** trace element testing on non-preferred specimen types requires review and approval by CLS Medical & Scientific Staff. Please contact CLS Referrals 403-770-3285 for further information on the approval process.

- **Aluminum:** avoid fruits, chocolate, juices, beer, coffee, teas and antacids containing aluminum for 24 hours prior to collecting specimen.
- **Arsenic and Mercury:** avoid seafood consumption five days prior to collecting specimen.
- **Lead:** Health Canada’s current blood lead intervention level is 0.48 µmol/L (10 µg/dL). However, it is now recognized that blood lead levels below this concentration may also cause health effects, particularly for children. For more information, please contact the Poison and Drug Information Service (PADIS) at 1-800-332-1414.

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