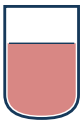
Hemolysis, lipemia, and icterus

Appearance and interference in serum or plasma

Hemolysis, lipemia, and icterus can alter serum or plasma measurements. The same specimen may be acceptable for one test and unsuitable for another because each method responds differently to interference.



Hemolysis

Pink to red; free hemoglobin

Lipemia

Cloudy to milky; lipid particles

Icterus

Deep yellow to brown; bilirubin

Appearance schematics. Clear serum/plasma is usually pale yellow. Mixed interferences can obscure appearance; a visual estimate cannot determine acceptance.

Finding	How results may change	Practical implication
Hemolysis	Cell rupture releases potassium and lactate dehydrogenase. Free hemoglobin absorbs light and can affect chemical reactions.	Released potassium can raise results; other biases vary. Recollection may resolve collection damage. Hemolysis that occurred in the patient may persist after recollection.
Lipemia	Particles scatter light and affect sampling. Reduced plasma-water fraction affects methods that dilute the sample.	Indirect ion-selective electrodes can report falsely low sodium. Direct electrodes generally avoid this water-fraction effect. Lipid removal may also remove analyte.
Icterus	Bilirubin absorbs light and can react with assay components, including oxidants.	Effects differ between assays. A fresh draw may remain icteric; an alternate validated method may be needed.

What the interference index means

An instrument interference index estimates hemoglobin, bilirubin, or turbidity from optical readings. Its scale comes from the instrument method and cannot be inferred from color alone. A lipemia index is not a triglyceride concentration. Index scales and limits are not interchangeable between platforms.

Review each affected test

Compare the index with the manufacturer's interference data and the laboratory's verified limit for that test. Hold, qualify, recollect, or use a validated alternate method as the procedure directs. Document unresolved interference and communicate delays for urgent testing.

> Interference can raise or lower a result, depending on the assay. Acceptance limits and any dilution, blanking, or lipid-removal step require method-specific evidence. Controls can pass while an individual patient specimen remains affected.

Full explanation and sources: latticemls.org/guides/specimen-interference/

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