

HSE Science and Research Centre
Harpur Hill, Buxton, Derbyshire, SK17 9JN

23 February 2022

Dear Blood Lead Customer,

Changes to Blood Lead analysis and reporting: Ceasing of Zinc Protoporphyrin (ZPP) and Haemoglobin (Hb) analysis and reporting from 1st April 2022

Please note that from 1st April 2022 we will no longer offer zinc protoporphyrin (ZPP) or haemoglobin (Hb) routinely when a blood sample is sent for lead analysis. Instead only a blood lead value will be reported (in both $\mu\text{g}/\text{dL}$ and $\mu\text{mol}/\text{L}$).

There are two reasons for stopping the ZPP analysis. Firstly, that the analytical methodology and instrument to analyse ZPP are no longer supported by the manufacturers and it will not possible to purchase any quality control samples beyond 2022. Secondly, when blood lead measurements are undertaken on a routine basis, there is less need for a ZPP level each time. A blood lead value is a specific measure of lead exposure and the best way of assessing exposure to metallic and inorganic lead. As a result of the biochemistry, ZPP offers an indication of how recent the blood lead exposure has been; meaning any ZPP measurement today will actually reflect exposure up to 120 days ago. This does have its uses but if you are testing at regular intervals, you know the blood lead history and that the blood lead measurement is both accurate and traceable. Without a supported instrument and a lack of quality control samples for ZPP, the laboratory is less confident in any ZPP results we can produce and so it is best that we no longer offer this assay. For similar reasons many other laboratories have also stopped offering ZPP.

One use for ZPP measurement is with a new starter in the workplace. If you have a new worker and would have normally tested for ZPP to give an indication of their history of exposure, our advice would be to now take a blood lead sample on day 1 of work or as part of a pre-medical before work has started.

We will also stop offering a routine haemoglobin (Hb) result too. We have not had a low Hb blood result as a result of lead exposure for many years. To look at this trend we evaluated the recent data, plotting Hb versus blood lead results, and it showed that only when results are elevated, with a blood lead of over $40 \mu\text{g}/\text{dL}$, do we start to see a slight reduction in blood Hb. The current 90th percentile blood lead concentration is $25 \mu\text{g}/\text{dL}$ (90% of workers have a blood lead below this value) and so this means that a lot of Hb tests are being carried out where no effect/reduction in Hb is observed at all. Therefore we have decided to no longer offer this routinely

as part of the blood lead analysis. As with ZPP the best way of measuring lead exposure will be to simply have the lead level determined.

These decisions have not been taken lightly and we remain committed to providing a high quality and expert analytical service for monitoring workers potentially exposed to lead. Removal of the availability of these tests does not impact your compliance with the Control of Lead at Work regulations (Approved Code of Practice is available here: <https://www.hse.gov.uk/pubns/books/l132.htm>).

If you have any queries about this change or any other related questions please do not hesitate to email me.

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