

Blood Gases (POCT)

POCT Equipment	Radiometer ABL90 Flex Plus
Clinical Indication	Production of rapid quantitative blood gas (and haemoglobin derivative) results may be used for the assessment of oxygenation and acid-base status in respiratory, metabolic, or renal disorders.
Sample type	Capillary whole blood collected into a heparinised plastic capillary or heparinised venous or arterial whole blood collected into a lithium heparin blood gas syringe.
Sample container	Heparinised blood gas syringe or heparinised plastic capillary.
Sample volume	For Radiometer syringe minimum 1mL and capillary minimum 45µL. Any air introduced during sample collection must be expelled.
Sample handling	Samples must be well mixed by rolling or gently inverting the sample several times to ensure heparin distribution and prevention of clotting in the sample. Capillary samples must be analysed immediately and syringe samples within 20 minutes. Blood gas samples must not be sent to the laboratory in the POD system. This can affect sample integrity and can be a health and safety issue due to the risk of sample leakage.
Special precautions	The person who collects the blood gas sample should be the person to analyse the sample. When drawing blood samples with a syringe from a saline filled catheter, withdraw the saline first and make sure only whole blood is sampled for analysis. Syringes without anticoagulant are not to be used for blood gas sampling. Lithium heparin or balanced heparin salts are the only acceptable anticoagulants for blood gas. Fluid samples are not to be run on the blood gas machines as they have not been validated for this use.

Turnaround time	Results are produced by the analyser within 35 seconds of sample introduction.
Reference Range & Units	pH 7.35 - 7.45 pCO ₂ 4.67 – 6.0 kPa pO ₂ 10.67 - 13.33 kPa SO ₂ 95 – 99 % CoHb 0.5 - 2 % Lactate 0.4 - 2.2 mmol/L Glucose 4.4 - 6.1 mmol/L Sodium 133 – 146 mmol/L Potassium 3.5 - 5.3 mmol/L Calcium 1.12 - 1.32 mmol/L Chloride 95 - 108 mmol/L Bilirubin 0 – 21 µmol/L tHb 115 – 174 g/L Hct 35 – 50 % O ₂ Hb 95 – 99 % MetHb 0.4 - 1.5 % HHb 1 – 5 %
Limitations	Values which require a request for blood transfusion must be confirmed by the haematology laboratory. Samples can only be used once. If the test result is questionable or if clinical signs and symptoms appear inconsistent with the test result, re-test with a fresh sample or certain parameters may be confirmed by sending a sample to the laboratory.
Training	The test should only be carried out by a trained member of staff. If you have not been trained, please see your ward-based link nurse, or contact the POCT team mse.POCT.btuh@nhs.net or mse.POCT.suhft@nhs.net