

 NL Health Services Pathology and Laboratory Medicine	Section: Management System\EH Laboratories\Biochemistry\Quick References\Bio\	
	Title: Centrifuge RCF (g Force) Determination	Number: 14711
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Newfoundland and Labrador Health Service Laboratories must ensure proper relative centrifugal force/gravitational force (RCF/g Force) is attained when centrifuging vacutainers (BD Vacutainer® Evacuated Blood Collection System) and other centrifuge tubes. *SOP instructions should in most cases refer to RCF when stating the speed of the centrifuge, not RPM (revolutions per minute). The only exception is when referring to a specific model of centrifuge and rotor length.*

Centrifuge RPM for any given RCF required can be determined using the following equation:

$$\text{RPM} = \sqrt{\frac{\text{RCF} \times 10^5}{1.12 \times r}}$$

r = the radial distance from the center of the centrifuge head to the bottom of the tube in centimeters

Or click below for link to online calculator:

[RCF Calculator](https://henderson-biomedical.co.uk/rcf-calculator/) (source: <https://henderson-biomedical.co.uk/rcf-calculator/>)

Note: certain vendors do have their own calculators where you can enter the rotor model rather than taking a measurement. Check with your vendor.

Centrifugation RCF and Time* obtained from https://www.bd.com/documents/guides/directions-for-use/PAS_BC_Vacutainer-blood-collection-system_DF_EN.pdf

PRODUCT	RCF (g)	TIME (min)
BD SST™ & BD PST™ Tubes (Glass)	1000 – 1300	10
BD SST™ Plus & PST™ Plus Tubes 13mm	1100 – 1300	10
BD SST™ Plus & PST™ Plus Tubes 16mm	1000 – 1300	10
BD SST™ Transport Tubes	1100 – 1300	15
All Non-Gel Tubes	= 1300	10
Citrate Tubes **	1500	15

Samples from fixed angle centrifuges are not accepted, due to incompatibility of these samples with laboratory instrumentation.

*Use of alternate centrifugation conditions (e.g. higher RCF and shorter centrifugation time) may also provide acceptable performance but should be evaluated and validated by the Laboratory.

**Citrate tubes should be centrifuged at a speed and time to consistently produce platelet poor plasma (platelet count < 10,000/uL) per CSLI Guidelines.

CAUTION: Do not centrifuge glass tubes at forces above 2200 RCF in a horizontal head (swinging bucket) centrifuge. BD Vacutainer® Plus Tubes will withstand up to 10,000 RCF in a **balanced** centrifuge. Always use appropriate carriers or inserts. Use of tubes with cracks or chips or excessive centrifugation speed may cause tube breakage.

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