

# Centrifugation recommendations for S-Monovettes



## Reduced turnaround time (TAT):

- simultaneous centrifugation of different sample materials
- optimized centrifugation time
- flexible centrifugation time

# Centrifugation recommendations for S-Monovettes

The centrifugation process is a key element of the pre-analytical phase. The simultaneous centrifugation of different S-Monovettes is often necessary in routine laboratories to meet the requirements of rapid patient care.

Our optimized S-Monovette® centrifugation ranges allow you to select the ideal centrifugation conditions for your lab.

## The optimum sample quality

In order to guarantee reliable sample quality within our centrifugation ranges, we carry out extensive and carefully validated tests. To assess the sample quality, meaningful criteria such as the integrity of the gel layer, hemolysis, cell counts (generally thrombocytes), and the stability of three cell-sensitive parameters (phosphate, glucose, LDH) are selected. For the S-Monovette® Citrate, a platelet count of < 10,000/μl (PPP) is a criterion in accordance with DIN 58905-1:2015-12.

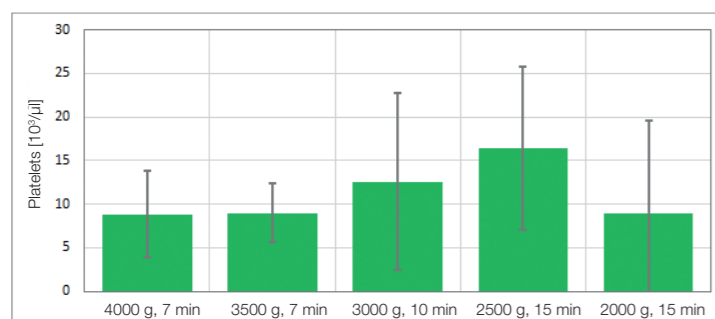


Figure 1: Platelets in plasma for S-Monovette® LH Gel 7.5 ml (n=12)

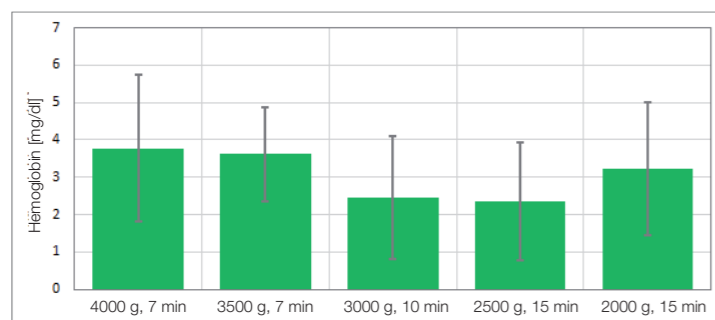


Figure 2: Hemolysis in plasma for S-Monovette® LH Gel 7.5 ml (n=12)

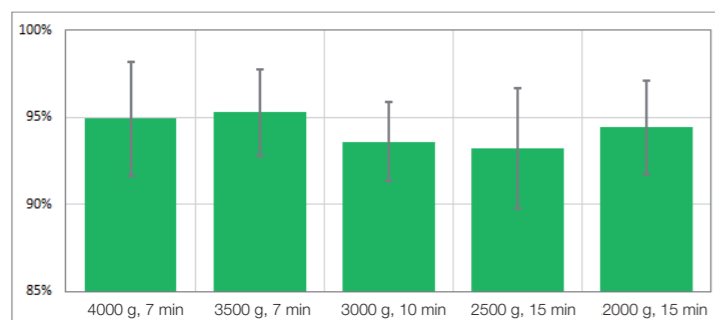
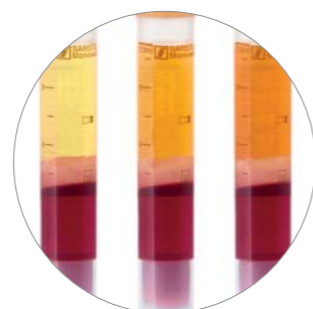
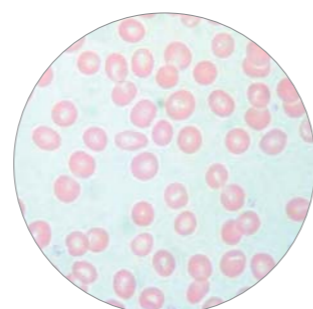


Figure 3: Recovery rate for glucose in plasma for S-Monovette® LH Gel 7.5 ml (n=12) after 7 days at 2-8 °C



# Centrifugation recommendations for S-Monovettes

## Simultaneous centrifugation of various S-Monovettes reduces the TAT

The simultaneous centrifugation of various S-Monovettes is a fast and simple option to reduce the TAT.



Example combination of S-Monovettes:

Serum, Serum Gel, Lithium Heparin Gel, Citrate, Fluoride



g-force: 2500 x g

Time: 15 min (see table)



Save a further 5 minutes of time by using the S-Monovette® Lithium Heparin Gel+

## Minimum centrifugation time

Based on BS 4851 (EU code)	ISO 6710:2017	S-Monovette®	Relative centrifugal force (g)				
			2000 x g	2500 x g	3000 x g*	3500 x g*	4000 x g*
		Serum	10 min	10 min	6 min	4 min	4 min
		Serum gel	15 min	10 min	4 min	4 min	4 min
		Lithium Heparin	10 min	10 min	7 min	7 min	7 min
		Lithium Heparin Gel	15 min	15 min	10 min	7 min	7 min
		Lithium Heparin Gel+	8 min	7 min	5 min	4 min	4 min
		EDTA Gel	15 min	10 min	pending	pending	pending
		Citrate	9 min	8 min	7 min	6 min	5 min
		Fluoride	9 min	8 min	7 min	6 min	5 min
		GlucoEXACT	9 min	8 min	7 min	6 min	5 min
		Citrate PBM 1.8 ml Centrifuge radius > 17 cm	9 min	8 min	7 min	6 min	5 min
		Citrate PBM 1.8 ml Centrifuge radius > 9 to ≤ 17 cm	n.v.	n.v.	10 min	n.v.	n.v.

n.v. = non-validated  
\* applies for all S-Monovettes with the exception of 8 mm diameter (S-Monovettes pediatrics)

Centrifugation at 20° C

## Re-centrifugation

Repeated centrifugation of sample tubes is not recommended.<sup>1</sup>

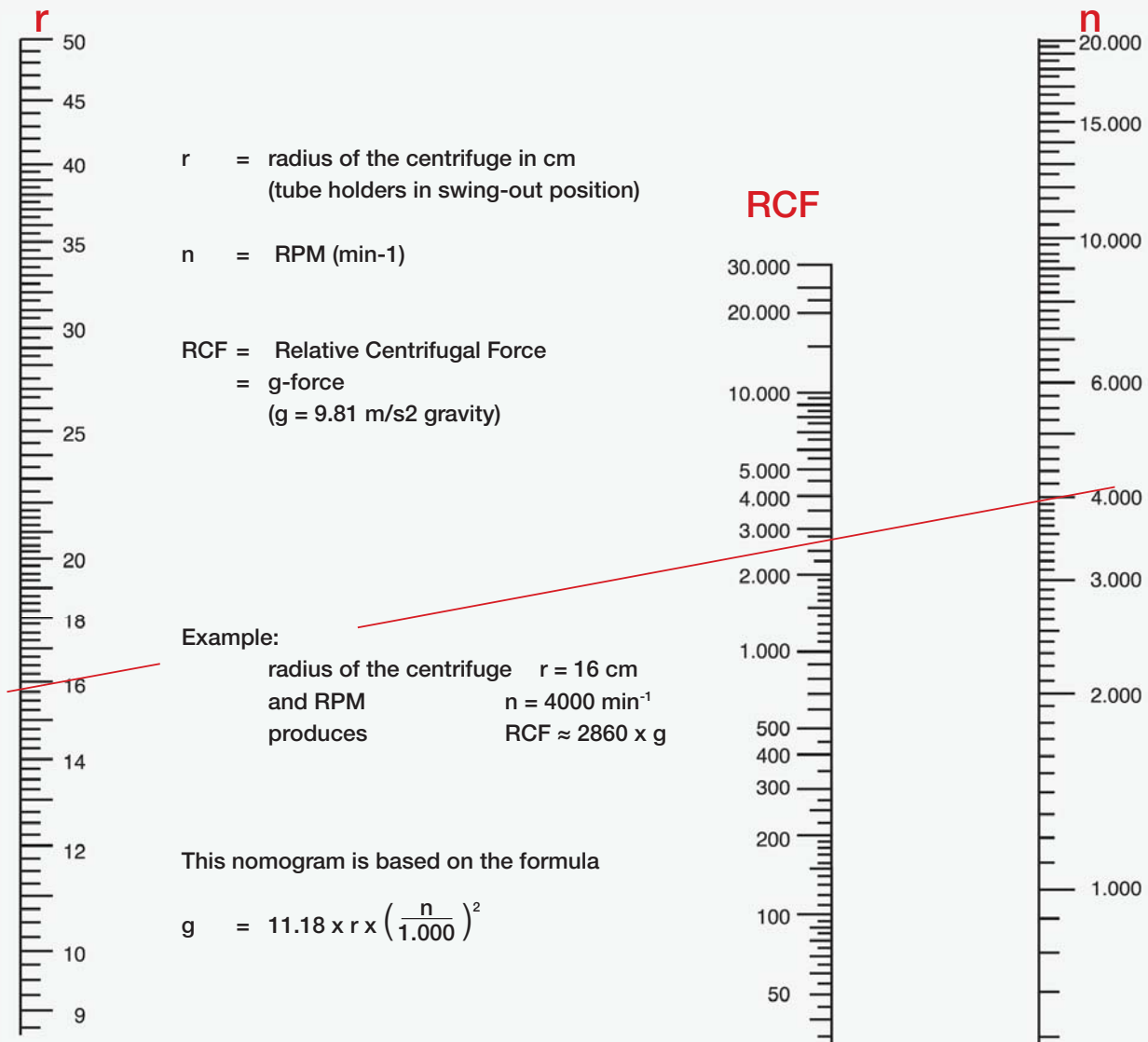
Lysed blood components may diffuse back from the centrifuged blood cells into the serum/plasma. As a consequence, cell-sensitive parameters such as potassium, phosphate, glucose or LDH are changed.<sup>2</sup>

<sup>1</sup> CLSI, GP44-A4, Section 5.4.3, 05-2010

<sup>2</sup> Hue et al; Observed changes in serum potassium concentration following repeat centrifugation of Sarstedt Serum Gel Safety Monovettes after storage; Ann Clin Biochem, 28: 309-310, 1991

# Centrifugation recommendations for S-Monovettes

## Nomogram for converting g force to RPM



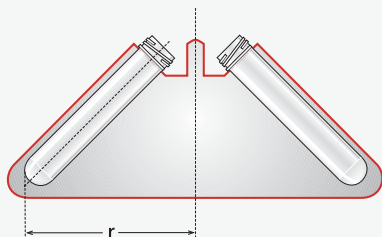
The g force can be calculated using the radius (cm) and the revolutions per minute (RPM):

$$g = 11.18 \times r \times \left(\frac{n}{1.000}\right)^2$$

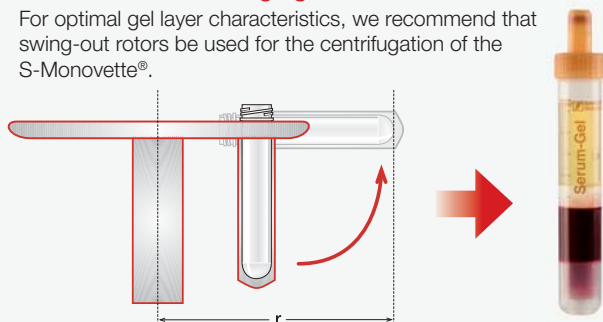
**r** = radius in cm  
**n** = RPM (min<sup>-1</sup>)

The centrifuge radius **r** can be found in the information provided by the centrifuge manufacturer or it can be determined using the following image:

Fixed-angle rotor



Swinging bucket rotor



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Further information on this subject can be found at <https://www.sarstedt.com/en/service/centrifugation/>