











Order of draw

Recommendation According to Gurr ¹	Recommendation According to CLSI ²
Blood culture	Blood culture
 Serum/ Serum gel	 Citrate*
 Citrate*	 Serum/ Serum gel
 Heparin/ Heparin gel	 Heparin/ Heparin gel
 EDTA	 EDTA
 Fluoride/ citrate-fluoride	 Fluoride/ citrate-fluoride

¹ Gurr et al "Musterstandardarbeitsanweisung Präanalytik" J Lab Med 2011

² CLSI Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture, Approved Standard, 6th edition GP 41-A6 (former H3-A6), 27 (26) 2007









* If a citrate sample is to be collected first using a Safety-Multitry[®] needle, it is recommended to first draw a discard tube.

Technical modifications reserved

This publication may contain information about products which may not be available in all countries

20-220-0100-207

Preparations and centrifugation conditions*

Preparation	Applications
 Serum	Clinical chemistry The S-Monovettes contain beads coated with a coagulation activator (silicate). This clotting additive means that the blood normally clots within 20–30 minutes, after which the sample can be centrifuged.
 Serum gel**	Clinical chemistry In addition to the coated beads, the S-Monovette [®] contains a polyacrylester gel. Due to its density, this creates a stable separating layer between the coagulum and the serum during centrifugation and acts as a barrier during transportation and storage.
 Lithium heparin	Clinical chemistry Heparin acts as an anticoagulant for recovering plasma. Heparin is applied to beads as lithium heparin, sodium heparin or ammonium heparin (generally 16 IU/ml blood) or is provided in droplet form as a spray dose (generally 19 IU/ml blood) in the S-Monovette [®] .
 Lithium heparin gel**	
 EDTA	Haematology K ₂ EDTA is available in droplet form as a spray dose in an average concentration of 1.6 mg EDTA/ml blood.
 EDTA Gel**	Molecular virus diagnostics The S-Monovette [®] K ₂ EDTA gel contains EDTA (1.6 mg/ml blood) as well as gel for a clear separating layer between the blood cells and plasma.
 Tri-sodium citrate 1:10	Coagulation Citrate is supplied as a 0.106 molar solution (corresponds to 3.2% tri-sodium citrate) for use in all coagulation physiological examinations (e.g. Quick, PTT, TZ, fibrinogen). The mixing ratio of 1:10 (1 part citrate + 9 parts blood) must be precisely followed.
 Fluoride/citrate-fluoride	Glucose The S-Monovette [®] Glucose contains fluoride (1.0 mg/ml blood) as a glycolysis inhibitor as well as EDTA (1.2 mg/ml blood) as an anticoagulant. The S-Monovette [®] GlucoEXACT is prepared with fluoride and citrate as a glycolysis inhibitor as well as EDTA liquid (multiplication factor 1.16) as an anticoagulant. Optimal glucose stabilisation up to 48 hours.

* Temperature: 18–25°C

** For gel-prepared S-Monovettes, we recommend using swinging bucket rotors only.

To convert from g force to RPM, use the centrifugation calculator at www.sarstedt.com/SERVICE/Centrifugation

S-Monovette [®]	2000 × g	2500 × g	3000 × g*	3500 × g*	4000 × g*
Serum	10 min	10 min	6 min	4 min	4 min
Serum gel	15 min	10 min	4 min	4 min	4 min
Li 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 Rotor Ø > 17 cm	9 min	8 min	7 min	6 min	5 min
Citrate PBM 1.8 ml Rotor Ø > 9 cm up to < 17 cm	n.v.	n.v.	10 min	n.v.	n.v.

n.v. = not validated

Conditions apply for a temperature of 20°C (18–25°C)

*Conditions apply for all S-Monovettes with the exception of 8 mm diameter (S-Monovettes paediatrics)

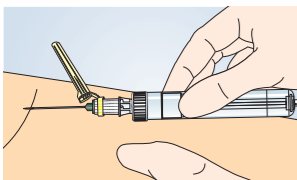
S-Monovette[®]

Safety begins with choosing the right system

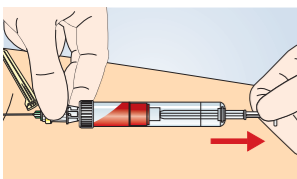


 **SARSTEDT**

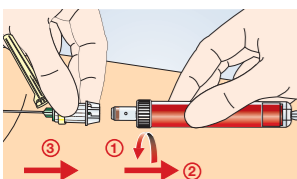
Aspiration technique



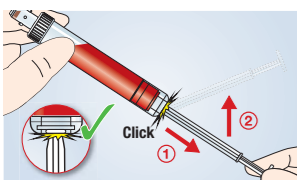
1. Assemble the Safety Needle with the S-Monovette® immediately before blood collection. Puncture the vein.



2. Slowly pull back the plunger to create a gentle blood flow. For multiple tubes, lock additional S-Monovettes onto the Safety Needle and collect blood samples as described above.

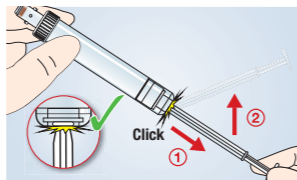


3. After completing the blood collection, remove the last S-Monovette® from the Safety Needle, and then remove the needle from the vein.

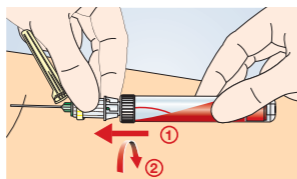


4. To ensure safety during transport and centrifugation, lock the plunger in the base of the S-Monovette® and break off.

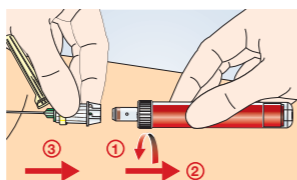
Vacuum technique



1. We recommend filling the first S-Monovette® using the aspiration technique so that the blood collection starts gently. Pull back and lock the plunger in the base of the S-Monovette® to generate a fresh vacuum immediately before blood collection. Break off the plunger.

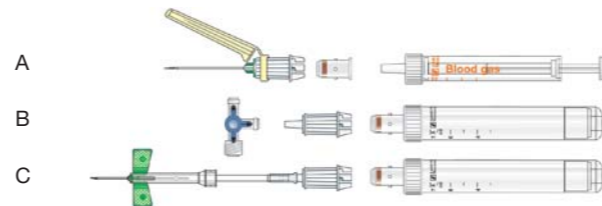


2. Connect the evacuated S-Monovette® to the Safety Needle/Safety-Multify® needle in the vein and fill. For multiple tubes, this process is repeated accordingly.



3. After completing the blood collection, remove the last S-Monovette® from the Safety Needle/Safety-Multify® needle, and then remove the needle from the vein.

Combination options



- a. Use the membrane adapter (A) to collect blood with a Luer Monovette® – e.g. Blood Gas Monovette®.
- b. Use the Multi-Adapter (B) to collect blood with the S-Monovette® from Luer connections (three-way valve, butterfly etc.)
- c. For difficult vein conditions, the Safety-Multify® Needle (C) with integrated Multi-Adapter is available.

Handling S-Monovette® Serum/Serum gel

To achieve a better serum yield, you must observe the following after collecting blood with the S-Monovette® Serum/Serum gel:



After blood collection:
Store S-Monovettes upright for 30 minutes



During the clotting phase (the first 30 min. following blood collection), it is essential to store the S-Monovettes upright to ensure a distinct separating layer after centrifugation and to avoid irregular clot shapes!

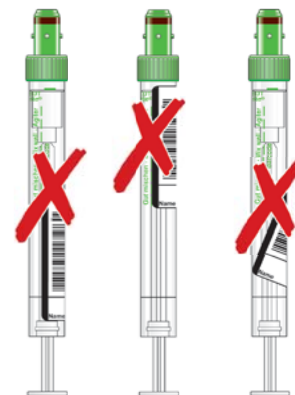


Barcode labeling and mixing

Affix barcode label below the SARSTEDT logo along the barcode line!



Correct



Wrong

Carefully invert the S-Monovettes prepared with anticoagulants to prevent clot formation:

