

## Instruction for use

### Description

#### Sunway ESR tube (REF 15007/10), 4NC ESR 3.8% Sodium citrate tube

Specification: 8x120mm, Glass, 1.28ml draw volume

Packing unit: 1200pcs

The mixing ratio is 1 part sodium citrate to 4 parts blood.

ESR tube are used for the collection of venous blood sedimentation rate testing.

ESR measurements refer to the Westergren method.

### Limitations

The quantity of blood drawn varies with altitude, ambient temperature, barometric pressure, tube age, venous pressure, venous status, blood viscosity and filling technique. In case of same apparent dimension tubes with a smaller draw volume may fill more slowly due to the smaller vacuum included.

### Handling information

#### Prevention of Backflow

Prevent potential risk of backflow from the tube, which may contain chemical additives. Observe following precautions.

1. Place patient's arm in a downward position.
2. Hold tube with the cap upper-most.
3. Release tourniquet as soon as blood starts to flow into tubes.
4. Avoid tube contents in cap or needle's end during venipuncture.

#### Centrifugation

No need for centrifugation.

#### Safety Notes

- Practice general safety precautions and consider local hygiene regulations using gloves, eye protection and appropriate protective clothing. Patient samples and all material in contact with them should be handled as infectious material and safely disposed.
- Obtain appropriate medical attention in case of any exposure to biological samples (e.g. puncture injury).
- Discard blood collection equipment (like lancets, needles, adaptors and blood collection systems) in a biohazard container approved for their disposal.
- Transfer of specimen from a syringe to SUNWAY tube is not recommended.
- If blood is collected through an intravenous (IV) line, ensure that the line has been cleared of IV solution before beginning to fill blood collection tubes.

#### Equipment required

- Alcohol swab for disinfection of puncture
- Holder and needle
- Tourniquet
- Adhesive plaster, sterile gauze
- Biohazard, needle disposal container

All the material shall be accessible before performing venipuncture.

\* Do not use needles, if the package is damaged.

#### Stability

SUNWAY tubes are stable up to the stated expiry date, when stored at 4...25°C (39...77°F) Additives are clear and colorless (liquids). Do not use tubes, if color has changed. Avoid exposure to direct sunlight and harmful environmental conditions.

#### Recommended Order of Draw

1. No Additive tube
2. Coagulation (discard the first tube, if 1. is not applied)
3. Serum tubes
4. Others (ESR=>Heparin => EDTA => Glucose)

#### Procedure

1. Use Sunway ESR tube (REF 15007/10).
2. Remove the needle cover and assemble the needle in the holder.
3. Gently tap tube to dislodge additive that may adhere in the rubber.
4. Apply tourniquet. Prepare venipuncture site with an appropriate antiseptic. Do not palpate venipuncture area after cleansing.
5. Remove needles shield and perform venipuncture. Guard back flow as described above.
6. Center tubes in holder to avoid vacuum loss by sidewall penetration. Push tube onto the needle puncturing the rubber.

7. Remove tourniquet as soon as blood appears in tube. Do not allow blood sample to contact rubber or end of needle during procedure.  
Note: Blood may occasionally leak from the needle sleeve. Practice universal precautions to minimize hazard exposure.
8. If no or insufficient blood flow into the tube: please follow the recommendation for a satisfactory collection:
  - i. Push tube again forward into the holder and ensure that the rubber is penetrated.
  - ii. Adjust needle's position in vein.
  - iii. Still no flow: Remove/discard tube and place a new tube onto the holder.
  - iv. No draw with second tube: Remove and discard needle. Start with step 1.
9. Gently remove filled tube, when blood flow stops.
10. Repeat steps 6-10 for succeeding tubes in order of draw.
11. The ESR-tube (REF 15007/10) has to be filled by the correct volume. The correct filling is achieved, if the blood level is in between the two blue lines. In case of incorrect filling, please discard the tube.
12. Gently invert tubes 8 -10 times immediately after blood collection. Do not shake tubes. (1 inversion: tube upside-down and return to upright position)
13. Remove needle as soon as blood flow in the last tube stops. Apply pressure to puncture site with sterile dry swab until bleeding stops.
14. After venipuncture, the top of the rubber may contain residual blood. Take proper precautions to avoid contact with this blood.
15. Dispose used needles and contaminated holders in a biohazard container. Do not recap the needle - Risk of infection!

**Test Method:**

**1. Use the automatic ESR Analyzer:**

After sampling, gently invert the tube 8-10 time to obtain the correct mixture. Use of a rotating mixing is recommended. Then put the ESR tube into the ESR Analyzer, it will give the data.

**2. Use the ESR rack (REF 15011)**



1> After sampling and also before starting the ESR measurement, gently invert the tube 8-10 times to obtain the correct mixture. Use of a rotating mixer is recommended.

2>Place ESR tube into the ESR rack vertically. Align the 0 mark at the bottom of the meniscus of the blood at the blood-air interface.

3> Set timer for 30 minutes.

The ESR rack is suitable for 1.28ml/1.6ml tubes delivers the 1-hour Westergren value after 30 minutes reading time. Read the data from the graduated ESR rack.

4>Discard ESR tubes without opening.

\*\* The conversion scale becomes highly compressed above Westergren values of 100mm and ESR readings above this level should be repeated using the classic Westergren method if precise values are required.

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