

	LABORATORY DEPARTMENT	Department: HEMATOLOGY
	POLICY AND PROCEDURES	Number: 223.0-Hema-gu-rev06/05

WESTERGREN SEDIMENTATION RATE (ESR)

PRINCIPAL

When freshly drawn blood is mixed with an anticoagulant, the Sedimat 15 is based upon the ability of red cells to block the transmission of infra-red light. When a properly prepared Sediplast pipette is inserted, the transmittance of all infra-red light is blocked due to the presence of blood inside the pipette. At the conclusion of timed readings the determinations of the results are calculated through an algorithm which equates to the conventional Westergren result.

REAGENTS AND MATERIAL

1. Sedimat 15
2. Sediplast pipette
3. Sed-Chek2 QC— stored at room temperature (18-39°C) until expiration date.
4. Back-up Sed-Chek2 QC for manual procedure, stored at room temperature.
5. Manual sedimentation platform.
6. Sediplast rack

SPECIMEN

The whole blood specimen is collected in an EDTA lavender tube and can be stored at room temperature for 4h or refrigerated 24h. Frozen is unacceptable. **Re-collect if these criteria are not met.**

PROCEDURE

1. After ensuring that the cap is secure, hold an orange filling tube at the top and shake downwards with a flick of the wrist to force all saline to the bottom of the tube.
2. Keep the orange filling tube upright and remove the cap.
3. Add the specimen to the fill line (0.8mL added to 0.2mL saline), replace the cap, and invert 5 times to mix.
4. Plunge the Sediplast pipette into the top of the orange filling tube all the way to the bottom. It is essential that it makes firm contact with the bottom.
5. Place the Sediplast pipette(s) into any available channel of the Sedimat. It is best to rotate the channels, rather than use the same one. The LCD will read: **CONF.**, followed by the channel number(s).
6. Press the ENTER key. The Sedimat will scan the pipette(s) and start the internal timer for each channel. The LCD will read: **SCAN**, followed by the channel number(s).
7. At the conclusion of the test, the Sedimat will beep, and the LCD will read **END**, followed by the channel number(s). The results will be automatically printed.
8. Press the ENTER key and remove the pipettes.
9. Results remain in filed readings until the same channel is used again. This can be access for results should the printer fail (refer to Operator's Guide).
10. Enter the results into the LIS.

MANUAL PROCEDURE

1. If the Sedimat 15 malfunctions and unable to be used then this manual procedure will be the back up method until a replacement Sedimat 15 is received.
2. Obtain sedimentation platform located in hematology (labeled on cabinet).

3. Make sure you use the two adjustments knobs to level. There's a Bull's eye bubble which will need to be within the circle to be level.
4. Place Sediplast rack on the sedimentation platform. Make platform is still level.
5. At this time you're ready to run. Run manual QC before you start running patients.
6. This is a sixty minute procedure. QC ranges will be in the package insert to make sure your QC is valid before reporting out any patients.
7. QC is performed once per day on night shift.

MAINTENANCE

Once per day, the channels are cleaned with a cloth dampened with deionized water. The Sedimat is unplugged, then plugged back in to perform an autotest, which must succeed for the instrument to operate. Note the maintenance on the ESR control sheet.

QUALITY CONTROL

Well mix two levels of Sed-Chek 2 QC materials. Process as a patient, using different channels than were used the previous day. Record results on the ESR control sheet. These must be in range before running patient samples. Repeat out of range results once, and then troubleshoot if still out of range.

NORMAL RANGES

Men	0-20mm/hr
Women	0-30mm/hr
Children	0-10mm/hr

LIMITATIONS

Results greater than 100 should be repeated, ensuring that the pipette was pushed all the way to the bottom of both the filling tube and Sedimat, as this can cause spurious high results. If result repeats greater than 140, report >140mm/hr.

REFERENCES

1. *ARUP: Sedimentation Rate, Westergren (ESR)*. (4/29/2005). p.1 of 1. www.ARUPlab.com/guides/og/tests/0040325.jsp.
2. Miale, J.B., 5th Ed. (1977). *Hematology – The Blood, Laboratory Medicine*. St. Louis: Mosby.
3. *Sedimat 15 User Manual*, Version 3.1 (2001), NY: Polymedco.
4. *Sediplast Westergren ESR System*. Package Insert (2003), NY: Polymedco.

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