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Tissue-Tek® SCA™ Coverslipper-RO

Document Type: Procedure

I. PURPOSE AND OBJECTIVE:

This procedure provides instructions for operation and maintenance of the Tissue-Tek® SCA™ Coverslipper.

II. INTRODUCTION:

A. The Tissue-Tek® SCA™ Coverslipper is an automated instrument for coverslipping biological specimens that are mounted on standard 25 x 75 mm (1 x 3 in) microscope slides. The use of a special resin-coated film eliminates the need for cover glasses and liquid mounting media. Coverslipping requires only 3 seconds per slide, with continuous processing from preloaded baskets. The coverslipped slides dry rapidly and are ready for microscopic examination almost immediately after processing. A microcomputer controls the mechanical movements, as well as the positioning and length of the coverslipping film.

B. All operating functions are controlled through the control panel. Specimen slides that are ready for coverslipping are placed into baskets that are then loaded into the left side of the instrument. Each slide is pushed from the basket and transported along a conveyor, where xylene is dispensed onto the top of the slide. The coverslipping film is fed forward, cut, and applied to a receiving basket on the right side of the instrument. Once the receiving basket is full, it drops into position for removal from the instrument.

III. SPECIMEN COLLECTION AND HANDLING:

Type	Wright-Giemsa stained peripheral blood, bone marrow aspirate smears and body fluid cytocentrifuge smears. Perl's Iron stained peripheral blood and bone marrow aspirate smears.
Special handling	A. All immersion oil must be removed from smears prior to coverslipping. B. Slides should be free of paraffin, foreign debris and staining residue.
Removal of coverslipping film	Refer to Attachment A for removal information.
Storage of coverslipped slides	A. Archived slides should be stored in a vertical upright position with the coverslipped surface of one slide touching the glass back surface of the adjacent slide. Use of slide storage boxes or folders with separate slides is

not recommended for long-term storage. Film coverslipped slides should be stored in a temperature and humidity stable environment with relative humidity <50%, temperature 19-25°C.

B. Avoid long exposure to fluorescent light or sunlight, which may cause stain fading. Slides can be stored within 24 hours after being coverslipped.

NOTE: Any amount of water or alcohol remaining on the slides may interfere with immediate or long-term adherence of the coverslipping film.

IV. REAGENTS

A. **Xylene:**

1. Clean, reagent grade xylene. Do not use redistilled xylene or any xylene substitutes on the instrument.

V. SUPPLIES:

A. **Tissue-Tek® Coverslipping Film:**

1. Cellulose triacetate film that is coated on one side with a mounting medium that is activated by xylene and on the other side with a coating that reduces permeability to air and moisture.
2. Each roll is sufficient to coverslip at least 1000 slides.

B. **Tissue-Tek® Cutter Blades:**

1. Replacement blades for coverslipper. The blade should be replaced after every 10 rolls of film or whenever the film cut is ragged or torn.

C. **Tissue-Tek® Slide Baskets:**

1. Each basket holds 20 slides. A basket should be replaced if any portion of the basket is broken or if the teeth on the bottom are chipped or worn.

VI. MAINTENANCE:

Refer to Attachment A for maintenance information.

VII. SPECIAL SAFETY PRECAUTIONS:

Xylene Hazard Risk

The Occupational Health and Safety Administration (OSHA) Hazard Communication Standard of 29CFR part 1910.1200 requires material safety data sheet (MSDS) documentation of ingredients which have been determined to be health hazards, comprise 1% or greater of the composition, are physical hazards, are capable of release to exceed permissible exposure limit/threshold limit values or have been identified as carcinogens. Xylene does have ingredients with those characteristics.

CAUTION: Potential health effects.
Eyes: Causes redness and pain.
Skin: Harmful if absorbed through the skin.
Ingestion: Aspiration hazard.

Inhalation: Harmful if inhaled.
WARNING: Wear chemical splash goggles or face shield to protect eyes. Wear appropriate gloves and protective clothing to prevent skin exposure. **Carcinogenicity: This product contains Ethyl benzene, a chemical known to cause cancer.**

VIII. PROCEDURE:

A. Routine Operation:

1. Ensure volume of xylene in reservoir bottle is sufficient for entire run. Minimum volume for operation is 250 mL (about ½ full). When refilling, be sure the cap and gaskets are properly seated on the bottle and that all air bubbles have been bled from line. Refer to Attachment B – Periodic Maintenance - for complete instructions.

   NOTE: Failure to purge line may result in bubbles after adding xylene to the reservoir bottle and may also result in bubbles under the coverslipping film due to improper delivery of xylene to your slide.

2. Check volume in waste bottle. Empty if necessary into appropriate container for xylene disposal. Replace bottle under the waste spout. Ensure vent hole in waste bottle is facing forward to eliminate possibility of overflow through hole.

3. Ensure Tissue-Tek® SCA™ Coverslipper is powered “ON”. If not, power button is located on the left side of the control panel along the top of the instrument. After pressing, an internal check is performed, with each of the indicator lights on the control panel illuminating momentarily, followed by a single beep. The “XYLENE CHECK” and “LONG” lights will remain illuminated. If the film has not been loaded and/or receiving baskets are not in place, the “FILM” and/or “BASKET” lights will also be illuminated. Refer to Attachment C for coverslipping film loading instructions.

4. Open the glass doors on the front of the instrument by pressing the metal plate on the upper part of each door. (If the right door is opened first, it will cause the left door to also open.) The “DOOR” indicator light will illuminate when the door is left open.

5. Load one or two empty baskets into the receiving channel. The baskets must be loaded with “UP SIDE” facing up and the basket guide pin inserted into the groove of the receiving channel.

6. Load the basket with slides to be coverslipped. The specimen side of the slide must face forward (toward the words “UP SIDE” on the basket). The label end of the slide must be to the outside (top) of the basket. Each slide must be in parallel grooves. Each basket can hold up to 20 slides, with slides loaded into any set of grooves in the basket.

   NOTE: Prior to placing on the loading stage, the slide basket should be quickly blotted and drained, as needed, to minimize excess xylene in the slide transfer pathways.

7. Close glass doors, right side first. Both doors must be closed for operation.

8. Film length default is “LONG”.

9. When prompted by the illuminated “CHECK” light, confirm the xylene drip volume by pressing the “XYLENE CHECK” keypad. The xylene should be dripping at a rate of 6-9 drops per slide. Adjust the volume as necessary by turning the xylene adjustment knob. Turn the knob counterclockwise to increase the volume, clockwise to decrease. For proper coverslipping, the xylene must cover the entire sample area of the slide.

10. Press the “START” keypad. The instrument will begin processing slides at the rate of one slide every

3 seconds.

11. When all slides have been coverslipped and deposited in the receiving basket, press “STOP” to end the mechanical movement of the instrument.
12. Remove basket from loading chute and basket with coverslipped slides from finished area.

B. **To restart the instrument after it has been stopped (without turning the power off):**

1. Ensure any condition that may have stopped the instrument has been corrected.
    a. Film is present and correctly loaded
    b. Empty basket is in place in the receiving channel
    c. Both doors are closed (close the right door first)
2. Load a new basket of slides for coverslipping in to the loading channel, if necessary.
3. Press the “XYLENE CHECK” keypad to verify the xylene drip rate.
4. Press “START” to begin operation again.

C. **For prolonged downtimes of Tissue-Tek® SCA™ Coverslipper:**

1. Press the “STOP” keypad.
2. Turn the instrument power off by pressing the power button.
3. Unthread the coverslipping film. It should be pulled back through the threading mechanism and rewound on roll.

    NOTE: If film is left threaded on the instrument, it will “remember’ the shape of the roller mechanism and will not lie flat when placed on a slide.
4. Leave the fume control unit powered on to remove any lingering xylene fumes in the instrument.

IX. LIMITATIONS:

The instrument will not start processing if any light is illuminated on the control panel, with the exception of the film length indicator.

X. INTERFERING SUBSTANCES:

Any amount of water or alcohol remaining on the slides may interfere with immediate or long-term adherence of the coverslipping film.

XI. WARNINGS:

A. Because of the speed with which the coverslipping process occurs, it is recommended that the instrument be attended at all times during operation.

B. Do not stack two **full** baskets in the loading channel at the same time. Do not force baskets on or down the loading channel. Disregarding these instructions may damage the delivery catches and cause a failure.

XII. NOTES:

A. A safety device on the ejector prevents movement if a slide is misaligned or jammed in the basket. In

addition, the pressure exerted by the ejector on a slide is insufficient to cause breakage if the slide is slightly tilted.

B. An alarm sounds and the mounting operation is stopped if any of the following conditions occur:
   1. Either door is opened
   2. The film roll is used up
   3. A receiving basket is not in place
   4. The conveyor stalls

C. The mounting operation (dispensing of xylene and advancement of film) occurs only when a slide is detected on the conveyor. If no slide is in place to receive the xylene and film, these operations do not occur, even though the conveyor continues to run.

D. If a slide jam occurs that stops the conveyor, all mechanical movement is stopped, an alarm sounds, and all lights on the control panel will blink repeatedly. (The instrument power must be turned off in order to correct this problem and begin processing again.)

E. Prompt attention to a potential problem can prevent damage to specimens and/or slides; therefore, **the instrument should always be attended when it is operating**.

XIII. REFERENCES:

A. Sakura Tissue-Tek® SCA™ Coverslipper Model 4764 Operating Manual, 1997 Sakura Finetek U.S.A., Inc.

B. Material Safety Data Sheet-Xylenes

Attachments

Attachment A – REMOVAL OF THE COVERSLIPPING FILM.pdf
Attachment B – COVERSLIPPER MAINTENANCE.pdf
Attachment C – LOADING THE COVERSLIPPING FILM.pdf

Approval Signatures

Step Description	Approver	Date
	Ann Marie Blenc: System Med Dir, Hematopath	12/8/2021
Hematology Medical Director Designee	Ann Marie Blenc: System Med Dir, Hematopath	12/8/2021
Policy and Forms Steering Committee Approval (if needed)	Gail Juleff: Project Mgr Policy	12/8/2021
Policy and Forms Steering Committee Approval (if needed)	Michele Sedlak: Medical Technologist Lead	12/8/2021
System Manager	Rebecca Bacarella: Mgr Laboratory	9/30/2021
	Michele Sedlak: Medical Technologist Lead	9/11/2021

Applicability

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