BIOGNOST®

SODIUM THIOSULFATE, 5% SOLUTION

IVD *In vitro* diagnostic medical device CE

For use with staining in special kits
INSTRUCTIONS FOR USE

REF Product code: NT5-OT-100

Introduction

Sodium thiosulfate, 5% solution is a component of special kits, such as Reticulin and Reticulin contrast, Masson Fontana, Von Kossa, Movat and Verhoeff kits. These are special kits used to detect argentophilic and argentaffin fibers in histology samples. Sodium thiosulfate solution's role is rinsing and removing unbound silver after using silver nitrate solution on the sample.

Product description

- **SODIUM THIOSULFATE, 5% SOLUTION** – sodium thiosulfate aqueous solution.

Example of using Sodium thiosulfate, 5% solution as a component of Reticulin contrast kit

Other sections and reagents that may be used for staining:

- Fixatives such as BioGnost's neutral buffered formaldehyde solutions: Formaldehyde NB 4%, Formaldehyde NB 10%
- Dehydrating/rehydrating agent, such as BioGnost's alcohol solutions: Histanol 70, Histanol 80, Histanol 95 and Histanol 100
- Clearing agents, such as BioClear xylene or a substitute, such as BioClear New agent on the aliphatic hydrocarbons basis
- Infiltration and fitting agent, such as BioGnost's granulated paraffin BioWax Plus, BioWax 56/68, BioWax Blue, BioWax Micro
- High-quality glass slides for use in histopathology and cytology, such as VitroGnost SUPER GRADE, VitroGnost COLOR or one of more than 30 models of BioGnost's VitroGnost glass slides
- Other Reticulin contrast kit components: Potassium permanganate, 0.5% solution (KP05-OT-100), Sulfuric acid, 3% solution (SK3-OT-100), Oxalic acid, 1% solution (OKS1-OT-100), Ammonium iron sulfate (ASF-OT-100), Silver ammonium solution (SA-OT-100), Formaldehyde 4%, alcoholic solution (F4A-OT-100), Gold chloride, 0.2% solution (ZK02-OT -100), Nuclear Fast Red (Kernechtrot) reagent (KR-OT-100).

CAUTION:

Adhere to the following rules in order to achieve the best results:

- use distilled or demineralized high purity water **WITHOUT** any chlorine
- use completely clean laboratory glassware
- avoid contact between metal objects and solution (scissors, tweezers and so on)
- apply the reagent so that it completely covers the section
- if a precipitate appears in Ammonium sulphate, solution, it must be filtered (the precipitate does not affect the staining quality)

Preparing histology samples for staining

- Fix the sample (Formaldehyde NB 4%, Formaldehyde NB 10%), rinse with water and dehydrate through series of ascending alcohol solutions (Histanol 70, Histanol 80, Histanol 95 and Histanol 100).
- Clear the sample with intermedium; using xylene (BioClear) or xylene substitute (BioClear New).
- Infiltrate and fit the sample in paraffin (BioWax Plus 56/58, BioWax 56/58, BioWax Blue, BioWax Micro).
- Cut the paraffin block to 4-6 μm slices and mount them on a VitroGnost Super Grade glass slide.

Histology samples staining procedure using 100 mL nine-reagent Reticulin contrast kit (RET-K-100)

Pour the reagents into glass staining jars (Coplin, Hellendahl or Schifferdecker), return to original bottles after staining. Close tightly. Filter the reagents if necessary.

1.	Deparaffinize the section in xylene (BioClear) or in a xylene substitute (BioClear New)	3 exchanges, 2 minutes each
2.	Rehydrate using 100% alcohol (Histanol 100)	2 exchanges, 5 and 3 minutes
3.	Rehydrate using 95% alcohol (Histanol 95)	2 minutes
4.	Rehydrate in distilled (demi) water	2 minutes
5.	Prepare the working solution: mix an equal volume of potassium permanganate solution and sulfuric acid solution. Note: Always prepare a fresh working solution.	
6.	Dip the section in working solution and let it act	5 minutes
7.	Rinse in distilled (demi) water	until excessive reagent is washed off the sample
8.	Treat with Oxalic acid, 1% solution	1 minute
9.	Rinse in distilled (demi) water twice	until excessive reagent is washed off the sample
10.	Treat with Ammonium iron sulfate, solution	3 minutes
11.	Rinse in distilled (demi) water twice	until excessive reagent is washed off the sample
12.	Treat with Silver ammonia solution	3 minutes
13.	Rinse in distilled (demi) water	until excessive reagent is washed off the sample
14.	Treat with 4% formaldehyde, alcoholic solution	5 minutes
15.	Rinse in distilled (demi) water twice	until excessive reagent is washed off the sample
16.	Treat with Gold chloride, 0.2% solution	2 minutes
17.	Rinse in distilled (demi) water	until excessive reagent is washed off the sample
18.	Treat the sections with Sodium thiosulfate, 5% solution	2 minutes
19.	Rinse in distilled water	until excessive reagent is washed off the sample
20.	Stain with Nuclear Fast Red (Kernechtrot) reagent	5 minutes

21.	Dehydrate using 70% alcohol (Histanol 70)	5 dips
22.	Dehydrate using 95% alcohol (Histanol 95)	5 dips
23.	Dehydrate using 100% alcohol (Histanol 100)	2 minutes
24.	Clear the section in xylene (BioClear) or in a xylene substitute (BioClear New)	2 exchanges, 2 minutes each

Immediately after clearing apply an appropriate BioMount medium for covering/mounting on the section. If BioClear xylene was used, use one of BioGnost's mounting xylene-based media (BioMount, BioMount High, BioMount M, BioMount DPX, BioMount C, or universal BioMount New). If BioClear New xylene substitute was used, the appropriate covering agent is BioMount New. Cover the section with VitroGnost cover glass.

Results

Reticular and nerve fibers – dark purple to black
Nuclei – pink to red
Collagen – ocher to brown-black
Background – soft pink

Note

Microbiology staining procedures are not standardized and they depend on standard operating procedures of individual laboratories and the experience of the personnel conducting the staining procedure. Intensity of staining depends on the period of immersion in the dye. Real staining protocol depends on personal demands and priorities.

Preparing the sample and diagnostics

Use only appropriate instruments for collecting and preparing the samples. All the samples must be processed with the most modern technology and be visibly marked. Follow the manufacturer's instructions for handling. In order to avoid mistakes, staining must be conducted by a trained professional. Only trained medical personnel may make a diagnosis. Use only microscope according to standards of the medical diagnostic laboratory.

Safety at work and environmental protection

Handle the product in accordance with safety at work and environmental protection guidelines. Used solutions and out of date solutions should be disposed of as special waste in accordance with national guidelines. Chemicals used in this procedure could pose danger to human health. Tested tissue specimens are potentially infectious. Necessary safety measures for protecting human health should be taken in accordance with good laboratory practice. Act in accordance with signs and warnings notices printed on the product's label, as well as in BioGnost's material safety data sheet which is available on demand.

Storing, stability and expiry date

Keep Sodium thiosulfate, 5% solution at temperature between +15°C and +25°C. Do not freeze and avoid exposing to direct sunlight. Date of manufacture and expiry date are printed on the product's label.

References

1. Gomori, G. (1939): The effect of certain factors on result of silver impregnation for Reticulum fibers, Am. J. Path. , 15; 493-495
2. Gordon et Sweet, H. (1936): A rapid method for silver impregnation of reticulum, Am. J. Path., 12: 545-551

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Refer to the supplied documentation	Storage temperature range	Number of tests in package	REF	Product code	CE	European Conformity	BIOGNOST Ltd. Medjugorska 59 10040 Zagreb CROATIA www.biognost.com	CE
Refer to supplied instructions	Keep away from heat and sunlight	Valid until	LOT	Lot number		Manufacturer		
IVD For *in vitro* diagnostic use only	Keep in dry place	Caution - fragile						