BUFFER TABLETS 6.8
BUFFER TABLETS 7.2

IVD *In vitro* diagnostic medical device CE

Phosphate buffer tablets for use in hematology, cytology and histology
INSTRUCTIONS FOR USE

REF Catalogue number:	Buffer tablets 6.8	PT-68-50 (50 pcs)	PT-68-100 (100 pcs)
	Buffer tablets 7.2	PT-72-50 (50 pcs)	PT-72-100 (100 pcs)

Introduction

BioGnost's Buffer tablets are used for preparation of phosphate buffer solutions with stable pH, buffer capacity and low temperature coefficients. Buffer tablets are easy to use and dissolve easily. After that the pH value is automatically set at the necessary level. Besides general use in many histological and cytological methods in which buffer tablets are dissolved in distilled water, they are frequently used in practical hematology in blood smear counting procedures. In that case the buffer solution is essential for preparation of diluted Giemsa/May-Gruenwald/Wright/Leishman solutions and for rinsing stained samples without destaining the cells.

Product description

- **BUFFER TABLETS** - Tablets (50 or100 pcs) for preparation of phosphate buffer solution with pH value of 6.8 or 7.2

Other slides and reagents that may be used in staining:

- Fixative reagent, such as BioGnost's Histanol M
- Hematology staining reagents, such as BioGnost's solutions: Giemsa, May-Gruenwald, Wright, Wright-Giemsa, Leishman.
- Glass slides used in hematology, such as VitroGnost STANDARD GRADE or high quality glass slides used in histopathology and cytology, such as VitroGnost SUPER GRADE or one of more than 30 models of VitroGnost glass slides

Preparation of buffer solutions with pH value of 6.8 or 7.2

Dissolve 1 buffer tablet of the appropriate pH value in 1 liter of distilled water while stirring. Filter the solution. The buffer solution is stable for approximately 4 weeks if stored in a tightly closed glass bottle.

Note: If it is necessary to manufacture buffer solution with pH value of 7.0, equal volumes of buffer solutions (pH 6.8 and 7.2) should be mixed.

Diluted Giemsa solution for manual staining

Dilute 10 ml of Giemsa solution in 190 ml of buffer solution, stir well, let it sit for 10 min. Filtrate if necessary.

Staining procedure

Staining on a rack using Giemsa solution

- Fixate the previously dried blood smears by immersing them for 3-5 min in methanol (Histanol M).
- Immerse the fixated smear in the diluted Giemsa solution for 15-20 min.
- Rinse the smear twice in the buffer solution during 1 min time.
- Dry the smear.

Staining on a rack using May-Gruenwald solution

- Immerse the dried smear in the May-Gruenwald solution for 3 min.
- Remove the sample from the solution. Apply 1 ml of buffer solution on horizontally placed sample and leave it to react for 6 min.
- Rinse the smear using the buffer solution.
- Dry the smear.

Staining on a rack using Wright solution

- Immerse the smear dried on air in Wright solution for 1 min.
- Remove the sample from the solution. Apply 1 ml of buffer solution on horizontally placed sample and leave to react for 4 min.
- Rinse the smear using the buffer solution.
- Dry the smear.

Staining on a rack using Leishman solution

- Immerse the smear dried on air in Leishman solution for 1 min.
- Remove the sample from the solution. Apply 1 ml of buffer solution on horizontally placed sample and leave it to react for 5 min.
- Rinse the smear using the buffer solution.
- Dry the smear.

Result (pH 6.8)

Type or part of cell / staining result	*Giemsa solution*	*May-Gruenwald solution*	*Wright solution*	*Leishman solution*
Nucleus	red-purple	red-purple	red-purple	red-purple
Lymphocyte plasma	blue	blue	blue	blue
Monocyte plasma	grey-blue	grey-blue	grey-blue	grey-blue
Neutrophil granules	bright purple	bright purple	bright purple	bright purple
Eosinophil granules	red to grey-blue	dark red to red-brown	dark red to red-brown	dark red
Basophil granules	dark purple	dark purple to black	dark purple to black	dark purple
Thrombocytes	purple	purple	purple	purple
Erythrocytes	reddish	reddish	reddish	reddish

Note

Time periods of staining processes are not entirely standardized and they approximately correspond to clinical and laboratory practical experience. Intensity of staining depends on the period of immersion in the dye. By using the pH 6.8 buffer, erythrocytes will be stained bright red, while the cells containing nuclei will be stained intensive red-purple (view the table). The pH 7.2 buffers stain erythrocytes greyish, and cells containing nuclei are stained more intensely red-purple. Real staining protocol depends on personal requests and priorities.

Preparing the sample and diagnostics

Use only appropriate instruments for collecting and preparing the samples. Process the samples with modern technology and mark them clearly. Follow the manufacturer's instructions for handling. In order to avoid mistakes, the staining procedure and diagnostics should only be conducted by authorized and qualified personnel. Use only microscope according to standards of the medical diagnostic laboratory. In order to avoid an erroneous result, a positive and negative check is advised before application.

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.

Storing, stability and expiry date

Keep buffer tablets in a tightly closed original package at a temperature of +15 to +25 °C. Do not keep in cold places, do not freeze and avoid exposing to direct sunlight. Date of manufacture and expiry date are printed on the product's label.

References

1. Fritsch, E. F., Maniatis, T. et Sambrook, J. (1989): Molecular Cloning: A Laboratory Manual, 2nd ed., New York, Cold Spring Harbour Laboratory Press.
2. Ionatamishvili, T. V. et al. (1970): Tablets for adjusting and checking pH meters, *Measurement techniques,* 14 (2): p 310-312.
3. Robinson, R. A. et Stokes, R. A. (1968): Electrolyte solutions, 2nd ed., London, Butterworths.

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	Refer to the supplied documentation	°C	Storage temperature range	Σ	Number of tests in package	REF	Product code	CE	European Conformity		BIOGNOST Ltd. Medjugorska 59 10040 Zagreb CROATIA www.biognost.com
	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						