CRYSTAL VIOLET SOLUTION

DESCRIPTION
CRYSTAL VIOLET SOLUTION is a solution utilized for Gram staining

PRINCIPLE
Gram staining is based on the property of crystal violet to combine with iodine, forming compounds not decolourable with alcohol or with alcohol-acetone mixture. Some bacteria have a special affinity for this reaction and, once stained by crystal violet, they don't lose the colour if treated with alcohol or with alcohol-acetone mixture, thus retaining the blue colouring (Gram-positive bacteria). Other ones lose the blue colour and are stained by saphranine assuming a red colouring (Gram-negative bacteria).

TYPICAL FORMULA

Crystal Violet solution	Crystal Violet	2%
	Ethyl alcohol	20%
	Ammonium oxalate	0.8%

TECHNIQUE
Preparation and fixation

Using clean slides, streak the culture or the pathological sample. Leave to dry in the air and fix byheat through quick passages over the flame. Perform the fixation of the sample avoiding an excess of heat. Other fixation methods can be applied.

Colouring

1. Cover the slide with the Crystal Violet Solution. Wait 1 minute, then wash gently with water.
2. Cover the slide with the Lugol-PVP Solution. Wait 1 minute, then wash gently with water.
3. Decolour with Decolouring Solution as long as the preparation releases colour (about 30-60 seconds), then wash gently with water.
4. Cover the slide with Saphranine Solution. Wait 30-60 seconds, then wash gently with water.
5. Dry.
6. Observe the preparation under a microscope with an immersion objective.

INTERPRETATION OF RESULTS
Gram-negative microorganisms appear red-stained.
Gram-positive microorganisms appear blue-stained.
Gram colouring allows to differentiate:

- Gram-negative bacilli from the Gram-positive ones;
- Gram-negative cocci from the Gram-positive ones;

STORAGE
10-25°C away from light, until the expiry date on the label or until signs of deterioration or contamination are evident.

WARNING AND PRECAUTIONS
CRYSTAL VIOLET SOLUTION contains substances classified as harmful by current legislation; for its use it is recommended to consult the safety data sheet. The product is designed for *In vitro* diagnostic use and must be used only by properly trained operators.

DISPOSAL of WASTE
Disposal of waste must be carried out according to the national and local regulations in force.

REFERENCES
1. *Kruczak-Filipov, P., and R.G. Shively. 1992. Gram stain procedure, p. 1.5.1-1.5.18. In H.D. Isenberg (ed.) Clinical Microbiology Procedures Handbook, vol. 1. American Society for Microbiology, Washington, D.C.*
2. *Murray, P.R. (ed.) 1999. Manual of Clinical Microbiology, 7th ed. American Society of Microbiology, Washington, D.C.*

PRODUCT SPECIFICATIONS

NAME
CRYSTAL VIOLET SOLUTION

PRESENTATION
CODE 80299
Bottle containing 1000 mL of solution.

STORAGE
10-25°C

PACKAGING

Code	Content	Packaging
80299	1 bottle x 1000 mL	• 1 bottle in cardboard box

USE
CRYSTAL VIOLET SOLUTION is a solution utilized for Gram staining.

TECHNIQUE
Refer to technical sheet of the product.

APPEARANCE OF THE MEDIUM
Violet solution.

SHELFLIFE
2 years

QUALITY CONTROL
1. Control of general characteristics, label and print

2. Microbiological control
   Each batch of CRYSTAL VIOLET SOLUTION is subjected to the quality control using a culture of *Escherichia coli* ATCC 25922 for the control of Gram-negative bacteria (red colour) and a culture of *Staphylococcus aureus* ATCC 25923 for the control of Gram-positive bacteria (blue colour).

TABLE OF SYMBOLS

Symbol	Meanings
	Manufacturer
REF	Catalogue number
	Use by
	Temperature limitation
	Caution, consult accompanying documents
	Do not re-use
	Fragile, handle with care
	Contains sufficient for <n> tests
LOT	Batch code
IVD	For *in vitro* diagnostic use

CE IVD

Liofilchem s.r.l Bacteriology Products
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