Revised: October 27, 2017

Product Information

Paraformaldehyde, 4% in PBS, Ready-to-Use Fixative

Catalog Number: 22023

Unit Size: 5 x 20 mL

Storage and Handling

Store at room temperature. Unopened bottles are stable for at least 5 years when stored as recommended. After opening, bottles can be stored tightly sealed at 4°C for at least one month, or as long as no precipitation is observed. Do not freeze.

Paraformaldehyde 4% solution and its vapor are carcinogenic and toxic. Handle with care and dispose as hazardous waste. Read the SDS for complete hazard and disposal information.

Product Description

Paraformaldehyde, 4% in PBS is a ready-to-use fixation solution for cells or tissues. It is electron microscopy-grade paraformaldehyde dissolved in pH 7.4 PBS with no methanol added. UV light and oxygen are known to cause formaldehyde degradation over long-term storage. Biotium's unique packaging method ensures the high quality of the formaldehyde by using amber glass vials packaged under argon gas and tightly sealed with pharmaceutical grade enclosures.

Aldehyde fixatives act by chemically cross-linking free amine groups on proteins. Formaldehyde is a commonly used fixative, but it is not stable in solution, because under exposure to light and oxygen it polymerizes and precipitates. Formaldehyde solution is commonly stabilized by the addition of methanol. The classic fixative used for pathology is 10% neutral buffered formalin, which is a solution of 10% formaldehyde in sodium phosphate buffer containing up to 1.5% methanol.

Many researchers prefer to use methanol-free formaldehyde for fixation, because methanol can permeabilize cell membranes and affect the morphology of cellular structures like the actin cytoskeleton. To make formaldehyde solution, the polymerized paraformaldehyde solid must be heated in basic water to form reactive formaldehyde. Fixative solutions prepared from paraformaldehyde solid are commonly referred to as paraformaldehyde solution or PFA. While technically inaccurate, it serves to distinguish stabilizer-free formaldehyde solution from methanol-stabilized formaldehyde.

Paraformaldehyde solid and formaldehyde solution and vapor are toxic and carcinogenic, so preparing fresh fixative from paraformaldehyde solid is not only inconvenient, but also hazardous. Biotium's paraformaldehyde fixative is a convenient and safer alternative to preparing fixative from scratch.

Protocols for Use

Fixation of cultured cells

1. Remove culture medium and rinse cells twice with PBS, HBSS, or other buffer of your choice. We recommend using a buffer that contains calcium and magnesium to maintain cellular adhesion and morphology.
2. Add enough fixative to the culture vessel to completely submerge the cells. Incubate at room temperature for 15-20 minutes.

   Note: Fixation also can be performed at 4°C to preserve cellular morphology. Perform fixation on ice using pre-chilled buffer and fixative solution.
3. Remove the fixative and rinse cells three times with PBS or other buffer of your choice.
4. Proceed to permeabilization, blocking, and immunofluorescence or other staining.

Fixation of fresh-frozen cryosections

1. Remove slides from the freezer and air dry them at room temperature.
2. If using a Pap pen to create hydrophobic barriers, draw the barriers around the sections and allow to dry completely.
3. Place slides in a slide staining jar and pour in enough fixative to completely cover the sections.
4. Incubate for 20 minutes at room temperature.
5. Pour off the fixative.
6. Rinse the sections three times with PBS or other buffer of your choice.
7. Proceed to blocking and immunofluorescence or other staining.

Related Products

Catalog No.	Product Name
23001	EverBrite™ Mounting Medium
23002	EverBrite™ Mounting Medium with DAPI
23003	EverBrite™ Hardset Mounting Medium
23004	EverBrite™ Hardset Mounting Medium with DAPI
23007	TrueBlack® Lipofuscin Autofluorescence Quencher
40060	RedDot™1 Far Red Nuclear Counterstain
40061	RedDot™2 Far Red Nuclear Counterstain
40083	NucSpot™ 470 Nuclear Stain
23005	CoverGrip™ Coverslip Sealant
22005	Mini Super^{HT} Pap Pen 2.5 mm tip, ~400 uses
22006	Super^{HT} Pap Pen 4 mm tip, ~800 uses
22020	10X Phosphate Buffered Saline (PBS)
22016	Permeabilization Buffer
22017	Permeabilization and Blocking Buffer
22010	10X Fish Gelatin Blocking Agent
22011	Fish Gelatin Powder
22014	30% Bovine Serum Albumin Solution
22002	Tween®-20

Please visit our website at www.biotium.com for information on our life science research products, including fluorescent CF™ dye primary and secondary antibody conjugates, phalloidins and lectins, Mix-n-Stain™ CF™ Dye Antibody Labeling Kits, live cell stains, and many more fluorescent probes and kits for cell biology research.