



# Buffers for Life Science Research

CellPURE™ Biological Buffers | JustPURE™ "Good" Buffers | Core Essential Buffers

Quality.  
Consistency.  
Selection.

  
Fisher BioReagents™

 **Fisher  
Scientific**



- Ultrapure zwitterionic biological buffers
- Optimized for cell/tissue culture work
- Wide applicability to molecular biology and biochemical studies
- Manufactured under strict quality control guidelines to ensure performance and reliability

## Fisher BioReagents buffers meet the needs of every budget and scale.

- Economical powders come in various package sizes
- Concentrated stock solutions provide convenience in one step of easy dilution
- Ready-to-use solutions offer the biggest time savings of all

Obtaining optimal results in your research requires careful selection of reagents. When your experiments require exact buffering conditions, you can depend on the reliability of Fisher BioReagents buffers. All Fisher BioReagents buffers are manufactured from high-quality raw materials under ISO 9001:2008-certified manufacturing and testing processes.

The purpose of a buffer in a biological system is to maintain intracellular and extracellular pH within the physiological range and resist changes in pH due to the presence of internal and external influences. CellPURE Biological Buffers from Fisher BioReagents are ultrapure zwitterionic buffers that possess both positive and negative charges. First described by Good and co-workers in 1966, these organic buffers have pKa values at or near physiological pH and minimal interference with biological processes. CellPURE Biological Buffers are ideal for cell cultivation, isolation of cells, enzyme assays, and other biochemical applications.

(Reference: Good, N.E., et al. (1966) Hydrogen Ion Buffers for Biological Research. *Biochemistry* 5(2): 467-477)

## Advantages

- Cell culture tested
- Analyzed for the absence of nucleases and proteases
- Tested for endotoxin and bioburden levels
- pK<sub>a</sub> values mostly independent of temperature and concentration
- High water solubility
- Minimal permeability to biological membranes

## Applications

- Tissue culture media and maintenance of cell lines
- Enzyme assays
- Electrophoresis of RNA
- Transfection of mammalian cells

## Properties of CellPURE Biological Buffers

Cat. No.	Product Description	Formula	Molecular Weight	pK <sub>a</sub> @ 25° C	Useful pH Range	Cell Culture Tested	Endotoxin Assay	Nuclease and Protease Tested	Size
BP2941-100	BIS-TRIS	C <sub>8</sub> H <sub>19</sub> NO <sub>5</sub>	209.24	6.5	5.8 to 7.2	X	X	X	100g
BP2943-100	BIS-TRIS propane	C <sub>11</sub> H <sub>28</sub> N <sub>2</sub> O <sub>6</sub>	282.33	6.8†	6.3 to 9.5	X	X	X	100g
BP2947-100	BES	C <sub>8</sub> H <sub>15</sub> NO <sub>2</sub> S	213.25	7.1	6.4 to 7.8	X	X	X	100g
BP2936-100	MOPS	C <sub>8</sub> H <sub>15</sub> NO <sub>2</sub> S	209.26	7.2	6.5 to 7.9	X	X	X	100g
BP2946-25	MOPS sodium salt	C <sub>8</sub> H <sub>14</sub> NNaO <sub>4</sub> S	231.25	7.2	6.5 to 7.9	X	X	X	25g
BP2937-100	HEPES	C <sub>8</sub> H <sub>18</sub> N <sub>2</sub> O <sub>4</sub> S	238.30	7.5	6.8 to 8.2	X	X	X	100g
BP2939-100	HEPES Sodium Salt	C <sub>8</sub> H <sub>17</sub> N <sub>2</sub> NaO <sub>4</sub> S	260.29	7.5	6.8 to 8.2	X	X	X	100g
BP2945-100	TES	C <sub>8</sub> H <sub>15</sub> NO <sub>2</sub> S	229.25	7.5	6.8 to 8.2	X	X	X	100g

† pK<sub>a</sub> = 9.0 for the second dissociation stage

## Technical Tip

**The Water Makes a Difference.** CellPURE Biological Buffers are of the highest quality (purity ≥ 99%). They are tested for low heavy metal content and the absence of endotoxins, nucleases, and proteases. It is important to use only water of the highest quality to prepare the buffer solutions. Water that stands too long in pipes or water produced by a system needing routine maintenance increases the risk for contamination of buffer solutions. Fisher BioReagents provides several grades of high purity water suitable for the preparation of high quality buffer solutions.



Zwitterionic buffers possessing both positive and negative charges were described in 1966 by Good and co-workers as being suitable for work with biological molecules. Popularly known today as "Good" buffers, these organic buffers have several advantages compared to traditional inorganic buffering systems such as phosphate, borate, and bicarbonate. "Good" buffers approach the "ideal" buffer state by having pKa values at or near physiological pH and minimal interference with biological processes. JustPURE "Good" buffers from Fisher BioReagents have very high purity (assay > 99%) and only trace amounts of metal ions, which makes them useful for applications requiring tight control of elemental content.

(Reference: Good, N.E., et al. (1966) Hydrogen Ion Buffers for Biological Research. *Biochemistry* 5(2): 467-477)

- Ultrapure zwitterionic buffers
- Optimized for research in cellular and molecular biology
- Low interference with biological reactions

- pKa values mostly independent of temperature and concentration
- High water solubility
- Chemically and enzymatically stable
- Minimal permeability to biological membranes
- Limited effect on biochemical reactions
- Minimal absorption in spectral range 240 to 700nm

### Applications

- High efficiency transfection of mammalian cells
- Gel electrophoresis of RNA
- Protein isolation applications
- Cell cultures and enzyme assays
- Bioanalytical methods such as IEF, 2-D electrophoresis, SDS-PAGE

### Advantages Properties of JustPURE Buffers

Cat. No.	Product Description	CAS No.	Formula	Molecular Weight	pK <sub>a</sub> @ 25° C	Useful pH Range	Form	Size
BP2920-250	MES hydrate	4432-31-9	C <sub>6</sub> H <sub>13</sub> NO <sub>4</sub> S·xH <sub>2</sub> O	195.24 (anhydrous)	6.1	5.5 to 6.7	White powder	250g
BP2935-100	ACES	7365-82-4	C <sub>4</sub> H <sub>10</sub> N <sub>2</sub> O <sub>4</sub> S	182.20	6.8	6.1 to 7.5	White powder	100g
BP2924-50	PIPES	5625-37-6	C <sub>8</sub> H <sub>18</sub> N <sub>2</sub> O <sub>6</sub> S <sub>2</sub>	302.37	6.8	6.1 to 7.5	White powder	50g
BP2929-25	BIS-TRIS propane	64431-96-5	C <sub>11</sub> H <sub>26</sub> N <sub>2</sub> O <sub>6</sub>	282.33	6.8†	6.3 to 9.5	White powder	25g
BP2925-100	MOPS	1132-61-2	C <sub>7</sub> H <sub>15</sub> NO <sub>4</sub> S	209.26	7.2	6.5 to 7.9	White powder	100g
BP2921-50	HEPES	7365-45-9	C <sub>8</sub> H <sub>18</sub> N <sub>2</sub> O <sub>4</sub> S	238.30	7.5	6.8 to 8.2	White powder	50g
BP2933-100	EPPS	16052-06-5	C <sub>9</sub> H <sub>20</sub> N <sub>2</sub> O <sub>4</sub> S	252.33	8.0	7.3 to 8.7	White powder	100g
BP2922-100	Tricine	5704-04-1	C <sub>6</sub> H <sub>13</sub> NO <sub>5</sub>	179.17	8.1	7.4 to 8.8	White powder	100g
BP2930-50	Gly-Gly	556-50-3	C <sub>4</sub> H <sub>8</sub> N <sub>2</sub> O <sub>3</sub>	132.12	8.2	7.5 to 8.9	White powder	50g
BP2923-100	TAPS	29915-38-6	C <sub>7</sub> H <sub>17</sub> NO <sub>6</sub> S	243.28	8.4	7.7 to 9.1	White powder	100g
BP2934-100	CHES	103-47-9	C <sub>8</sub> H <sub>17</sub> NO <sub>3</sub> S	207.29	9.3	8.6 to 10.0	White powder	100g
BP2928-100	CAPS	1135-40-6	C <sub>9</sub> H <sub>19</sub> NO <sub>3</sub> S	221.32	10.4	9.7 to 11.1	White powder	100g

† pK<sub>a</sub> = 9.0 for the second dissociation stage





**Choose Fisher BioReagents Buffers for:**

- QUALITY:** tight specifications
- CONSISTENCY:** lot-to-lot uniformity
- SELECTION:** powders, concentrated stock solutions, or ready-to-use liquids
- PACKAGING:** state-of-the-art containers designed for safety and utility
- CONVENIENCE:** pre-qualified for a variety of applications
- ECONOMY:** configurations to meet all budgets
- SCALE:** from bench to batch sizes

**Fisher BioReagents buffers meet the needs of every budget and scale.**

- Economical powders come in various package sizes
- Concentrated stock solutions provide convenience in one step of easy dilution
- Ready-to-use solutions offer the biggest time savings of all

**Suitable for Life Science applications:**

- Electrophoresis of nucleic acids and proteins
- Isolation and purification of biomolecules
- Cell and tissue culture
- Guaranteed DNase-, RNase-, and protease-free

Obtaining optimal results in your research requires careful selection of reagents. When your experiments require exact buffering conditions, you can depend on the reliability of Fisher BioReagents buffers. All Fisher BioReagents buffers are manufactured from high-quality raw materials under ISO 9001-2008-certified manufacturing and testing processes. In addition, buffer sterilization is done by 0.2µm filtration and/or autoclaving.

Description	Size	Cat. No.
<b>Buffers for Protein Electrophoresis</b>		
<b>TG Tris-Glycine</b>		
10X	1L	BP1306-1
10X	4L	BP1306-4
10X	1L**	BP1307-1
<b>TGS Tris-Glycine-SDS</b>		
10X	1L	BP1341-1
10X	4L	BP1341-4
5X	1L*	BP1398-92
10X	1L**	BP1342-1
<b>SDS Sodium Dodecyl Sulfate</b>		
10%	200mL	BP2436-200
10%	1L	BP2436-1
20%	200mL	BP1311-200
20%	1L	BP1311-1
White Powder	100g	BP166-100
White Powder	500g	BP166-500
White Powder	5kg	BP166-5
<b>Buffers for Nucleic Acid Electrophoresis</b>		
<b>TBE Tris-Borate-EDTA</b>		
1X	1L	BP2430-1
1X	4L	BP2430-4
1X	20L	BP2430-20
5X	1L*	BP1396-86
10X	1L	BP1333-1
10X	4L	BP1333-4
10X	20L	BP1333-20
10X	1L**	BP1334-1
<b>TAE Tris-Acetate-EDTA</b>		
1X	4L	BP2434-4
1X	20L	BP2434-20
10X	500mL	BP1335-500
10X	1L	BP1335-1
10X	4L	BP1335-4
10X	20L	BP1335-20
25X	1L	BP1330-1
50X	500mL	BP1332-500
50X	1L	BP1332-1
50X	4L	BP1332-4
50X	20L	BP1332-20
25X	1L**	BP1331-1
<b>MOPS Buffer</b>		
Powder	100g	BP308-100
Powder	500g	BP308-500
10X Buffer Solution	500mL	BP2900-500
10X Buffer Solution	1L	BP2900-1
<b>Buffers for Hybridization of Nucleic Acids</b>		
<b>SSPE Saline-Sodium Phosphate-EDTA</b>		
20X	1L	BP1328-1
20X	4L	BP1328-4
20X	20L	BP1328-20
<b>SSC Saline-Sodium Citrate</b>		
20X	1L	BP1325-1
20X	4L	BP1325-4
20X	20L	BP1325-20

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**QUALITY:** tight specifications

**CONSISTENCY:** lot-to-lot uniformity

**SELECTION:** powders, concentrated stock solutions, or ready-to-use liquids

**PACKAGING:** state-of-the-art containers designed for safety and utility

**CONVENIENCE:** pre-qualified for a variety of applications

**ECONOMY:** size configurations to meet all budgets

**SCALE:** from bench to batch sizes

Description	Size	Cat. No.
<b>Buffers for Life Science Applications</b>		
<b>EDTA Ethylenediamine Tetraacetic Acid</b>		
0.5M (pH 8.0)	100mL	BP2482-100
0.5M (pH 8.0)	500mL	BP2482-500
0.5M (pH 8.0)	1L	BP2482-1
0.5M (pH 8.0)	20L	BP2482-20
0.5M (pH 8.0), DEPC	100mL	BP2483-100
0.5M (pH 8.0), DEPC	500mL	BP2483-500
0.5M (pH 8.0), DEPC	1L	BP2483-1
Powder	500g	BP118-500
<b>HEPES</b>		
1.0M (pH 7.3)	100mL	BP299-100
1.0M (pH 7.3)	500mL	BP299-500
1.0M (pH 7.3)	1L	BP299-1
Crystals	100g	BP310-100
Crystals	500g	BP310-500
Crystals	1kg	BP310-1
Crystals	5kg	BP310-5
<b>PBS Phosphate Buffered Saline</b>		
Tablets	100 tablets	BP2944-100
1X	4L	BP2438-4
1X	20L	BP2438-20
10X	500mL	BP399-500
10X	1L	BP399-1
CellPURE™ PBS 10X	4L	BP2940-4
10X	4L	BP399-4
10X	20L	BP399-20
1X Powder Concentrate	10L	BP661-10
1X Powder Concentrate	50L	BP661-50
Powder with Tween® 20	10 pouches	BP2938-10
Powder with BSA	10 pouches	BP2942-10
10X Powder Concentrate	2x1L	BP665-1
<b>STE Sodium Chloride-Tris-EDTA</b>		
1X (pH 8.0)	1L	BP2478-1
10X (pH 8.0)	1L	BP2479-1
<b>TBS Tris-Buffered Saline</b>		
1X (pH 7.4)	1L	BP2472-1
10X (pH 7.4)	100mL	BP2471-100
10X (pH 7.4)	1L	BP2471-1

Description	Size	Cat. No.
<b>TE Tris-EDTA</b>		
1X (pH 7.4)	100mL	BP2476-100
1X (pH 7.4)	500mL	BP2476-500
1X (pH 7.4)	1L	BP2476-1
1X (pH 8.0)	100mL	BP2473-100
1X (pH 8.0)	500mL	BP2473-500
1X (pH 8.0)	1L	BP2473-1
1X (pH 7.6)	100mL	BP2474-100
1X (pH 7.6)	500mL	BP2474-500
1X (pH 7.6)	1L	BP2474-1
10X (pH 7.4)	1L	BP2477-1
10X (pH 7.6)	100mL	BP2475-100
10X (pH 7.6)	500mL	BP2475-500
10X (pH 7.6)	1L	BP2475-1
100X (pH 8.0)	1L	BP1338-1
100X (pH 8.0)	4L	BP1338-4
100X	1L**	BP1339-1
<b>Tris Buffer</b>		
0.3M	500mL	BP1761-500
0.3M	1L	BP1761-1
2.0M	100mL	BP1759-100
2.0M	500mL	BP1759-500
<b>Tris Hydrochloride</b>		
1.0M (pH 7.0)	100mL	BP1756-100
1.0M (pH 7.0)	500mL	BP1756-500
1.0M (pH 7.5)	100mL	BP1757-100
1.0M (pH 7.5)	500mL	BP1757-500
1.0M (pH 8.0)	100mL	BP1758-100
1.0M (pH 8.0)	500mL	BP1758-500
Solid	500g	BP153-500
Solid	1kg	BP153-1
<b>Tris Base</b>		
Crystals	500g	BP152-500
Crystals	1kg	BP152-1
Crystals	5kg	BP152-5
Crystals	10kg	BP152-10
Crystals	25kg	BP152-25
<b>Water</b>		
Biotech Grade	4L	BP2485-4
	20L	BP2485-20
Nuclease-Free	50mL	BP2484-50
	100mL	BP2484-100
DNA Grade	1L	BP2470-1
RNA Grade, DEPC-treated	1L	BP561-1

Quality. Consistency. Selection.

\* Pre-weighed powder in poly bottle. Dissolve in water.

\*\* Pre-weighed powder in foil pack. Dissolve in water.

## Related Core BioReagents

### Ethanol, Molecular Biology Grade

Cat. No.	Size
BP2818-100	100mL
BP2818-500	500mL
BP2818-4	4L



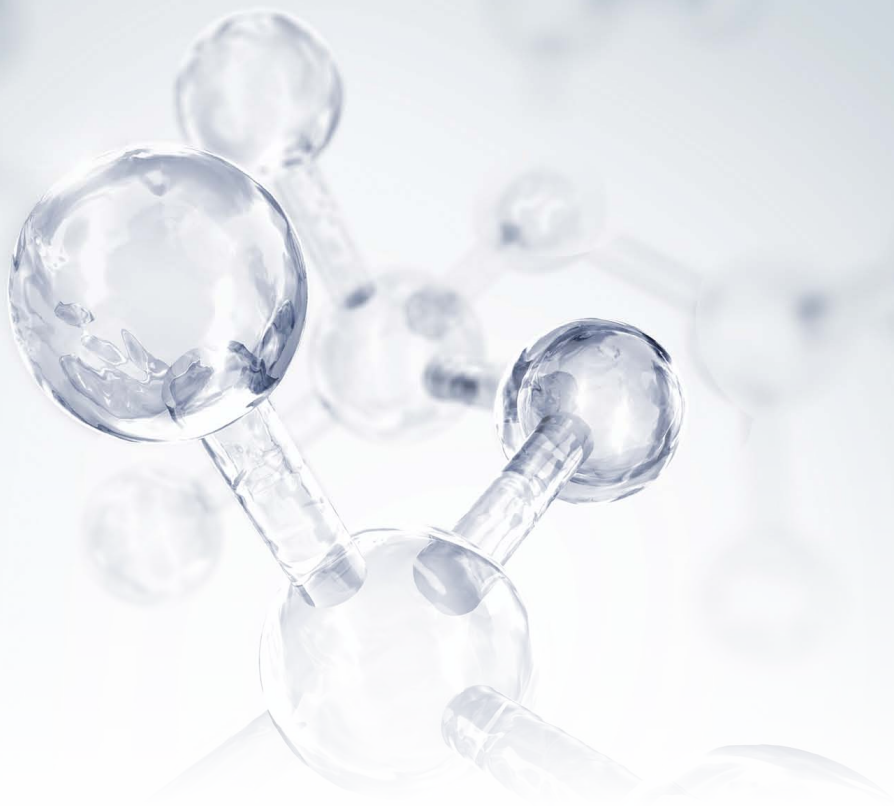
### Isopropanol, Molecular Biology Grade

Cat. No.	Size
BP2618-500	500mL
BP2618-1	1L
BP2618-212	2.5L
BP2618-4 4L	

### Water (0.1µm filtered), Molecular Biology Grade

Cat. No.	Size
BP2819-100	100mL
BP2819-1	1L
BP2819-4	4L
BP2819-10	10L
BP2819-20	20L





To place an order, contact your local Fisher Scientific office.



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