

# VWR BIOPROCESSING CHEMICALS AND EXCIPIENTS

Biological Buffers

Carbohydrates

Media and  
Additives

Proteins and  
Amino Acids

Salts





## VWR BIOPROCESSING CHEMICALS ARE EXPANDING TO GIVE YOU MORE OPTIONS.

VWR manufactures commercial-scale cGMP biological buffers and biochemicals in addition to providing diverse sourcing capabilities. We can help you meet the increasingly rigorous sourcing and supply chain demands of the life science market.

Our manufacturing, dedicated sales team, and service organization allow us to offer a fully transparent and robust supply chain in a highly regulated market.

For more information on our products, visit [vwr.com](http://vwr.com) or contact your VWR Sales Representative. We can help you meet your total production needs.

### Capabilities:

- Suitable for Bioprocessing and Excipient Use
- BSE/TSE-Free
- Three-Lot Sample Availability
- Standard Pack Sizes for Convenience
- Custom Packaging and Testing Available
- Analytical Laboratory Support
- Regulatory Support
- Comprehensive Dossier
- Management of Change
- Supply Chain Transparency and Audit Support of Raw Materials Manufacturers



### Products:

- **Amino Acids/Derivatives:** Asparagine, L-Asparagine, L-Cystine, L-Glutamine, Hypoxanthine, L-Lysine, L-Tyrosine, and others available upon request
- **Biological Buffers:** HEPES, HEPES Sodium, PIPES, PIPES Sodium, Tromethamine (TRIS), TRIS Hydrochloride, and others available upon request
- **Carbohydrates:** Sucrose, D-Galactose, D-Trehalose Dihydrate, and others available upon request
- **Inorganic Salts:** Ammonium Sulfate, Calcium Chloride, Potassium Phosphate, Sodium Chloride, Sodium Phosphate, Sodium Sulfate, and others available upon request



## EXCiPACT™ CERTIFICATION – THE INDUSTRY-ACCEPTED GUIDELINE FOR MANAGING SUPPLY CHAIN RISKS RELATING TO EXCIPIENTS



- VWR has been awarded certificates for both Good Manufacturing Practice (GMP) and Good Distribution Practice (GDP)
- Aurora and Solon, Ohio sites evaluated in the areas of sourcing, testing, packaging, storage, release, and distribution of products for pharmaceutical excipient use
- VWR is the only company in the United States to receive both of these certifications, and one of only 16 companies worldwide, as reported by EXCiPACT
- Sanborn, NY site compliments the region’s capabilities portfolio to maximize efficiencies in research, testing, production, and commercialization



| Manufacturing Site Benefits   | Aurora, Ohio | Solon, Ohio | Sanborn, NY |
|---|--------------|-------------|-------------|
| <b>Certifications</b>   |              |             |             |
| EXCiPACT  | X            | X           |             |
| ISO 9001 : 2008   | X            | X           | X           |
| ISO 13485 : 2003  |              | X           | X           |
| ISO 17025 Accredited for select laboratory methods  |              | X           |             |
| FDA Registered Facility for Contract Manufacturing of Medical Devices (21CFR820)              |              | X           |             |
| <b>Capabilities</b>   |              |             |             |
| Manufacturing of biochemicals and reagents  | X            | X           | X           |
| Original manufacturer of organic buffer derivatives, cell culture media and antibiotics       |              |             | X           |
| Automated cleanroom liquid filling  |              | X           | X           |
| Dedicated excipient and bioprocessing materials handling work center and dispensing equipment | X            | X           |             |
| Facility dedicated USP and EP water systems   | X            | X           | X           |
| <b>Testing</b>  |              |             |             |
| Custom services and testing available   | X            | X           | X           |
| Compendia specification testing (USP, NF, EP, JP, BP)   |              | X           |             |
| General analytical testing (Karl Fischer, Polarimetry, etc)                                   | X            | X           | X           |
| Molecular Testing Capabilities: PCR, qPCR, DNase, RNase, Protease                             | X            | X           |             |
| Microbiology Testing Capabilities: Bioburden, Endotoxin                                       | X            | X           | X           |
| <b>Packaging &amp; Storage</b>  |              |             |             |
| Bulk and custom pack sizes available  | X            | X           | X           |
| Validated temperature controlled and continuously monitored warehouses, coolers, and freezers | X            | X           |             |

## VWR Bioprocessing Chemicals and Excipients

| Description                             | CAS No.     | Formula   | Molecular Weight | Grade                              | Available Sizes                   | Cat. No.  |
|---|-------------|---|------------------|------------------------------------|-----------------------------------|-----------|
| <b>Acids</b>                            |             |   |                  |                                    |                                   |           |
| Citric Acid Anhydrous                   | 77-92-9     | HOC(COOH)<br>(CH <sub>2</sub> COOH) <sub>2</sub>  | 192.13           | USP, EP, BP, JP, Endotoxin Tested  | 2.5kg, 12kg                       | VWRB805   |
| Citric Acid Monohydrate                 | 5949-29-1   | HOC(COOH)<br>(CH <sub>2</sub> COOH) <sub>2</sub> •H <sub>2</sub> O                          | 210.14           | USP, EP, BP, JP, Endotoxin Tested  | 500g, 2.5kg, 12kg, 50kg           | VWRB908   |
| L-Tartaric Acid                         | 87-69-4     | C <sub>4</sub> H <sub>6</sub> O <sub>6</sub>  | 150.09           | NF, EP, BP, JP, Endotoxin Tested   | 500g, 2.5kg, 50kg                 | VWRB501   |
| <b>Amino Acid Derivatives</b>           |             |   |                  |                                    |                                   |           |
| Asparagine Anhydrous                    | 70-47-3     | C <sub>4</sub> H <sub>8</sub> N <sub>2</sub> O <sub>3</sub>                                 | 132.12           | Bioreagent                         | 100g, 1kg, 5kg, 25kg              | VWRB15005 |
| L-Cystine Dihydrochloride               | 30925-07-6  | C <sub>8</sub> H <sub>12</sub> N <sub>2</sub> O <sub>4</sub> S <sub>2</sub> •2HCl           | 313.23           | Bioreagent                         | 100g, 1kg, 5kg, 25kg              | VWRB21502 |
| Hypoxanthine Disodium Salt              | 102-32-9    | C <sub>5</sub> H <sub>2</sub> N <sub>4</sub> O•2Na  | 180.11           | Bioreagent                         | 100g, 1kg, 5kg, 25kg              | VWRB31608 |
| Hypoxanthine Sodium Salt                | 45738-97-4  | C <sub>5</sub> H <sub>3</sub> N <sub>4</sub> O•Na   | 158.11           | Bioreagent                         | 100g, 1kg, 5kg, 25kg              | VWRB31752 |
| L-Lysine Anhydrous                      | 56-87-1     | C <sub>6</sub> H <sub>10</sub> N <sub>2</sub> O <sub>2</sub>                                | 146.19           | Bioreagent                         | 100g, 1kg, 5kg, 25kg              | VWRB42307 |
| L-Tyrosine Disodium Dihydrate           | 122666-87-9 | C <sub>9</sub> H <sub>9</sub> NO <sub>3</sub> Na <sub>2</sub> •2H <sub>2</sub> O            | 261.19           | Bioreagent                         | 100g, 1kg, 5kg, 25kg              | VWRB87058 |
| <b>Biological Buffers</b>               |             |   |                  |                                    |                                   |           |
| HEPES Free Acid                         | 7365-45-9   | C <sub>8</sub> H <sub>18</sub> N <sub>2</sub> O <sub>4</sub> S                              | 238.3            | Bioreagent                         | 1kg, 5kg, 25kg                    | VWRB30487 |
| HEPES Sodium Salt                       | 75277-39-3  | C <sub>8</sub> H <sub>17</sub> N <sub>2</sub> O <sub>4</sub> SNa                            | 260.3            | Bioreagent                         | 1kg, 5kg, 25kg                    | VWRB30567 |
| PIPES Free Acid                         | 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           | Bioreagent                         | 1kg, 5kg, 25kg                    | VWRB73007 |
| PIPES Disodium Salt                     | 76836-02-7  | C <sub>8</sub> H <sub>16</sub> N <sub>2</sub> O <sub>6</sub> S <sub>2</sub> Na <sub>2</sub> | 346.33           | Bioreagent                         | 1kg, 5kg, 25kg                    | VWRB73305 |
| PIPES Sequisodium Salt                  | 100037-69-2 | C <sub>16</sub> H <sub>33</sub> N <sub>4</sub> O <sub>12</sub> S <sub>4</sub> •3Na          | 670.69           | Bioreagent                         | 1kg, 5kg, 25kg                    | VWRB73257 |
| TRIS Hydrochloride                      | 1185-53-1   | C <sub>4</sub> H <sub>11</sub> NO <sub>3</sub> HCl  | 157.6            | Bioreagent                         | 1kg, 5kg, 25kg                    | VWRB85827 |
| Tromethamine (TRIS)                     | 77-86-1     | C <sub>4</sub> H <sub>11</sub> NO <sub>3</sub>  | 121.14           | USP, EP, BP, JPC, Endotoxin Tested | 500g, 2.5kg, 12kg, 50kg           | VWRB497   |
| <b>Carbohydrates</b>                    |             |   |                  |                                    |                                   |           |
| Dextrose Anhydrous                      | 50-99-7     | C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>   | 180.16           | USP, EP, BP, JP, Endotoxin Tested  | 1kg, 2.5kg, 12kg,<br>100lb, 200lb | VWRB8K76  |
| Sucrose                                 | 57-50-1     | C <sub>12</sub> H <sub>22</sub> O <sub>11</sub>   | 342.3            | NF, BP, JP, Endotoxin Tested       | 100g, 1kg, 12kg, 50kg             | VWRB335   |
| D-Galactose                             | 59-23-4     | C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>   | 180.16           | NF, EP, Endotoxin Tested           | 1kg, 12kg                         | VWRB3441  |
| D-Trehalose Dihydrate                   | 6138-23-4   | C <sub>12</sub> H <sub>22</sub> O <sub>11</sub> •2H <sub>2</sub> O                          | 378.33           | NF, EP, Endotoxin Tested           | 1kg, 12kg                         | VWRB3599  |
| <b>Chaotic Agents</b>                   |             |   |                  |                                    |                                   |           |
| Urea                                    | 57-13-6     | CH <sub>4</sub> N <sub>2</sub> O  | 60.06            | USP, EP, BP, JP, Endotoxin Tested  | 500g, 12kg, 50kg                  | VWRB568   |
| <b>Salts</b>                            |             |   |                  |                                    |                                   |           |
| Ammonium Sulfate                        | 7783-20-2   | H <sub>8</sub> N <sub>2</sub> O <sub>4</sub> S  | 132.14           | ACS, NF, Endotoxin Tested          | 500g, 2.5kg, 12kg, 100kg          | VWRB191   |
| Calcium Chloride Dihydrate              | 10035-04-8  | CaCl <sub>2</sub> •2H <sub>2</sub> O  | 147.02           | USP, EP, BP, JP, Endotoxin Tested  | 1kg, 12kg                         | VWRB556   |
| Guanidine Chloride                      | 50-01-1     | NH <sub>2</sub> C(=NH)NH <sub>2</sub> •HCl  | 95.53            | Bioreagent                         | 5kg, 12kg, 50kg                   | VWRB287   |
| Potassium Chloride                      | 7447-40-7   | KCl   | 74.55            | USP, EP, BP, JP, Endotoxin Tested  | 500g, 2.5kg, 12kg, 50kg           | VWRB395   |
| Potassium Phosphate Monobasic Anhydrous | 7778-77-0   | KH <sub>2</sub> PO <sub>4</sub>   | 136.09           | NF, EP, BP, Endotoxin Tested       | 1kg, 12kg                         | VWRB0781  |
| Sodium Acetate Trihydrate               | 6131-90-4   | H <sub>3</sub> CCOONa•3H <sub>2</sub> O   | 136.08           | USP, BP, Endotoxin Tested          | 500g, 2.5kg, 12kg                 | VWRB530   |
| Sodium Acetate Anhydrous                | 127-09-3    | H <sub>3</sub> CCOONa   | 82.03            | USP, Endotoxin Tested              | 2.5kg, 12kg                       | VWRB602   |
| Sodium Carbonate Anhydrous              | 497-19-8    | Na <sub>2</sub> CO <sub>3</sub>   | 105.99           | NF, EP, BP, JP, Endotoxin Tested   | 2.5kg, 12kg                       | VWRB585   |
| Sodium Carbonate Monohydrate            | 5968-11-6   | Na <sub>2</sub> CO <sub>3</sub> •H <sub>2</sub> O   | 124              | NF, EP, BP, Endotoxin Tested       | 2.5kg, 12kg                       | VWRB427   |
| Sodium Chloride                         | 7647-14-5   | NaCl  | 58.44            | USP, EP, BP, JP, Endotoxin Tested  | 1kg, 2.5kg, 12kg, 50kg, 350lb     | VWRB241   |
| Sodium Citrate Dihydrate                | 6132-04-3   | HOC(COONa)<br>(CH <sub>2</sub> COONa) <sub>2</sub> •2H <sub>2</sub> O                       | 294.1            | USP, BP, JP, Endotoxin Tested      | 500g, 2.5kg, 12kg, 100lb          | VWRB101   |
| Sodium Hydroxide Pellets                | 1310-73-2   | NaOH  | 40               | NF, EP, BP, JP                     | 1kg, 12kg                         | VWRB583   |
| Sodium Phosphate Dibasic Anhydrous      | 7558-79-4   | Na <sub>2</sub> HPO <sub>4</sub>  | 141.96           | USP, EP, Endotoxin Tested          | 1kg, 12kg                         | VWRB0404  |
| Sodium Phosphate Dibasic Dihydrate      | 10028-24-7  | Na <sub>2</sub> HPO <sub>4</sub> •2H <sub>2</sub> O   | 177.99           | USP, BP, EP, Endotoxin Tested      | 1kg, 12kg                         | VWRB709   |
| Sodium Phosphate Dibasic Heptahydrate   | 7782-85-6   | Na <sub>2</sub> HPO <sub>4</sub> •7H <sub>2</sub> O   | 268.07           | ACS, USP, Endotoxin Tested         | 1kg, 12kg                         | VWRB0348  |
| Sodium Phosphate Monobasic Monohydrate  | 10049-21-5  | Na <sub>2</sub> HPO <sub>4</sub> •H <sub>2</sub> O  | 137.99           | ACS, USP, BP, Endotoxin Tested     | 1kg, 12kg                         | VWRB0823  |
| Sodium Sulfate Anhydrous                | 7757-82-6   | Na <sub>2</sub> SO <sub>4</sub>   | 142.04           | USP, EP, Endotoxin Tested          | 500g, 2.5kg, 12kg, 100kg          | VWRB836   |



1.800.932.5000 | vwr.com

Prices and product details are current when published; subject to change without notice. | Certain products may be limited by federal, state, provincial, or local regulations. | VWR makes no claims or warranties concerning sustainable/green products. Any claims concerning sustainable/green products are the sole claims of the manufacturer and not those of VWR International, LLC. All prices are in US dollars unless otherwise noted. Offers valid in US and Canada, void where prohibited by law or company policy, while supplies last. | VWR, the VWR logo and variations on the foregoing are registered (®) or unregistered trademarks and service marks, of VWR International, LLC and its related companies. All other marks referenced are registered by their respective owner(s). | Visit vwr.com to view our privacy policy, trademark owners and additional disclaimers. ©2017 VWR International, LLC. All rights reserved.

11029\_LIT. NO. POD 930115REV