

HyClone™

PROCESS LIQUIDS

Simplify your bioprocessing operations with ready-to-use liquids prepared to rigorous standards, supplied in single-use bags inside recyclable plastic barrels. The range of HyClone™ process liquids include single component concentrate solutions, chromatography resin storage solutions, clean-in-place solutions, and buffered saline liquid solutions, offered in a range of concentrations.

Product characteristics

- High quality through manufacture of process liquids in ISO 9001 and ISO 13485 certified facilities using multi-compendial grade raw materials (see Table 1).
- Global manufacturing is supported through a multi-site network that assures business continuity (facilities located in Logan, Utah, USA and Pasching, Austria).
- Full traceability assured through lot-specific certificates of analysis (CoA).
- Scalability achieved through a broad range of pack sizes with multiple concentrations available as pre-filled, ready-to-use liquid products.
- Shelf life established for a minimum of 12 months from date of manufacture through validated stability studies.



Fig 1. Large volume liquid containers come in a range of fill sizes to help you scale up, and in both top and bottom variations, when possible.

- Large volume containers (such as plastic barrels) may be recycled via external collaboration (based on volume and container type).

Table 1. A list of the single component concentrate solutions, the concentrations offered in standard product¹, the respective chemical abstracts service (CAS) number, and the compendial grade with which the raw components were qualified

Component	Concentrations	Solution	Raw material CAS number	Raw material compendial grade		
				USP	EP	JP
Acetic acid	0.1, 1, 2 M	Single component concentrate	64-19-7	✓	✓	✓
Citric acid	0.1, 1 M	Single component concentrate	77-92-9	✓	✓	✓
Sodium acetate	0.1, 1 M	Single component concentrate	6131-90-4	✓	✓	✓
Sodium phosphate monobasic	0.1, 1 M	Single component concentrate	13472-35-0	✓	✓	√ ²
Sodium phosphate dibasic	0.1, 0.35 M	Single component concentrate	7558-79-4	✓	✓	✓
Sodium citrate	0.1, 0.5 M	Single component concentrate	6132-04-3	✓	✓	✓
Sodium hydroxide	0.1, 0.5, 1, 2 M	Clean-in-place	1310-73-2	✓	✓	✓
Sodium chloride	1, 2, 5 M	Single component concentrate	7647-14-5	✓	✓	✓
Tris	0.1, 1, 2 M	Single component concentrate	77-86-1	✓	✓	√ ³
Tris acetate	1 M	Single component concentrate	64-19-7 77-86-1	✓	✓	√ ³
Ethanol	20%	Chromatography resin storage	64-17-5	✓	✓	✓
Benzyl alcohol	2%	Chromatography resin storage	100-51-6	✓	✓	✓
Ammonium sulfate	3 M	Single component concentrate	7783-20-2	✓	N/A	N/A
Tris HCl	0.1, 2 M	Single component concentrate	1185-53-1	N/A	N/A	N/A

Note: United States Pharmacopeia (USP); European Pharmacopeia (EP); Japanese Pharmacopeia (JP)

¹ Alternative concentrations can be manufactured in custom format.

² According to Japanese Pharmaceutical Excipients (JPE).

³ According to Japanese Pharmaceutical Codex (JPC).

HyClone single component concentrate solutions⁴

HyClone single component concentrate solutions are stock solutions that can be diluted and used for buffer management applications. This would be applicable, for example, in conjunction with commercial scale ÄKTA™ chromatography systems or our BioProcess™ IC systems for large-scale buffer management. Extractables and leachables testing was conducted on the highest concentration for each of the respective items.

⁴ These solutions are currently available in United States, Canada, Europe, and select Asia-Pacific geographies. Please consult your sales representative as to availability in your region.



Fig 2. A HyClone single component concentrate solution being used as a source component in the BioProcess IC unit.

Acetic acid solutions

HyClone acetic acid solutions are used as single component stock solutions for acid-base reactions (for example, with sodium acetate solutions) to form acetate based buffers, or as a single component stock solution for applications using ÄKTA systems or our BioProcess IC systems. They are available in concentrations of 0.1, 1.0, and 2.0 M. The shelf life is at least 12 months for all concentrations from date of manufacture, and the raw materials are USP, EP, and JP compendial grade.

Ammonium sulfate solution

HyClone ammonium sulfate solution is a single component stock solution used to prepare standard solutions or working process liquids for applications using ÄKTA systems or our BioProcess IC systems. It is available in a concentration of 3 M. The shelf life is at least 12 months from date of manufacture.

Citric acid

HyClone citric acid solutions are single component stock solution used to prepare citrate buffers or working process liquids for applications using ÄKTA systems or our BioProcess IC systems. They are available in concentrations of 0.1 and 1 M. The shelf life is at least 12 months for all concentrations from date of manufacture, and the raw materials are USP, EP, and JPE compendial grade.

NaCl liquid solutions

HyClone NaCl solutions can be used as biochemical reagents, titration solutions, and as single component stock solutions for applications in conjunction with ÄKTA systems or our BioProcess IC systems for your bioprocess methods. They are available in concentrations of 1, 2, and 5 M. The shelf life is at least 12 months for all concentrations from date of manufacture, and the raw materials are USP, EP, and JP compendial grade.

Sodium acetate solutions

HyClone sodium acetate solutions are single component stock solutions used to prepare standard solutions (for example, with acetic acid stock solutions to form acetate based buffers), or working liquids for applications using ÄKTA systems or BioProcess IC systems. They are available in concentrations of 0.1 and 1.0 M. The shelf life is at least 12 months for all concentrations from date of manufacture, and the raw materials are USP, EP, and JP compendial grade.

Sodium citrate

HyClone sodium citrate solutions are single component stock solution used to prepare citrate buffers or working process liquids for applications using ÄKTA systems or our BioProcess IC systems. They are available in concentrations of 0.1 and 0.5 M. The shelf life is at least 12 months for all concentrations from date of manufacture, and the raw materials are USP, EP, and JPE compendial grade.

Sodium phosphate solutions

HyClone sodium phosphate solutions are single component stock solution used to prepare phosphate-based buffers or working process liquids for applications using ÄKTA systems or our BioProcess IC systems. They are available in monobasic and dibasic presentations, with the following concentrated liquids available: 0.1 and 1.0 M sodium phosphate monobasic and 0.1 and 0.35 M sodium phosphate dibasic. The shelf life is at least 12 months for all concentrations from date of manufacture, and the raw materials are USP, EP, and JP compendial grade.

Tris-related liquid solutions

HyClone Tris solutions are single component liquids that use Tris as a primary amine to act as a buffering agent to enable a stable pH in your bioprocessing procedures. Commonly used as a single component stock solution in applications in conjunction with ÄKTA systems or our BioProcess IC systems. They are available in base concentrations of 0.1, 1.0, and 2.0 M. The shelf life is at least 12 months for all concentrations from date of manufacture, and the raw materials are USP, EP, and JP compendial grade.

Also available as stock concentrate solutions are 0.1 M Tris HCl, 2 M Tris HCl, and 1 M Tris acetate solutions.

Chromatography resin storage solutions

HyClone 20% ethanol solution⁵ (v/v) or 2% benzyl alcohol (v/v) can be used for effective storage of chromatography resins.

All pack sizes are manufactured in Logan, Utah, USA, serving the United States and Canada. Please note that 20% ethanol is not currently available in Europe. The shelf life is at least 12 months.

Note: 2% benzyl alcohol (v/v) can potentially impact acrylic-based columns upon prolonged exposure.

⁵ The standard 20% ethanol solution products are manufactured only in the Logan, Utah, USA plant and available for sale in the USA, Canada, and select Asia-Pacific geographies.

Clean-in-place solutions

HyClone NaOH liquid solutions can be used for effective care of chromatography resins, protein digestion, cleaning-in-place (CIP), pH modification, and titration processes in ÄKTA systems or our BioProcess IC systems for your bioprocess methods. They are available in concentrations of 0.1 N NaOH, 0.5 N NaOH, 1 M NaOH, and 2 M NaOH. The shelf life is at least 12 months for all concentrations from date of manufacture and the raw materials are USP, EP, and JP compendial grade.

Note: 0.5 M, 1.0 M, and 2.0 M NaOH are considered corrosive substances and are delivered in UN-rated containers for hazardous shipping.

Buffered saline liquid solutions

Buffered saline solutions are well-suited for cell culture applications because they are isotonic and not toxic to cells.

HyClone Dulbecco's phosphate-buffered saline (DPBS) and phosphate-buffered saline (PBS) solutions can be used as biochemical reagents and to support handling and culturing of mammalian cells. These solutions can also be used to irrigate, wash, dilute, or suspend cells. These solutions have a 24 month shelf life.

Ask your customer service representative or sales specialist for additional fill sizes, standard biocontainer bag configurations or connections, or to request a custom product.

Ordering information

Item description	Formulation	Fill size	Product code
0.1 M acetic acid, 20 L, mini tri-clamp	0.1 M acetic acid	20 L	SH31156.05
0.1 M acetic acid, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31156.08
0.1 M acetic acid, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31156.11
1 M acetic acid, 20 L, mini tri-clamp	1 M acetic acid	20 L	SH31157.05
1 M acetic acid, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31157.08
1 M acetic acid, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31157.11
2 M acetic acid, 20 L, mini tri-clamp	2 M acetic acid	20 L	SH31158.05
2 M acetic acid, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31158.08
0.1 M sodium acetate, 20 L, mini tri-clamp	0.1 M sodium acetate	20 L	SH31159.05
0.1 M sodium acetate, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31159.08
0.1M sodium acetate, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31159.11
1 M sodium acetate, 20 L, mini tri-clamp	1 M sodium acetate	20 L	SH31161.05
1 M sodium acetate, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31161.08
1 M sodium acetate, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31161.11
0.1 M sodium phosphate monobasic, 20 L, mini tri-clamp	0.1 M sodium phosphate monobasic	20 L	SH31162.05
0.1 M sodium phosphate monobasic, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31162.08
0.1 M sodium phosphate monobasic, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31162.11

Item description	Formulation	Fill size	Product code
1 M sodium phosphate monobasic, 20 L, mini tri-clamp	1 M sodium phosphate monobasic	20 L	SH31163.05
1 M sodium phosphate monobasic, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31163.08
1 M sodium phosphate monobasic, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31163.11
0.1 M sodium phosphate dibasic, 20 L, mini tri-clamp	0.1 M sodium phosphate dibasic	20 L	SH31164.05
0.1 M sodium phosphate dibasic, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31164.08
0.1 M sodium phosphate dibasic, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31164.11
0.35 M sodium phosphate dibasic, 20 L, mini tri-clamp	0.35 M sodium phosphate dibasic	20 L	SH31165.05
0.35 M sodium phosphate dibasic, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31165.08
0.35 M sodium phosphate dibasic, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31165.11
0.1 M Tris base, 20 L, mini tri-clamp	0.1 M Tris base	20 L	SH31166.05
0.1 M Tris base, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31166.08
0.1 M Tris base, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31166.11
1 M Tris base, 20 L, mini tri-clamp	1 M Tris base	20 L	SH31167.05
1 M Tris base, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31167.08
1 M Tris base, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31167.11
2 M Tris base, 20 L, mini tri-clamp	2 M Tris base	20 L	SH31168.05
2 M Tris base, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31168.08
2 M Tris base, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31168.11
0.1 M Tris HCl, 20 L, mini tri-clamp	0.1 M Tris HCl	20 L	SH31169.05
0.1 M Tris HCl, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31169.08
0.1 M Tris HCl, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31169.11
2 M Tris HCl, 20 L, mini tri-clamp	2 M Tris HCl	20 L	SH31170.05
2 M Tris HCl, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31170.08
2 M Tris HCl, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31170.11
0.1 M citric acid, 20 L, mini tri-clamp	0.1 M citric acid	20 L	SH31171.05
0.1 M citric acid, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31171.08
0.1 M citric acid, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31171.11
1 M citric acid, 20 L, mini tri-clamp	1 M citric acid	20 L	SH31172.05
1 M citric acid, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31172.08
0.1 M sodium citrate, 20 L, mini tri-clamp	0.1 M sodium citrate	20 L	SH31173.05
0.1 M sodium citrate, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31173.08
0.1 M sodium citrate, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31173.11
0.5 M sodium citrate, 20 L, mini tri-clamp	0.5 M sodium citrate	20 L	SH31174.05
0.5 M sodium citrate, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31174.08
0.5 M sodium citrate, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31174.11
0.1 N sodium hydroxide, 20 L, female luer lock, insert MPC	0.1 N sodium hydroxide	20 L	SH30883.04
0.1 N sodium hydroxide, 200 L, quick connect body w/lock, MPCK, female luer lock, insert MPC, male luer lock		200 L	SH30883.07
0.1 N sodium hydroxide, 20 L, mini tri-clamp		20 L	SH30883.15
0.1 N sodium hydroxide, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH30883.18
0.5 N sodium hydroxide, 15 L, female luer lock, insert MPC	0.5 M sodium hydroxide	15 L	SH30566.04
0.5 N sodium hydroxide, 200 L, quick connect body w/lock, MPCK, female luer lock, insert MPC, male luer lock		200 L	SH30566.07
0.5 N sodium hydroxide, 15 L, mini tri-clamp		15 L	SH30566.15
0.5 N sodium hydroxide, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH30566.18

Item description	Formulation	Fill size	Product code
1 M sodium hydroxide, 15 L, female luer lock, insert MPC	1 M sodium hydroxide	15 L	SH31088.03
1 M sodium hydroxide, 200 L, quick connect body w/lock, MPCK, female luer lock, insert MPC, male luer lock		200 L	SH31088.06
1 M sodium hydroxide, 15 L, mini tri-clamp		15 L	SH31088.09
1 M sodium hydroxide, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31088.12
2 M sodium hydroxide, 15 L, mini tri-clamp	2 M sodium hydroxide	15 L	SH31175.04
2 M sodium hydroxide, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31175.07
1 M sodium chloride, 6 × 1000 mL, bottles	1 M sodium chloride	6 × 1000 mL	SH31140.LS
1 M sodium chloride, 20 L, female luer lock, insert MPC		20 L	SH31140.03
1 M sodium chloride, 200 L, quick connect body w/lock, MPCK, female luer lock, insert MPC, male luer lock		200 L	SH31140.06
1 M sodium chloride, 200 L, body MPC, 1 ½" tri-clamp		200 L	SH31140.09
2 M sodium chloride, 6 × 1000 mL, bottles	2 M sodium chloride	6 × 1000 mL	SH31141.LS
2 M sodium chloride, 20 L, female luer lock, insert MPC		20 L	SH31141.03
2 M sodium chloride, 200 L, quick connect body w/lock, MPCK, female luer lock, insert MPC, male luer lock		200 L	SH31141.06
2 M sodium chloride, 200 L, body MPC, 1 ½" tri-clamp		200 L	SH31141.09
5 M sodium chloride, 20 L, mini tri-clamp	5 M sodium chloride	20 L	SH31176.04
5 M sodium chloride, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31176.07
5 M sodium chloride, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31176.10
1 M Tris acetate, 20 L, mini tri-clamp	1 M Tris acetate	20 L	SH31177.05
1 M Tris acetate, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31177.08
1 M Tris acetate, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31177.11
3 M ammonium sulfate, 20 L, mini tri-clamp	3 M ammonium sulfate	20 L	SH31178.04
3 M ammonium sulfate, 200 L, mini tri-clamp, 1½" tri-clamp		200 L	SH31178.07
3 M ammonium sulfate, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31178.10
20% ethanol, 20 L, female luer lock, insert MPC	20% ethanol (v/v)	20 L	SH30926.04
20% ethanol, 200 L, quick connect body w/lock, MPCK, female luer lock, insert MPC, male luer lock		200 L	SH30926.07
2% benzyl alcohol, 20 L, mini tri-clamp	2% benzyl alcohol (v/v)	20 L	SH31179.05
2% benzyl alcohol, 200 L, mini tri-clamp, 1½" Tri-clamp		200 L	SH31179.08
2% benzyl alcohol, 200 L, bottom drain, mini tri-clamp, 1½" tri-clamp		200 L	SH31179.11
PBS/modified, without calcium or magnesium, 6 × 500 mL bottle	PBS	6 × 500 mL	SH30256.FS
PBS/modified, without calcium or magnesium, 6 × 1000 mL bottle		6 × 1000 mL	SH30256.LS
PBS/modified, without calcium or magnesium, 20 L, female luer lock, insert MPC		20 L	SH30256.13
PBS/modified, without calcium or magnesium, 200 L, quick connect body w/lock, MPCK, female luer lock, insert MPC, male luer lock		200 L	SH30256.11
DPBS/modified, without calcium or magnesium, 6 × 500 mL bottle	DPBS	6 × 500 mL	SH30028.FS
DPBS/modified, without calcium or magnesium, 6 × 1000 mL bottle		6 × 1000 mL	SH30028.LS
DPBS/modified, without calcium or magnesium, 1 L, standard bag or sample bag		1 L	SH30028.10
DPBS/modified, without calcium or magnesium, 20 L, female luer lock, insert MPC		20 L	SH30028.04
DPBS/modified, without calcium or magnesium, 200 L, quick connect body w/lock, MPCK, female luer lock, insert MPC, male luer lock		200 L	SH30028.07
DPBS/modified, without calcium or magnesium, 200 L, bottom drain, male luer lock (top), insert MPX (top), luer lock (top), body MPX (bottom)		200 L	SH30028.12



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