

Product Sustainability Fact Sheet

Titripac®: the clever packaging solution. Reducing impacts through sustainable design

The Titripac® reduces laboratory waste, saves storage space, and cuts emission from shipping and waste.

Commitment to product sustainability

The products we create help our customers improve people's lives every day, but we recognize that every product we make also has an environmental impact, both during manufacturing and in its use. That's why we are committed to continually improving the sustainability performance of our products.

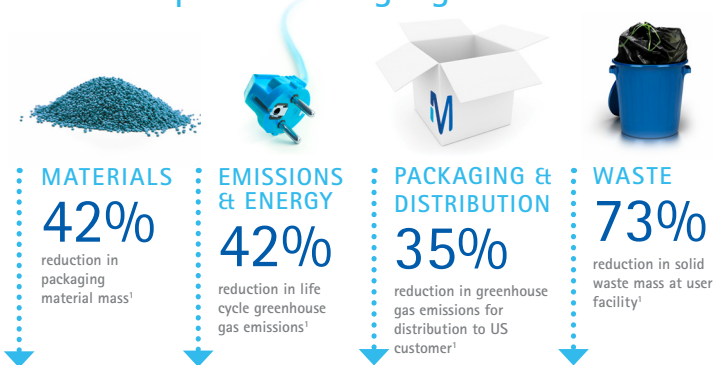
Our products are designed to offer the highest in innovation, quality, safety, and effectiveness, while at the same time helping minimize environmental impacts associated with their use. We aim to develop future-forward products and solutions that meet performance needs, result in reduced life cycle impacts and help solve global sustainability challenges.



Titripac® Features & Advantages

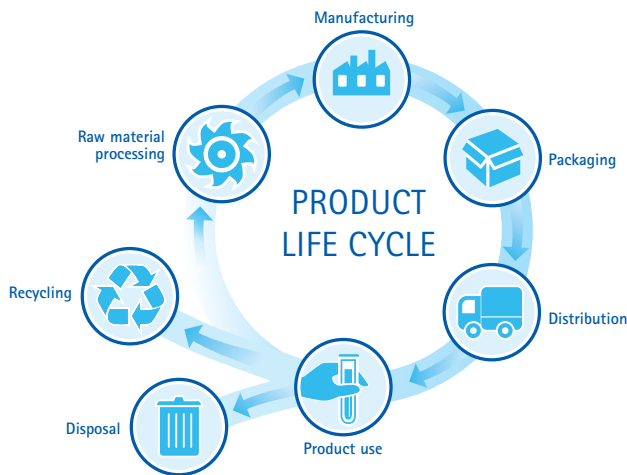
- Reduces environmental impact of disposal – less package waste as outer cardboard box and inner bag can be disposed of separately
- Saves costs and time – no unnecessary re-testing of the solution
- Reliable to use to the last drop – hermetically sealed pack, no contaminated residual amounts and less waste
- Easy to use – integrated withdrawal tap, direct connection to instruments

Product improvement highlights



¹ Compared to Merck Millipore's product delivery system using 1 liter bottles

For more information on our product sustainability and Corporate Responsibility initiatives, please visit: www.merckmillipore.com/responsibility



Design for Sustainability

Design for Sustainability is an approach to product development we use that looks to minimize the environmental and health impacts at each stage of the product life cycle from manufacturing through use to disposal. At the same time, we look to maximize the product features that improve its performance and ease of use. We incorporate sustainability considerations early in the design process before impacts are locked in, and we use a set of criteria for major impact areas like energy and waste to measure improvements.

These approaches help reduce energy and water consumption, create more productive processes that minimize waste, streamline packaging, and reduce associated costs. The benefits come both during the manufacturing process as well as during product usage.

Titripac®: Reduced impacts from Design for Sustainability

Design Element	Benefits	Impacts
42% reduction in mass of packaging materials	<ul style="list-style-type: none"> • 61% reduction in product life cycle global warming potential (GWP) • 55% reduction in product life cycle energy demand • 35% reduction in global warming potential (GWP) of distribution to US customer • 73% reduction in solid waste at user facility 	<ul style="list-style-type: none"> • Reduction of 9 kg CO₂ for every 10L package – equivalent to avoiding the combustion of 1 gallon of gasoline = 1 gallon of gasoline • Reduction of 45 kWh for every 10L package – equivalent to the electricity usage of using a laptop computer for 1 hour = 1 hour of computer use • 0.7 kg of use phase waste avoided for every 10L package = 1 hour of computer use
Increase the percent of corrugated materials from 45% to 86%	<ul style="list-style-type: none"> • 91% increase in the percent of bio-based materials 	<ul style="list-style-type: none"> • Reduction of 1 kg of CO₂ emissions during material production for every 10L package – equivalent to 24 hours of light bulb use (75 watt incandescent) = 24 hours of lightbulb use

Ordering Information for Products in Titripac®

Description	Concentration	Qty/Pk	Catalogue No.
Volumetric Solutions for titration			
Titripur® hydrochloric acid solution	0.1 mol/l (0.1 N)	4 L	1090604000
Titripur® hydrochloric acid solution	0.1 mol/l (0.1 N)	10 L	1090609010
Titripur® hydrochloric acid solution	0.357 mol/l (1/2.8 N)	10 L	1131369010
Titripur® hydrochloric acid solution	0.5 mol/l (0.5 N)	4 L	1090584000
Titripur® hydrochloric acid solution	1 mol/l (1 N)	4 L	1090574000
Titripur® hydrochloric acid solution	1 mol/l (1 N)	10 L	1090579010
Titripur® hydrochloric acid solution	3.571 mol/l (1/0.28 N)	10 L	1131349010
Titripur® silver nitrate solution	0.1 mol/l (0.1 N)	4 L	1090814000
Titripur® silver nitrate solution	0.1 mol/l (0.1 N)	10 L	1090819010
Titripur® sodium hydroxide solution	0.1 mol/l (0.1 N)	4 L	1090414000
Titripur® sodium hydroxide solution	0.1 mol/l (0.1 N)	10 L	1090419010
Titripur® sodium hydroxide solution	0.2 mol/l (0.2 N)	10 L	1091409010
Titripur® sodium hydroxide solution	0.25 mol/l (0.25 N)	10 L	1091399010
Titripur® sodium hydroxide solution	0.33 mol/l (0.33 N)	10 L	1055959010
Titripur® sodium hydroxide solution	0.5 mol/l (0.5 N)	4 L	1091384000
Titripur® sodium hydroxide solution	0.5 mol/l (0.5 N)	10 L	1091389010
Titripur® sodium hydroxide solution	1 mol/l (1 N)	4 L	1091374000
Titripur® sodium hydroxide solution	1 mol/l (1 N)	10 L	1091379010
Titripur® sodium thiosulfate solution	0.1 mol/l (0.1 N)	4 L	1091474000
Titripur® sodium thiosulfate solution	0.1 mol/l (0.1 N)	10 L	1091479010
Titripur® sulfuric acid solution	0.05 mol/l (0.1 N)	4 L	1090744000
Titripur® sulfuric acid solution	0.05 mol/l (0.1 N)	10 L	1090749010
Titripur® sulfuric acid solution	0.25 mol/l (0.5 N)	4 L	1090734000
Titripur® sulfuric acid solution	0.25 mol/l (0.5 N)	10 L	1090739010
Titripur® sulfuric acid solution	0.5 mol/l (1 N)	4 L	1090724000
Titripur® sulfuric acid solution	0.5 mol/l (1 N)	10 L	1090729010
Titriplex® solution B for the determination of water hardness	10 mg CaO/l = 1 ml	10 L	1084209010
Titriplex® III solution (Na ₂ -EDTA)	0.1 mol/l (0.1 N)	4 L	1084314000
Titriplex® III solution (Na ₂ -EDTA)	0.1 mol/l (0.1 N)	10 L	1084319010
Titriplex® III solution (Na ₂ -DCTA)	0.1 mol/l (0.1 N)	4 L	1084474000
Buffer solutions for pH measurement			
Certipur® buffer solution	pH 2.00 (20°C)	4 L	1094334000
Certipur® buffer solution	pH 2.00 (20°C)	10 L	1094339010
Certipur® buffer solution	pH 4.00 (20°C)	4 L	1094354000
Certipur® buffer solution	pH 4.00 (20°C)	10 L	1094359010
Certipur® buffer solution	pH 6.00 (20°C)	4 L	1094374000
Certipur® buffer solution	pH 7.00 (20°C)	4 L	1094394000
Certipur® buffer solution	pH 7.00 (20°C)	10 L	1094399010
Certipur® buffer solution	pH 8.00 (20°C)	4 L	1094604000
Certipur® buffer solution	pH 9.00 (20°C)	4 L	1094614000
Certipur® buffer solution	pH 9.00 (20°C)	10 L	1094619010
Certipur® buffer solution	pH 10.00 (20°C)	4 L	1094384000
Certipur® buffer solution	pH 10.00 (20°C)	10 L	1094389010
Certipur® buffer solution colored red	pH 4.00 (20°C)	4 L	1094754000
Certipur® buffer solution colored red	pH 4.00 (20°C)	10 L	1094759010
Certipur® buffer solution colored green	pH 7.00 (20°C)	4 L	1094774000
Certipur® buffer solution colored green	pH 7.00 (20°C)	10 L	1094779010
Certipur® buffer solution colored blue	pH 9.00 (20°C)	4 L	1094764000
Certipur® buffer solution colored blue	pH 9.00 (20°C)	10 L	1094769010



Description	Concentration	Qty/Pk	Catalogue No.
Buffer solutions for pH measurement			
Certipur® buffer solution colored yellow	pH 10.00 (20°C)	4 L	1094004000
Certipur® buffer solution colored yellow	pH 10.00 (20°C)	10 L	1094009010
Certipur® buffer solution	pH 1.00 (25°C)	4 L	1094414000
Certipur® buffer solution	pH 2.00 (25°C)	4 L	1094424000
Certipur® buffer solution	pH 3.00 (25°C)	4 L	1094444000
Certipur® buffer solution	pH 4.00 (25°C)	4 L	1094454000
Certipur® buffer solution	pH 4.01 (25°C)	4 L	1094464000
Certipur® buffer solution	pH 5.00 (25°C)	4 L	1094464000
Certipur® buffer solution	pH 6.00 (25°C)	4 L	1990364000
Certipur® buffer solution	pH 7.00 (25°C)	4 L	1094074000
Certipur® buffer solution	pH 8.00 (25°C)	4 L	1990384000
Certipur® buffer solution	pH 9.00 (25°C)	4 L	1094084000
Certipur® buffer solution	pH 10.00 (25°C)	4 L	1094094000
Certipur® buffer solution	pH 11.00 (25°C)	4 L	1990414000
Certipur® buffer solution	pH 12.00 (25°C)	4 L	1990224000
Certipur® buffer solution colored red	pH 4.00 (25°C)	4 L	1990544000
Certipur® buffer solution colored yellow	pH 7.00 (25°C)	4 L	1990574000
Certipur® buffer solution colored blue	pH 10.00 (25°C)	4 L	1990504000
Other products			
Emsure® water for analysis		4 L	1167544000
Emsure® water for analysis		10 L	1167549010
Formaldehyde solutions 4 % , buffered for histology	pH 6.9	10 L	1004969011
Osteosoft® mild decalcifier-solution for histology		10 L	1017289010
Phosphate-buffer solution	pH 2.5 (25°C)	10 L	4803709010

Future improvements and opportunities

Our commitment to produce sustainability is a never-ending journey. We are just beginning to identify the possibilities and potential within all industrial areas. We welcome your partnership and feedback as we continue to further improve packaging concepts and products.

The information and statements in this document should not be used for comparison with other bulk chemical packaging concepts' environmental and health impacts or improvements

To place an order or receive technical assistance

In Europe, please call Customer Service:

France: 0825 045 645

Germany: 01805 045 645

Italy: 848 845 645

Spain: 901 516 645 Option 1

Switzerland: 0848 645 645

United Kingdom: 0870 900 4645

For other countries across Europe, please call: +44 (0) 115 943 0840

Or visit: www.merckmillipore.com/offices

For Technical Service visit:

www.merckmillipore.com/techservice

For more information on product sustainability efforts, please visit

our website: www.merckmillipore.com/responsibility

For any questions, please e-mail:

responsibility@merckmillipore.com



www.merckmillipore.com/offices