Supelco®
Analytical Products

MERCK

Titripac®: The clever packaging solution

Reducing environmental impact through sustainable design

The Titripac® packaging 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, during manufacturing, distribution and in it 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® Packaging features and advantages

- Reduces environmental impact of disposal – less package waste as outer recycable carborad 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 chemical waste
- Easy to use – integrated withdrawal tap, or direct connection to titration instruments

Product Improvement Highlights

Packaging & Distribution
Reduction in greenhouse gas emissions for distribution
35%

Emissions & Energy
Reduction in life cycle greenhouse gas emissions[1]
42%

Materials
Reduction in packaging material mass[1]
42%

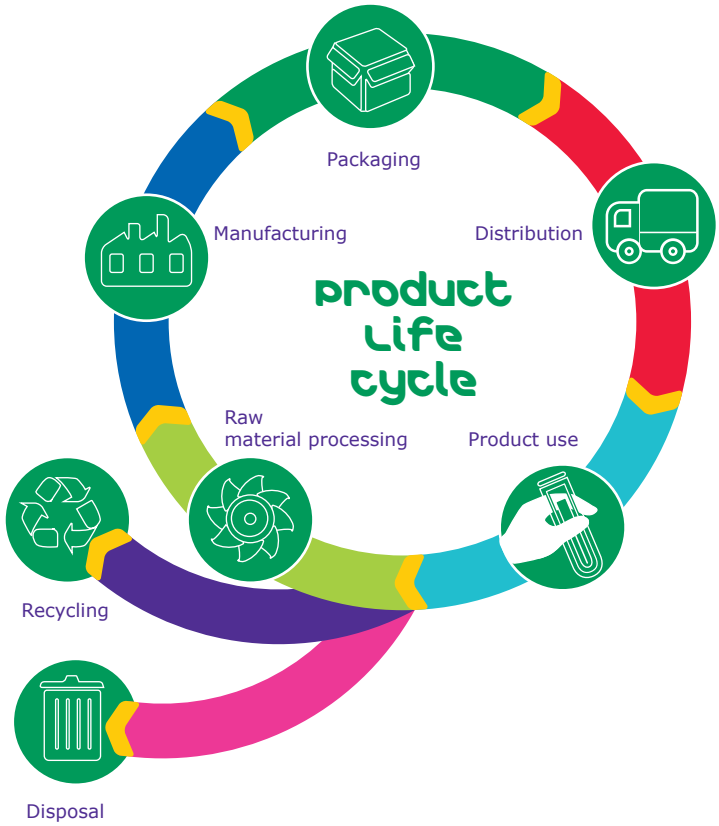
Waste
Reduction in solid waste at user facility[1]
73%

[1]Compared to our product delivery system using 1 liter bottles

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 during the manufacturing process distribution as well as during product usage.



Titripac® packaging: Reducing environmental impact through sustainable design

Design Element	Benefits	Impacts	
42% reduction in mass of packaging materials	• 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	Reduction of 9 kg CO_2 for every 10 L package – equivalent to avoiding the combustion of 1 gallon of gasoline	= 1 gallon of gasoline
		Reduction of 45 kWh for every 10 L 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 10 L package	= 1 hour of computer use
Increase the percent of corrugated materials from 45% to 86%	• 91% increase in the percent of bio-based materials	Reduction of 1 kg of CO_2 emissions during material production for every 10 L package – equivalent to 24 hours of light bulb use (75 watt incandescent)	= 24 hours of lightbulb use

Ordering Information for Products in Titripac® Packaging

Description	Concentration	Qty/Pk	Cat. No.
Titripur® volumetric solutions for Titration			
Titripur® Hydrochloric acid solution	0.01 mol/L (0.1 N)	4 L	**1602384000**
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	3,57 mol/L (1/0,28 N)	10 L	**1131349020**
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	0.01 mol/L (0.1 N)	4 L	**1603094000**
Titripur® Sodium hydroxide solution	0.1 mol/L (0.1 N)	4 L	**1091414000**
Titripur® Sodium hydroxide solution	0.1 mol/L (0.2 N)	10 L	**1091419010**
Titripur® Sodium hydroxide solution	0.2 mol/L (0.1 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	**1091479010**
Titripur® Sodium thiosulfate solution	0.1 mol/L (0.1 N)	10 L	**1091474000**
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**
Titripur® Titriplex® III solution (Na_2-EDTA)	0.1 mol/L	4 L	**1084314000**
Titripur® Titriplex® III solution (Na_2-EDTA)	0.1 mol/L	10 L	**1084319010**
Titripur® Titriplex® solution B	10 mg CaO/L = 1 ml	10 L	**1084209010**
Titripur® Titriplex® IV solution (Na_2-ECTA)	0,1 mol/L	4 L	**1084474003**
Certipur® Buffer solutions (20°C) 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 colored red	pH 4.00 (20°C)	4 L	**1094754000**
Certipur® buffer solution colored red	pH 4.00 (20°C)	10 L	**1094759010**
Ceripur® 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 colored green	pH 7.00 (20°C)	4 L	**1094774000**

Description	Concentration	Qty/Pk	Cat. No.
Certipur® buffer solution colored green	pH 7.00 (20°C)	10 L	**1094779010**
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 colored blue	pH 9.00 (20°C)	4 L	**1094764000**
Certipur® buffer solution colored blue	pH 9.00 (20°C)	10 L	**1094769010**
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 yellow	pH 10.00 (20°C)	4 L	**1094009010**
Certipur® buffer solution colored yellow	pH 10.00 (20°C)	10 L	**1094004000**
Certipur® Buffer solutions (25°C) for pH mesurement			
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	**1094064000**
Certipur® buffer solution colored red	pH 4.00 (25°C)	4 L	**1990544000**
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 colored yellow	pH 7.00 (25°C)	4 L	**1990574000**
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 colored blue	pH 10.00 (25°C)	4 L	**1990504000**
Certipur® buffer solution	pH 11.00 (25°C)	4 L	**1990414000**
Certipur® buffer solution	pH 12.00 (25°C)	4 L	**1990224000**
Other products			
Emsure® Water for analysis		4 L	**1167544000**
Emsure® Water for analysis		10 L	**1167549010**
Formaldehyde solution 4 %, buffered for histology	pH 6.9	10 L	**1004969011**

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:

Technical and customer Service: **sigmaaldrich.com/techservice**

More info on **sigma-aldrich.com/Titripac**

Merck KGaA
Frankfurter Strasse 250
64293 Darmstadt, Germany

MerckMillipore.com

Lit. No. MK_FL8893EU Ver. 1.0 39431 01/2022