Millipore®
Preparation, Separation,
Filtration & Testing Products

Data Sheet

Product Sustainability Fact Sheet

EZ-Fit® Manifold

The EZ-Fit® Manifold was developed using design for sustainability principles to reduce environmental and health impacts for the end-user, including energy consumption 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.

EZ-Fit® Manifold: Universal laboratory filtration

- Different filtration heads fit to both reusable and disposable filtration devices
- Easy to prevent biofilms
  - easy access to all inner parts for efficient cleaning
  - each component can be removed by hand and autoclaved
- Quick-fit connections for the vacuum tubing
- Low height for ease of use in laminar flow hoods

Product improvement highlights

MATERIALS

47% weight reduction, cutting raw material consumption

EMISSIONS & ENERGY

91% less emissions from autoclaving

USABILITY

Lighter weight, easy to clean, easy to use in the hood

END OF LIFE

99% of the product can be recycled

PACKAGING

100% recyclable corrugated packaging

For more information on our product sustainability and Corporate

Responsibility initiatives, please visit:
SigmaAldrich.com/sustainability

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Raw material processing

The EZ-Fit® Manifold has been developed to reduce overall material usage and especially stainless steel which is the main constituent material. Thanks to its innovative design, the amount of stainless steel used was reduced which corresponds to a weight reduction of 47% in comparison with the current Hydrosol manifold.

38%

Shipping 1 EZ-Fit® Manifold unit has 38% lower CO_2e emissions than shipping 1 Hydrosol manifold

Product manufacturing

The EZ-Fit® Manifold has been designed to generate minimal waste during production The final design was selected for its efficient use of materials for the base supports. The aluminum used for the supports and the valve buttons (see **Figure 1**) comes in a circular disc shape. The design team revised initial plans in order to maximize usage of the disc with the simple semi-circle supports.

Packaging

The packaging of the EZ-Fit® Manifold was also developed in order to minimize its environmental impacts. The protection of the unit was achieved with a 100% corrugated cardboard concept, instead of foam which is more common but also more difficult to recycle.

Distribution

Because the EZ-Fit® Manifold is lightweight, it requires less fuel for shipping and therefore generates less emissions. Shipping one EZ-Fit® Manifold (6-place product) by air a typical distance to reach our markets produces approximately 38% less emissions than those from the prior Hydrosol Manifold product.

Use

Autoclaving is a resource-intensive process, requiring both water and energy in order to produce highly pressurized steam to ensure proper cleaning and sterility. A 10 year lifetime has been validated for the EZ-Fit® Manifold.

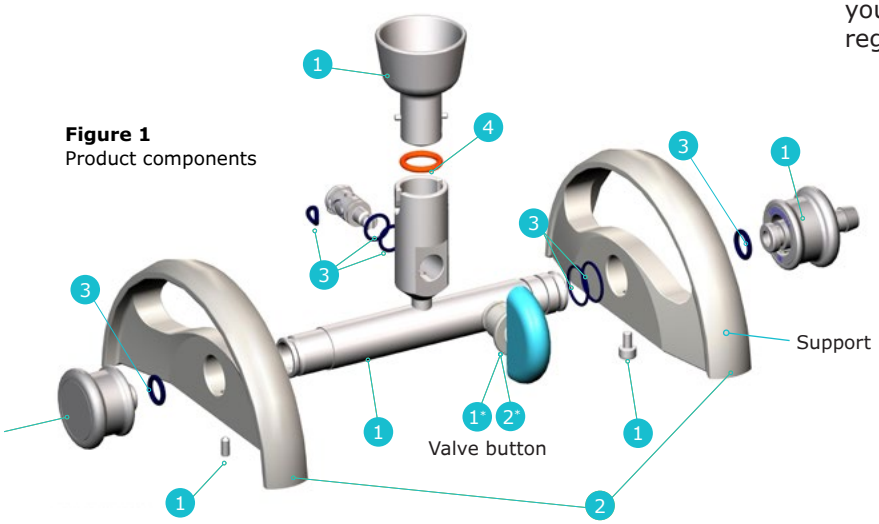
During this period, the main environmental impacts are generated during autoclaving. Thanks to the bayonet fitting (see **Figure 2** below), the filtration heads can be easily removed from the EZ-Fit® Manifold and autoclaved separately between periodic full product autoclave cleanings whereas the entire Hydrosol™ Manifold required autoclaving. This allows users to reduce the volume for autoclave by 92% and reduces the water and energy consumption accordingly during the use of the product for every cleaning. Autoclaving only the filtration heads of the EZ-Fit® Manifold results in approximately 91% less emissions than autoclaving the complete Hyrdrosol Manifold, primarily from reduced electrical consumption.

End of life

The EZ-Fit® Manifold is built from highly recyclable materials like steel and aluminum and is about 99.9% recyclable by weight. After the durable product has been used for approximately ten years it can be easily disassembled in just a few minutes into its constituent materials (see **Figure 1**), thanks to quick-fit connections and recycled according to your local practices and regulations.

Figure 2
Bayonet fitting

Figure 1
Product components



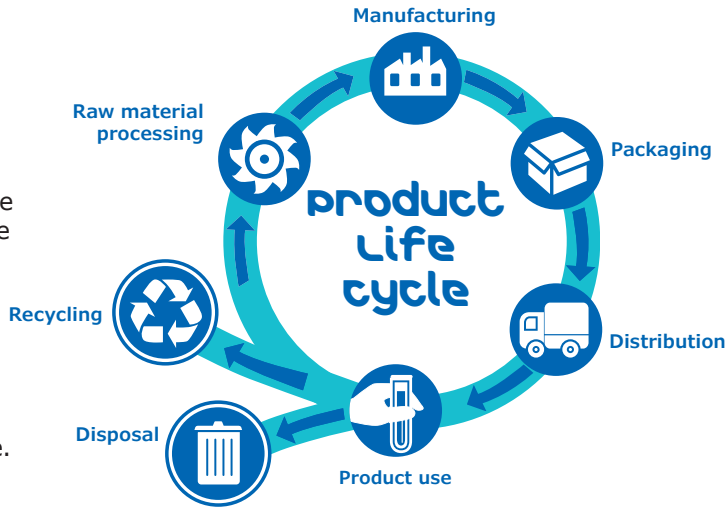
Number	Material
1	Stainless Steel
2	Aluminium
3	Ethylene Propylene Diene Monomer (EPDM)
4	Silicone

* The valve button is composed of several parts. The main parts are made of aluminium. Some internal parts are made of stainless steel. These parts can be separated by disassembling the valve button.

Design for Sustainability

Design for Sustainability is an approach to product development 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.



EZ-Fit® Manifold: Reduced impacts from Design for Sustainability

Design Element	Benefits	Impacts
47% less raw material vs. Hydrosol manifold (6-Place version)	• Reduced raw material depletion. • 38% lower carbon emissions than shipping equivalent Hydrosol manifold (6-Place version).	The reduction in per-unit shipping emissions is equivalent to saving 240 hours of light bulb use (75 watt incandescent). = 240 hours of lightbulb use
Easily removable filtration heads	• 91% lower carbon emissions from autoclaving, compared to Hydrosol manifold. • Reduced electricity, water and related costs for user to autoclave.	The autoclave emissions reduction is equivalent to avoiding burning 1 gallon of gasoline. = 1 gallon of gasoline saved
Supports designed to minimize manufacturing waste and scrap	• Reduced raw materials depletion. • Reduced manufacturing waste to landfill. • Reduced energy and labor to process scrap material.	The annual materials reduction is approximately 130 kg of aluminum, equivalent to over 7,000 aluminum beverage cans. = 7,000 aluminum cans of waste saved
100% recyclable corrugated packaging	• Reduced packaging waste to landfill or incineration.	Simplifies handling and reduces waste for customers. = Avoids equivalent of 60% of one person's daily waste generation
99.9% recyclable by weight, homogenous materials	• Reduced waste to landfill or incineration. • Reduced demand for virgin materials.	Easy disassembly and reduced waste for customers. = Recycling avoids emissions equal to those from 1 gallon gas

Ordering information

Description	Qty / Pk	Cat. No.
EZ-Fit® Manifolds		
EZ-Fit® Manifold, 1-place for EZ-Fit® Filtration units	1	**EZFITSAM1**
EZ-Fit® Manifold, 3-place for EZ-Fit® Filtration units	1	**EZFITSAM3**
EZ-Fit® Manifold, 6-place for EZ-Fit® Filtration units	1	**EZFITSAM6**
EZ-Fit® Manifold components		
EZ-Fit® Filtration Unit Head for EZ-Fit® Manifold	1	**EZFITMHTA1**
	3	**EZFITMHTA3**
Filtration head for rubber stopper tulip for EZ-Fit® Manifold	1	**EZFITHIHE1**
	3	**EZFITHIHE3**
Height extension for EZ-Fit® Manifold	1	**EZFITEXTE1**
	3	**EZFITEXTE3**

Description	Qty / Pk	Cat. No.
Spare parts		
EZ-Fit® Manifold quick connection, 1 plug and 1 connector	1	**EZFITQUICKC**
EZ-Fit® Manifold check valve	3	**EZFITBACKF**
EZ-Fit® Manifold O-Rings Kit (valve and filtration head support)	3	**EZFITGASK3**
EZ-Fit® Manifold complete valve	1	**EZFITVALV1**
EZ-Fit® Manifold removable porous filter support, stainless steel	3	**EZFITFRIT3**
EZ-Fit® Manifold Maintenance Kit including lubricant and brush	1	**EZFITMAKIT**
N°8 blue stopper (9.5 mm-3/8 in.), silicone	5	**XX2004718**
Related products		
EZ-Stream® vacuum Pump	1	**EZSTREAM1**
Silicone hose — Autoclavable Internal diameter: 9.5 mm (3/8 in.) Length: 5.0 m (196.8 in.)	1	**STREAMTUB**
Filter forceps	3	**XX6200006P**
EZ-Fit® filtration units filtration head gasket	3	**EZFITMVG3**

Future improvements and opportunities

Our commitment to product sustainability is a never-ending journey. We are just beginning to identify the possibilities and potential within the life science industry. We welcome your partnership and feedback as we continue to further improve the EZ-Fit® Manifold and other products.

The information and statements in this document should not be used for comparison with other filtration manifolds' environmental and health impacts or improvements.

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