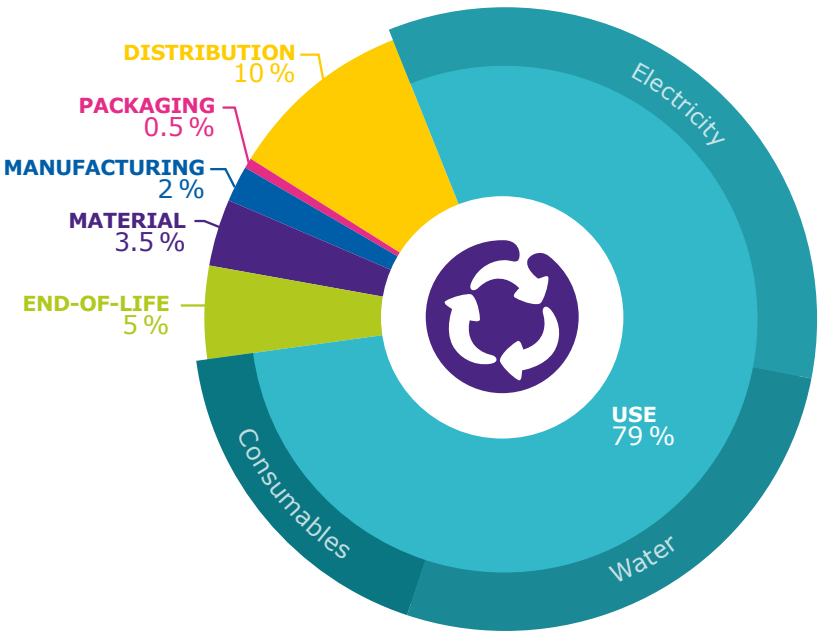
Milli-Q®
Lab Water Solutions

Your Opportunity for More Sustainable Science

Sustainability is a key pillar of our innovative Milli-Q® systems.

We are proactively engaged in reducing the environmental footprint of our products. From decreasing water and energy consumption, to minimizing plastic and eliminating chemical waste, Milli-Q® water purification systems are being actively designed to reduce their ecological footprint, to better support your sustainability goals.

Contribution to Global Warming Potential* by Life Cycle Stage



Data defines our design decisions

System use generates the greatest environmental impact.

To accurately measure the environmental impact of our water purification systems, we performed a life cycle assessment (LCA) according to ISO 14040 on our Elix® 100 water purification system. **LCA indicates that 79% of the Global Warming Potential occurs during onsite usage.**

Because electricity and water consumption have the largest environmental impact, we are focused on improving in these areas.

* Measured in CO_2 equivalents.

The life science business of Merck operates as MilliporeSigma in the U.S. and Canada.

MERCK

Achieve your sustainability goals

Your lab can consume less water, energy, chemicals and plastic with our innovative water systems, eco-friendly technologies and digital services.

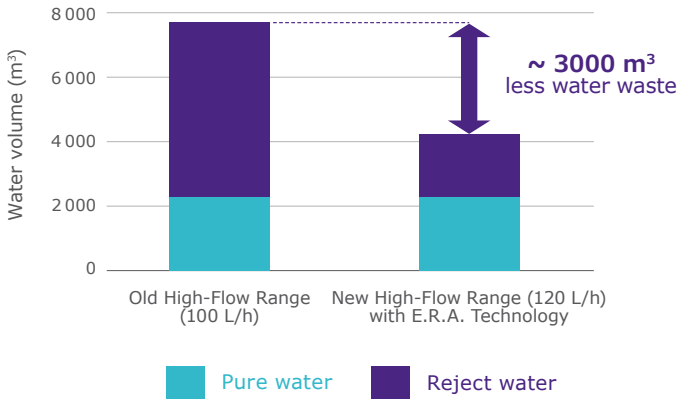
Up to 50% water savings

E.R.A.® (evolutive reject adjustment) technology optimizes water recovery from the reverse osmosis (RO) membrane, reducing water use by up to 50% compared to our previous generation of RO systems.

- Equates to **~1200 L (320 gallons) per day** in water savings for 7 years *(see graph on right)*
- Results in a longer pre-treatment cartridge lifetime, which reduces plastic waste

Have you thought about the average amount of water you use in a day?

E.R.A.® technology reduces water waste



The graph shows the split between pure water produced and waste water generated, based on a production of 1000 L of pure water, 312 days per year for 7 years.

Up to 35% energy savings

New Milli-Q® IQ, IX and EQ systems achieve **up to 35% energy savings** (up to 2000 kWh over the product lifecycle) *vs.* previous generation systems thanks to:

- Optimized components and purification processes
- Improved 'Lab Close' hibernation mode
- The intelligent Elix® electrodeionization (EDI) module

What steps do you take daily to reduce your energy consumption?

Hg
Mercury free

Eliminate mercury handling

Our ech$_2$o® UV lamps* eliminate mercury and associated regulated disposal management. They also provide additional benefits:

- More compact *vs.* mercury-containing lamps, allowing for smaller sized systems
- Replaced only every 2 years

Reduced chemical waste

Elix® EDI technology eliminates the need for hazardous chemical regeneration procedures and associated waste as a weak electrical current continuously regenerates ion-exchange resins.

- No need for conditioning cartridges or costly resins

Reduced plastic use

As an example, Milli-Q® IQ 7000 systems boost the following improvements *vs.* previous generation systems:

- **33% reduction of plastic for purification cartridges** thanks to IQnano® ion-exchange media
- Fewer cartridges and smaller UV lamps, combined with improved design, allows for **more compact systems** featuring:
  - 18% reduced system weight
  - 22% reduced system volume
- **50% plastic** (by weight) sourced from local, Together for Sustainability-audited suppliers who have been audited for sustainable supply chain practices

* Available in Milli-Q® IQ and IX systems.

Greener alternative water systems

As part of Merck's **Design for Sustainability** (DfS) approach to product development, the most recent generation of Milli-Q® systems were developed to have a reduced environmental impact in key areas such as **energy, waste and water**.

As a result of these efforts, **Milli-Q® IQ 7000, IQ 7003** and **IQ 7010** systems are officially labelled **Greener Alternative Products** thanks to their sustainability characteristics:

- Consume less electricity over their lifetime
- Consume less water over their lifetime
- Use less plastic
- Eliminate mercury handling

We invite you to look for this icon and review each system's DfS Scorecard to support you in making more eco-friendly purchasing decisions.

More eco-friendly packaging

As part of Merck's **SMASH Packaging Plan**, Milli-Q® IQ, IX and EQ systems and PODs are being transitioned to more sustainable packaging solutions, including:

- Use of cardboard packaging with sustainable forestry certification
- Increased percentage of recycled fibers for each system and POD box
- Use of protective foams made of bio-based or recycled LDPE that are then recyclable with other LDPE foams

How does your facility manage recyclable materials?

New digital solutions support our products & services

Paperless data & system management

We've made it possible to effectively manage your water system and its data without ever needing to print, **saving up to 1 million sheets of paper and 6 tons of CO_2 every year**.*

- For all systems, we no longer print User Manuals or Service Guides
- All documents are stored in the cloud by our new MyMilli-Q™ digital services†, in system memory, or are provided on a USB key

Beyond the environmental impact of printing what do you think about the practicality of digitally storing your documents? Consider their weight during shipping your storage space and ease of retrieval.

Remote customer support

MyMilli-Q® Remote Care supports **online diagnostics and troubleshooting** by our service team. This unique feature may even allow for remote repairs, avoiding the need to wait for a service visit.

MyMilli-Q™

Learn more at
SigmaAldrich.com/mymilli-q

* Calculations based on printed paper emission factor.

† MyMilli-Q™ digital services are available for systems under contract or warranty.

Working towards a more sustainable future for everyone

Operational Excellence

All Merck production sites are ISO 14001-certified, and all Milli-Q® systems comply with critical environmental regulations and directives, such as RoHS, REACH and WEEE.

In addition, as a member of the Together for Sustainability initiative, we encourage our suppliers to be assessed and ensure compliance with our standards and values in the categories of Environment, Labor and Human Rights, Ethics, and Sustainable Procurement.

Have you noticed if your other lab suppliers provide proof of any of these certifications or partnerships?

Top 1% for Sustainability Management

In 2020 and 2021, Merck KGaA, Darmstadt, Germany was awarded Platinum status from EcoVadis, placing us in the top 1% of all companies assessed.

EcoVadis is the world's most trusted provider of corporate social responsibility ratings. The sustainability assessment looks at policies, actions and results across the categories of Environment, Labor and Human Rights, Fair Business Practices and Sustainable Procurement.

Special recognition in the categories of:

- Environment
- Labor Practices & Human Rights

Find more information on our corporate responsibility strategy at **SigmaAldrich.com/ssbi**

Sustainable Development Goals (SDGs)

The United Nations has defined 17 goals for the sustainable development of the world, and Merck aims to contribute to their achievement. Our focus is on the goals on which we can have the strongest impact within the scope of our entrepreneurial activities and behavior:

- SDG 3 Good health and well-being
- SDG 8 Decent work and economic growth
- SDG 9 Industry, innovation and infrastructure
- SDG 12 Responsible consumption and production
- SDG 17 Partnerships for the goals

Milli-Q® products aim to provide both measurable and recognizable contributions toward the SDGs indicated with a 💧.

What sustainability initiatives does your lab support?

What key environmental impact areas would you like to see improved in your lab?

Please contact us to discuss how we can support your lab to advance towards greater sustainability.

Milli-Q®

Lab Water Solutions

SigmaAldrich.com/labwater

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