



BD Emerald™ Syringe

The syringes you use every day
are essential to help patients



Your choice of syringe may also help the planet¹



Presenting
BD Emerald™ Syringe:
the green choice
designed to
help patients
and the planet*

It all adds up...

Single-use plastics (SUPs), such as disposable syringes, represent **more than 40%** of the total production of plastics.¹ They can contribute to:



Reuse and recycling of SUPs is also very low compared with materials such as glass, paper and metal¹

The result:
Short lifecycle, lasting harm



Sustainable alternatives are part of the solution

"Reduction targets for single-use plastics and short-lived plastic applications are achievable, can generate more local economic activity, and save money on the management of littering and low-value waste. Although welcome, initiatives to close the loop of materials by increasing collection rates and designing for recycling are not sufficient. **Europe cannot recycle its way out of plastic pollution but, rather, must have a strategy to reduce plastic use by choosing reasonable alternatives.**"

*Compared to other syringes not manufactured using sustainable methods.^{7,8}

– Zero Waste Europe, 2017²

Patients + the planet

BD can help you support both

Your facility may already be acting to improve sustainability, but the pandemic may have impacted your plastic reduction policies and other waste management strategies.¹ At BD, we share your commitment to address both social and environmental challenges. By reducing raw materials and building sustainability into our supply chain, we can also empower our customers to make responsible choices. Here are some of our recent steps to help advance human health and create a healthy environment:



Reduced Scope 1 and 2 GHG emissions by **58%**³



Reduced water consumption by **53%**³



Informing users on disposal decisions to

reduce end-of-life impact of syringes³

Learn more about our vision for sustainability



<https://www.bd.com/en-us/resource-and-education/documentation-landing-page>

Learn more about our 2030+ sustainability strategy



https://www.bd.com/documents/corporate/BD_Sustainability-report-2020_EN.pdf

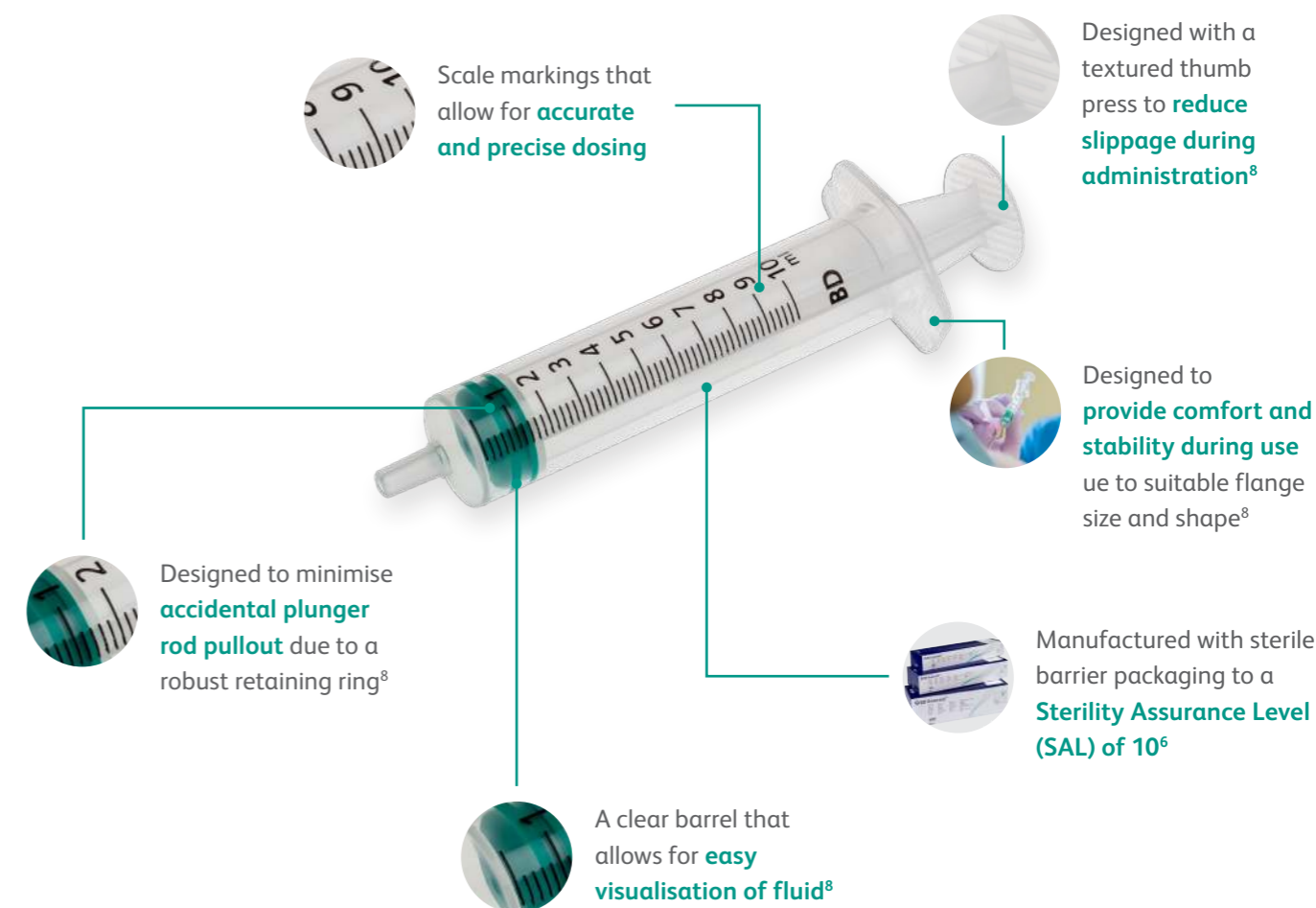
Let's make sustainability a matter of routine

BD continues to invest in medical device innovations that reduce environmental impact and address your sustainability needs.³ Syringes are essential devices, used multiple times a day, to draw blood or deliver fluids and medications to patients. Along with quality and safety, we've integrated sustainability into manufacturing these everyday essentials. The result is **BD Emerald™ Syringe**—a sustainable alternative to other syringes.⁷ It's a small solution that can add up to a big difference.

³Exceeding our set targets for 2020 from a 2008 baseline.

Designed for safety + ease of use⁸

Each BD Emerald™ Syringe has **multiple innovations** to help you reduce accidental errors. They are also easy to use with **minimal training** required.⁸



Non-toxic materials + recyclable packaging

BD Emerald™ Syringes are made entirely from non-toxic materials

We conduct toxicity tests to confirm that our manufacturing process does not affect material safety. Data and information are collected on an ongoing basis from our suppliers to ensure that our products don't contain materials of concern, i.e., identified chemicals or substances that may cause long-term harmful effects to people or the planet.



No natural rubber latex or latex⁴



No DEHP and no PVC intentionally added⁴



<0.1% BPA with no demonstrable exposure or toxicity^{#,4}



No animal tissue used, so no risk of animal-borne diseases such as BSE/TSE⁴



Meets or exceed the requirements set by ISO and EMA⁴

Less weight + lower waste⁷

BD Emerald™ Syringes may help you reduce daily product waste



Generic syringe



BD Emerald™ Syringe



Uses up to 30% less material than other syringes⁷



Recyclable paper used for shipping case and shelf box



Available in three different sizes (2 mL, 5 mL and 10 mL) to enable optimal use as per dosing needs, helping to reduce drug waste

* As of June 10, 2020 # No 4,4'-isopropylidenediphenol (Bisphenol A) identified by BD as of June 10, 2020. EN ISO 22442-1 Medical devices utilizing animal tissues and their derivatives — Part 1: Application of risk management and EMA 410/01 Rev. 3 Note for guidance on minimising the risk of transmitting animal spongiform encephalopathy agents via human and veterinary medicinal products.

DEHP: Diethylhexyl phthalate; PVC: Polyvinyl chloride; BPA: Bisphenol A; BSE: Bovine Spongiform Encephalopathy; TSE: Transmissible Spongiform Encephalopathies; ISO: International Organization for Standardization; EMA: European Medicines Agency.

Certified + biocompatible

BD Emerald™ Syringes are thoroughly tested to ensure that every relevant component meets ISO 10993 series tests and requirements for biocompatibility*⁴:



For in vitro cytotoxicity



For local effects after implantation



For pyrogenicity



For systemic toxicity



Every BD Emerald™ Syringe available on the market is **CE marked**, and deemed to meet EU safety, health and environmental protection requirements.

* ISO 10993-18:2009. Biological Evaluation of Medical Devices, as of May 31, 2021.⁴

Sustainable practices + local supply

BD Emerald™ Syringes are made and shipped to you from our ISO 14001-certified facility in Fraga, Spain



€1.98M invested

in sustainable infrastructure over 4 years (FY15–19)



To manufacture at an ISO 50001-certified site



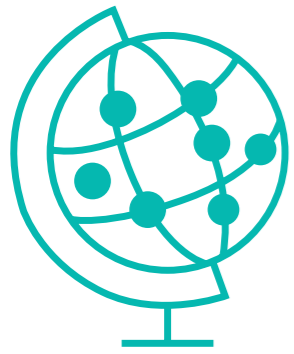
Using **100% renewable electricity**, which saved **13,938 metric tonnes** of CO₂ emissions in 2021⁵



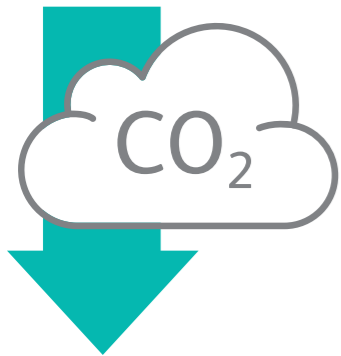
With over **88% rate of recycling**, increasing landfill diversions by **5,971,882 kg*** in **3 years⁶**

* Equivalent to 5971.8 metric tonnes or approx. 13.16M pounds.

Sustainable practices + local supply



Our BD Fraga plant is **one of 46 BD sites** and counting that have implemented ISO 14001-certified Environmental Management Systems (EMS).³ We will also continue to increase our use of on-site generation and renewable energy sources wherever feasible.



Global manufacturing network reduces long-distance transport and fuel consumption, **helping to reduce the carbon footprint** for each syringe delivery.

Check how your current syringe compares to our sustainable alternative

BD Emerald™ Syringes are designed to help you reduce your facility's waste and contribute to your sustainability goals, without compromising on quality and safety

	BD Emerald™ Syringe	Your current syringe
Innovative design to be safe and easy to use	✓	
Contains no materials of concern (latex, DEHP, PVC, BPA, animal tissue) ⁴	✓	
Meets or exceeds requirements set by ISO and EMA ⁴	✓	
Reduced amount of materials ⁵ , and recyclable packaging	✓	
Every component meets ISO 10993 series requirements for biocompatibility ⁴	✓	
Manufactured in a facility with ISO 14001-certified Environmental Management System ³	✓	
Made with 100% renewable electricity ⁵	✓	

Switch to BD Emerald™ Syringes and enable your facility to drive sustainability every day—now and for the future

Let's advance safety and sustainability for everyone

Join us to drive the change

To order BD Emerald™ Syringe,
contact your **BD sales representative**.

To learn more about sustainability at BD,
visit **bd.com/sustainability**

References:

1. Patrício Silva AL, Prata JC, Walker TR, et al. Rethinking and optimising plastic waste management under COVID-19 pandemic: Policy solutions based on redesign and reduction of single-use plastics and personal protective equipment. *Sci Total Environ*. 2020;742:140565. doi: 10.1016/j.scitotenv.2020.140565
2. Zero Waste Europe. Seizing the opportunity: Using plastic only where it makes sense. (2018). Accessed on September 17, 2021, at <https://zerowasteurope.eu/wp-content/uploads/2018/01/Position-paper-Plastics-reduction-targets.pdf>.
3. Becton, Dickinson and Company (BD). FY 2020 Sustainability Report. (2020). Accessed on September 8, 2021 at https://www.bd.com/documents/corporate/BD_Sustainabilityreport-2020_EN.pdf
4. Technical Data Sheet V201-005 rev03 for BD Emerald™ Syringes with and without Needle, Sterile, Europe, June 2021.
5. BD Data on File, Green support file - metric tonnes CO2e-saved. Internal Emerald green report, April 2022
6. BD Data on File, Green support file - recycling. Internal Emerald green report, April 2022
7. BD Data on File, Comparison of syringe weights memo of BD Emerald™ products and comparative syringes, April 2011
8. BD Data on file, Emerald Conventional Syringe Claims Accuracy R&D Memo, June 30, 2021

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BD-52991 (02/22) adapted from BD-47621 (12/21).

