



# BAHADIR MEDICAL DEVICES

SUSTAINABLE SOLUTIONS FOR  
HEALTHCARE



# **Bahadır Sterile Containers**

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**Durable  
Reusable  
Sustainable**

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BAHADIR MEDICAL DEVICES

## Who We Are

- Bahadır Medical Devices is a leading manufacturer of high-quality Surgical Instruments and Sterilization Container Systems. With FDA-approved products, innovative solutions, and a global presence, we are committed to enhancing patient safety and surgical efficiency.
- Bahadır contributes to the healthcare sector with innovative and eco-friendly Sterilisation Containers, designed to ensure safety, efficiency, and reliability in infection control. Committed to sustainability and quality, we help healthcare institutions maintain the highest standards while reducing environmental impact



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# An Overview of Sterilization Containers

Our sterilization containers set a new standard in safety, durability, and sustainability.

We offer durable and reusable solutions for safely sterilising surgical instruments. Made from materials such as aluminium or stainless steel, they significantly reduce waste compared to single-use options like blue wraps. Their long lifespan minimises the need for frequent replacements and lowers resource consumption. Although they require energy for cleaning, their sustainability and reduced carbon footprint over time make them a more eco-friendly choice. In addition to environmental advantages, sterilisation containers ensure high levels of safety and efficiency in maintaining sterility, making them a reliable and sustainable option for healthcare facilities.



# Why is Sustainability?

- Sustainability is about meeting today's needs without compromising future generations' ability to meet theirs.
- Healthcare is a resource-intensive industry, responsible for 4.4% of global CO<sub>2</sub> emissions.
- Sustainable practices improve long-term health outcomes by reducing pollution and promoting healthier environments.
- Reusable medical devices, like surgical instruments and sterile containers, reduce biohazard waste.
- Sustainability in healthcare is not just an option:

“ it is a responsibility. ”



Sustainability



Carbon Footprint



Green  
Manufacturing



Recycle

# Reducing Waste in Healthcare



Find greener alternative



Improve the processes



Adopt a greener mindset



Reduce the waste

- The healthcare sector contributes 5.5% to national carbon footprints globally, with developed countries reaching up to 8%.
- Operating rooms (ORs) are significant contributors to waste, producing an average of 12 kg per operation.
- Reusable rigid sterilization containers (RSCs) have a significantly lower environmental impact compared to single-use blue wraps. Blue wraps generate large amounts of waste and require considerable resources for production and disposal. In contrast, RSCs are durable, reducing waste and resource consumption over time. While RSCs require energy for cleaning and sterilization, their long-term use minimizes the need for new materials, offering a more sustainable and eco-friendly solution with a lower carbon footprint.



# Material Technology

- While blue wraps are made from plastic and require significant resources for single-use production, sterilization containers are durable, made from materials like aluminium or steel, and reusable. This reduces resource consumption and waste over time, making containers a more sustainable choice.
- PP production accounts for 88% of its eco-costs.
- Aluminium production contributes significantly but is less impactful over its lifecycle.
- Although RSCs have a higher environmental impact during production, their long lifespan (5000 cycles) makes them significantly more eco-friendly compared to single-use blue wraps, which generate continuous waste. Over time, RSCs result in much less environmental pollution.

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# Durable and Long-Lasting Solutions

## Environmental Impact During the Usage Phase

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RSCs consume more energy and water during the usage phase, they cause less environmental harm in the long run compared to blue wraps, which generate continuous waste.





# Recycling Process

Blue wraps generate 1869 kg CO<sub>2</sub>e over 5000 cycles when incinerated, but recycling reduces this to 883 kg CO<sub>2</sub>e.

In comparison, reusable sterilization containers (RSCs) produce only 285 kg CO<sub>2</sub>e when sent to landfill, with recycling further lowering the impact. The break-even point for RSCs occurs after just 68 cycles, making them the more sustainable option over time.



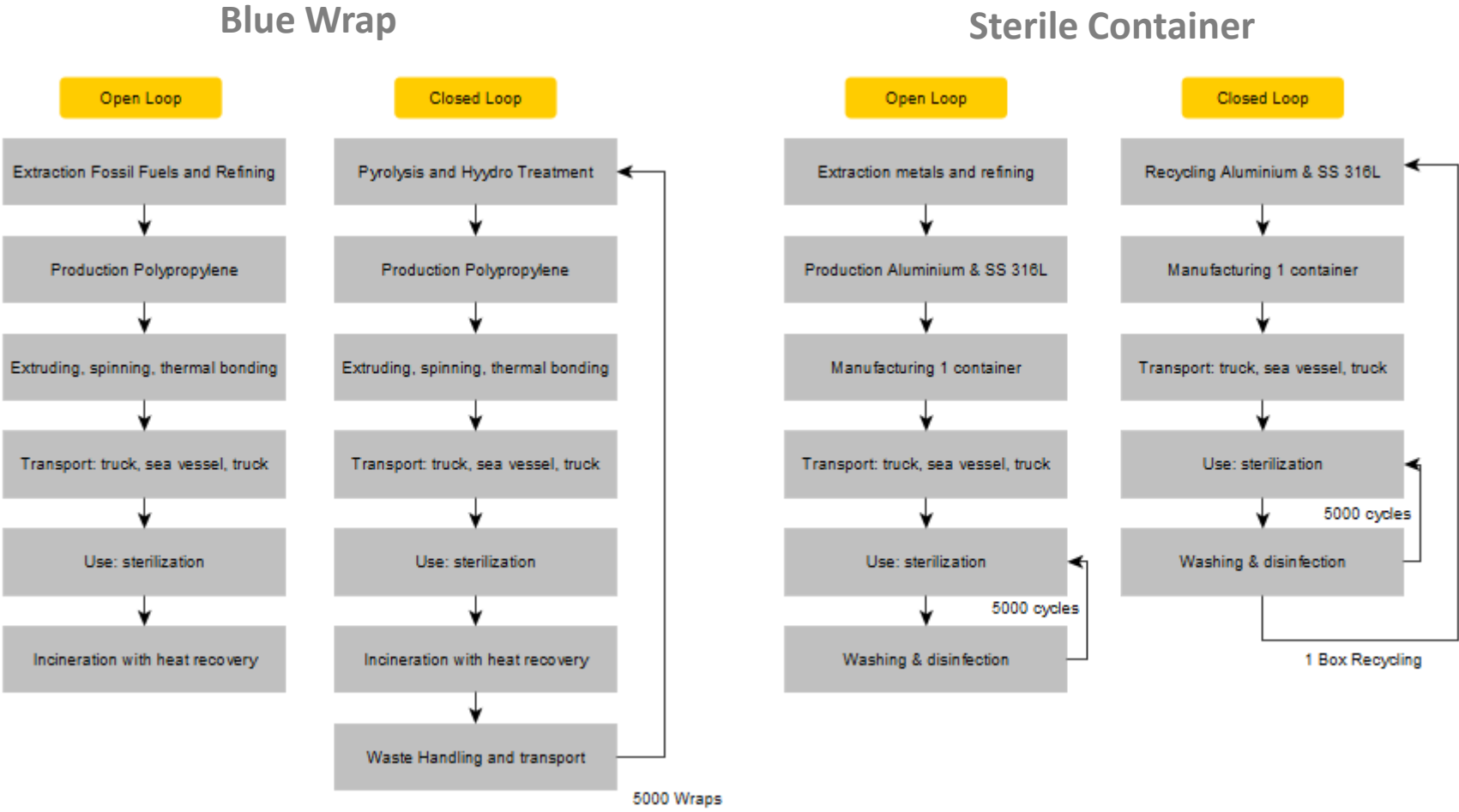


**“RSCs are more environmentally friendly compared to blue wraps, particularly in terms of human health and ecosystem impact.”**

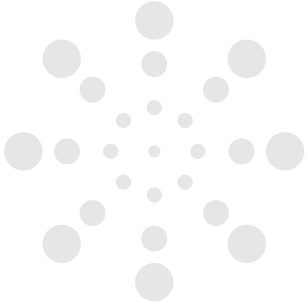
ReCiPe indicator evaluates three key environmental impacts; human health, ecosystems, and resource depletion.

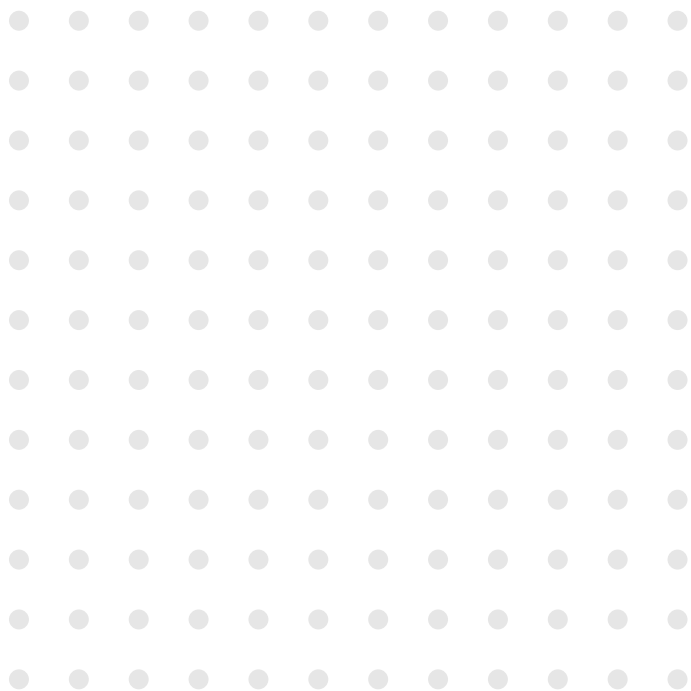
The environmental impact of blue wrap is mainly driven by CO<sub>2</sub> emissions, affecting human health significantly, as it contributes to climate change. RSCs have a lower overall ReCiPe score due to reduced CO<sub>2</sub> emissions, though water usage and fine dust are additional contributors. However, their overall environmental impact is still much lower than that of blue wrap.

# Maximizing Efficiency



Blue wrap open and closed loop and RSC open and closed loop. ( A Comparative Life Cycle Assessment of Disposable versus Reusable Systems Herman J. Friedericy)





# Advantages of the RSCs based on the ReCiPe score



Lower Environmental Impact



Reduced Human Health Risks



Less Resource Depletion



Long-Term Durability

# Economically Efficient

- RSCs are cost-effective in the long run. While they require a higher initial investment, typically costing between \$300 to \$500 per container, their long lifespan up to 15 years, means they are far more economical than continuously purchasing disposable blue wrap.
- They also reduce single-use materials' ongoing labour and disposal costs, further enhancing their financial viability.

	Disposable Wrap	Rigid Container
Annual Number of Sets Reprocessed	39,780	40,973
Material Cost	\$/Year	\$/Year
Wrap cost per use	\$81,947	
Indicator tape	\$4,917	
Towel cost	\$16,389	
Other material	\$4,097	
Processing pack cost (filter, locks, indicator cards)		\$13,923
<b>Total Material Cost</b>	<b>\$107,350</b>	<b>\$13,923</b>
Labor hours per year	2,049	232
Labor rate per hour	\$17	\$17
Total Annual Labor Cost	\$34,827	\$3,945
<b>Total Cost</b>	<b>\$142,178</b>	<b>\$17,868</b>



# We proudly comply with these standards to deliver high-quality, sustainable solutions.

- RSCs are manufactured in accordance with CE, ISO, and FDA standards to ensure safety and environmental sustainability. ISO 13485 encourages eco-friendly design and resource efficiency in medical devices, while CE marking complies with EU directives that focus on waste reduction. Additionally, FDA 21 CFR Part 820 promotes sustainable practices in production. By adhering to these standards, our containers are designed for long-term use, thereby minimizing waste and reducing environmental impact.



## FDA Approved

Compliance with FDA safety and quality regulations is ensured.



## CE Certified

Ensuring compliance with European Union safety and quality standards.



## ISO Certified

Meeting global standards for quality, safety, and environmental management.

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# Future Outlook

With over 300 million surgeries performed globally each year, the healthcare sector contributes substantially to waste and carbon emissions. Transitioning to sustainable solutions like RSCs is essential to reduce environmental footprints. The adoption of reusable options is critical for a more sustainable healthcare future.



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# Thank you!

Thank you for taking the time to learn about our vision and efforts. Together, we can create a meaningful impact for a better future.



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Sources: Data from various online resources, Reducing the Environmental Impact of Sterilization Packaging for Surgical Instruments in the Operating Room: A Comparative Life Cycle Assessment of Disposable versus Reusable Systems Joost G. Vogtländer 3, Anne C. van der Eijk 4 and Frank Willem Jansen 5,6,