

# TOGETHER TOWARDS HEALTH



*Rely on it.*

RENOLIT Healthcare  
**FILMS DESIGNED  
FOR RECYCLING**

PLASTIC

PAPER

OUR VISION

# TOGETHER TOWARDS HEALTH

WE ENVISION ADVANCING HUMAN HEALTH FOR TODAY'S AND FUTURE GENERATIONS TOGETHER WITH OUR CUSTOMERS AND PARTNERS.

RENOLIT Healthcare  
POLYMER SOLUTION PROVIDER

OVERLAPPING SQUARE  
INNOVATIVE & SUSTAINABLE  
POLYMER SOLUTIONS

## TOGETHER TOWARDS HEALTH

OUR CUSTOMERS & END-CUSTOMERS  
WITH THEIR CHALLENGES & NEEDS

Our vision is not only the guiding star for our advanced polymer solutions but also for our sustainability strategy.

**Together Towards Health** means that we, together with all other players in the value chain, strive to become a Circular Economy and holistically make vital contributions to human health for today's and future generations.



## OUR MISSION

AS A GLOBAL PARTNER OF THE HEALTHCARE MARKETS, WE COLLABORATE ON INNOVATIVE AND SUSTAINABLE POLYMER SOLUTIONS TO MAKE VITAL CONTRIBUTIONS TO HUMAN HEALTH.

As a roadmap toward our "Together Towards Health" vision, our mission is based on a strong foundation of four cornerstones: Cooperation, Innovation, Sustainability, and Global Partnership. These cornerstones are integral to our organization and our advanced polymer solutions.

COOPERATION



INNOVATION



SUSTAINABILITY



GLOBAL PARTNERSHIP



Due to its role in human health, **Sustainability** is growing in importance for our customers, end-customers, and humanity. But Sustainability can't contribute alone to human health – it needs the support of our other cornerstones: **Innovation**, because Sustainability can't be achieved without groundbreaking innovations. **Cooperation**, because all players in the value chain need to work together to become a Circular Economy. And **Global Partnership**, because Sustainability doesn't stop at borders.





## FROM CHALLENGE TO OPPORTUNITY



The impact of the climate crisis, fossil carbon-based energy resources, and unsolved waste challenges is forcing all parts of society to rethink their way of living, working, and producing – including our advanced polymer industry.



Therefore, our industry is in a state of major upheaval. To comply with the Waste Framework Directive and the Packaging Directive of the European Commission, all Plastic packaging shall be reusable. The recycling of Plastic packaging waste in EU countries must be increased to a minimum of 50% by 2025 and 55% by 2030.

One of our biggest challenges is not only a sustainable and recycling-friendly product design. If our industry is to have a future, we need to stop being linear and start becoming a circular economy.



## LET'S WORK TOGETHER ...

Together with you, our customers, and partners, we will not tackle these challenges but embrace them as an opportunity to differentiate ourselves in the market and move towards a sustainable and liveable future.

All our products presented in this folder are already designed for recycling today. However, in the healthcare market, recycling after use is still challenging. Together, we need to find ways to decontaminate used products effectively and safely. We must also work together to create more effective recycling capacities. Thirdly, we must ensure that the incorporation of recycled or non-fossil

raw materials into medical products is compliant with the law.

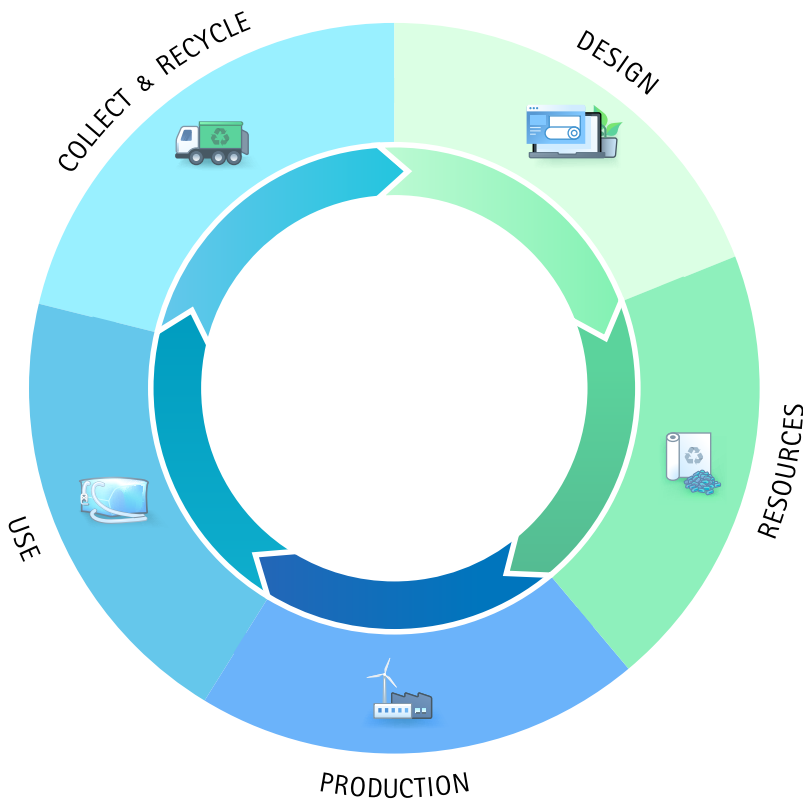
What we are already doing today and can continue to promote is post-industrial recycling. Let's talk about how we can recover the residual materials from your production and feed it back into other and in the future our production process to conserve resources. Last but not least, we should collaborate on even more sustainable polymer solutions and initiate the necessary certifications together as quickly as possible to accelerate the development towards greater sustainability in the healthcare industry.

# ... FOR A TRULY CIRCULAR ECONOMY.

**RENOLIT** Healthcare is committed to becoming part of a Circular Economy. This commitment is deep-rooted in who we are and where we intend to develop healthcare to. And we are not only focusing on the one segment where

we currently have our biggest role. But on all segments of the Circular Economy: with innovative designs for sustainability, sustainable resources, zero-waste and sustainable production, responsible use at end-customers, and collect & recycling.

We are willing to cooperate with all players up and down the value chain, and especially our customers and end-customers to make this ambitious and time consuming transformation a reality. The selection of advanced polymer solutions, the exponentially increasing usage of zero-carbon footprint resins, the introduction of advanced (chemical) recycling as prime up/re-cycling solution for especially but not solely contaminated medical film waste, our sustainability workshop offering, and the sustainability highlights presented here are just the first steps – nevertheless, important ones. Stay tuned for more updates and our progress on our website, on our Social Media channels, and from your contacts at **RENOLIT** Healthcare.



WE ARE OPEN TO COOPERATE WITH ALL PLAYERS TO MAKE THIS AMBITIOUS AND COMPLEX TRANSFORMATION A REALITY WHILE CONTINUING TO CREATE VALUE FOR OUR CUSTOMERS AND END-CUSTOMERS.



## RECYCLABLE PRODUCTS →

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In this folder, we present a selection of high-performance and recyclable films that are suited to be processed after use in open waste recycling streams as material categories 4 (PE-LD or LDPE) and 5 (PP), respectively. More will follow, powered by our focus on sustainability, innovations like our EM technology (EMT), and human health.

## SUSTAINABILITY WORKSHOPS →

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Let's cooperate on future-proof advanced polymer solutions for your business in a sustainability workshop at our Amsterdam Innovation Center (AIC). Together, we can design the entire life cycle of new advanced polymer solutions in the most sustainable way possible, keeping every segment of the Circular Economy in mind.

## SUSTAINABILITY HIGHLIGHTS →

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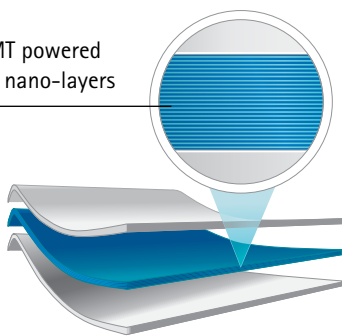
Learn about our sustainability highlights from all five segments of the Circular Economy. Rest assured that this is just the beginning and that we aim to churn more and more of them in the future. Maybe not immediately, but with the pace, seriousness, and commitment of a healthcare solution provider for innovative and sustainable advanced polymers.



ONE SOLUTION FOR ALL VOLUMES  
FLEXIBLE, RESISTANT AND SAFE  
**RENOLIT IVFLEX**

The new fully recyclable **RENOLIT IVFLEX** film is designed for IV bags of any size and offers improved resistance and flexibility compared to traditional IV films. It allows healthcare professionals to handle the bags safer, especially during emergencies and in unstable environments such as ambulances.

EMT powered  
PP nano-layers



Download the **RENOLIT IVFLEX** brochure [↗](#)

### FULLY RECYCLABLE



### MATERIAL AND TECHNOLOGY

Compound 7237

Multi-layer Polypropylene film (PP)

Extrusion Modeling Technology (EMT) film with up to 130 layers

Product is produced in a tubular film process

### FEATURES AND COMPLIANCE

Low WVTR, suitable for small bags

Improved flexibility and impact absorption, suitable for large bags

Biocompatibility and pharmacopeia compliance

Excellent processing and printing abilities

Ensuring consistent concentration of the IV-solution



FLEXIBLE USE – FOR  
AUTOMATED IV BAG PRODUCTION  
**RENOLIT INFUFLEX**

The fully recyclable **RENOLIT INFUFLEX 7233** film is especially made for IV solutions and pressure IV and is compatible with a large range of API (Active Pharmaceutical Ingredients). The film is suited for automated bag manufacturing and offers excellent processability.

**FULLY RECYCLABLE**



**MATERIAL AND TECHNOLOGY**

Compound 7233

2-layer Polypropylene film (PP)

Steam sterilizable 121° C

**FEATURES AND COMPLIANCE**

Excellent processability on automated bag-making equipment

Compatible with a large range of API

Available as double-wound film and tubular film in the same composition

Suitable for 50 ml bags up to 3000 ml bags

Low extractables profile



FLEXIBLE USE – FOR  
AUTOMATED IV BAG PRODUCTION  
**RENOLIT MEDIFLEX**

The fully recyclable **RENOLIT MEDIFLEX** film is especially made for IV solutions and pressure IV and is compatible with a large range of API (Active Pharmaceutical Ingredients). The film is suited for automated bag manufacturing and offers excellent processability.

**FULLY RECYCLABLE**



**MATERIAL AND TECHNOLOGY**

Compound 7233

2-layer Polypropylene film (PP)

Steam sterilizable 121° C

**FEATURES AND COMPLIANCE**

Excellent processability on automated bag-making equipment

Compatible with a large range of API

Available as double-wound film and tubular film in the same composition

Suitable for 50 ml bags up to 3000 ml bags

Low extractables profile



SUITED FOR OSTOMY APPLICATIONS  
DISCREET, HALOGEN-FREE AND SAFE  
**RENOLIT DISCREETFLEX**

This fully recyclable high-performance ostomy bag film combines **RENOLIT** Healthcare's proprietary Extrusion Modeling Technology (EMT) with specially formulated polyolefin resins.

The result is a quiet and high-odor barrier film without the use of PVDC – a sustainable design that guarantees the safety and health of patients. Its exceptional mechanical strength provides ostomy bag manufacturers with the option of downgauging. This potential source-reduction initiative further reduces the film's environmental impact.



**RENOLIT DISCREETFLEX** on our [website](#) ↗

**FULLY RECYCLABLE**



**MATERIAL AND TECHNOLOGY**

Multi-layer PE-based film

Extrusion Modeling Technology (EMT) film with 100+ single layers

Product is produced in a tubular film process

**COMPLIANCE**

BPA-free – does not contain Bisphenol A as a skin irritant

Compliance with Toxics in Packing Act (CONEG) certified

REACH compliant for Substances of Very High Concern (SVHC)

FDA and GMP-compliant

Phthalate Regulation Compliance  
No phthalates are added to the film composition



FOOD-PACKAGING FILM – FULLY  
RECYCLABLE IN OPEN WASTE STREAMS  
**RENOLIT FRESHFLEX**

**RENOLIT FRESHFLEX** is a fully recyclable advanced food packaging film with more than 100 nanolayers. It is produced using **RENOLIT Healthcare's** extrusion modeling technology (EMT) and contains no polyamides. Therefore, it is the first oxygen barrier film that offers true recyclability in open waste streams for PE-LD and PP materials.



**FULLY RECYCLABLE**



**MATERIAL AND TECHNOLOGY**

monoPE- and monoPP Barrier Top- & Forming Films

Extrusion Modeling Technology (EMT) film with 100+ single layers

**FEATURES AND COMPLIANCE**

Superior thermoforming abilities

High flex crack resistance of the barrier layers

Oxygen barrier that is consistent after thermoforming

Insensitive to moisture

# OUR CURRENT AND FUTURE HEALTHCARE PRODUCT PORTFOLIO

On the previous pages, you learned about those advanced category 4 (PE) and category 5 (PP) polymer films that qualify for full recyclability in open waste streams. As the world's leading developer and producer of medical-grade high-value polymer solutions, including films, tubes, and granules, our portfolio is much more extensive. **RENOLIT** Healthcare's solutions are spread across nine fields of application and three complementary product offers. Our services include custom-made formulations, tailor-made films, and EMT equipment leasing.

FIELDS OF APPLICATION			COMPLEMENTARY	SERVICES
				
BLOOD & BLOOD COMPONENTS	IV & PHARMACOLOGICAL APPLICATIONS	ORTHOPEDIC IMPLANTS	PORTS & CAPS	CUSTOM-MADE SOLUTIONS
				
BIOTECHNOLOGY	DIALYSIS	3D FILAMENTS	BARRIER FILMS & SECONDARY PACKAGING	TAILOR-MADE FILMS
				
NUTRITION	OSTOMY	FOOD	GRANULES	EMT EQUIPMENT LEASE

# LET'S BECOME A CIRCULAR ECONOMY TOGETHER AND HAVE A SUSTAINABILITY WORKSHOP



Let's collaborate on future-proof solutions for your business in our tailor-made sustainability workshops.

## LEARN MORE ABOUT

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- » Product design for sustainability and recyclability
- » Materials and recycling categories
- » Collection systems for municipal recycling systems
- » Setting up take-back systems
- » Effective recycling technologies and the Circular Economy for polymers

Together, we can design the life cycle of new products and services, including post-use recycling with maximum value retention and minimum environmental and health impact through effective take-back systems – for a truly Circular Economy.



# RENOLIT Healthcare SUSTAINABILITY HIGHLIGHTS



On this and the following page, you will find a selection of sustainability highlights. This list grows by the day and hopefully ends in a complete Circular Economy. To stay up-to-date on our sustainability projects and initiatives please visit our website and our social media channels.

## ECOVADIS MEDALS

In 2024, three **RENOLIT** Healthcare production sites received medals from the EcoVadis sustainability assessment, and at the end of 2023, the **RENOLIT Group** was awarded the silver medal.



RENOLIT Nederland B.V.



American RENOLIT Corporation - LA



RENOLIT BRIGHTWOOD PHARMMED CONSUMABLE (BJ) Ltd



RENOLIT SE (Group)

## MASS BALANCE BIO-ATTRIBUTED BIOTECHNOLOGY FILM

Fossil feedstock is partially replaced with sustainably sourced alternative feedstocks minimizing CO<sub>2</sub> emissions. Additionally, this

allows us to make ISCC PLUS-certified Biotechnology films without reducing quality or safety standards and without recertification.

## FOSSIL-FREE MONOMER PRODUCTION



**RENOLIT** Healthcare and its strategic partner Photanol B.V. are developing a direct CO<sub>2</sub> conversion process

scalable to industrial size by approx. 2029, to produce monomers for the production of polymers from CO<sub>2</sub>, the sun, and strain-modified Cyanobacteria.

## OPERATION CLEAN SWEEP (OCS)

This initiative is introduced in our four production sites to protect the environment by preventing granule loss. Microplastics and the smallest granules are found in any fish caught and prepared as food – we, as a polymer producer are responsible for preventing this.

# RENOLIT Healthcare SUSTAINABILITY HIGHLIGHTS



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## RETURN OF PACKAGING MATERIALS

More and more of our sites are introducing take-back systems for quantities that make sense from a sustainability perspective. These systems offer our customers the return of cartons, pallets, and film roll cores. Most of them are recycled or reused. In addition, we implemented space-optimized packaging and optimized transports between us and our customers' sites.

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## TAKE BACK OF CUSTOMERS' WELDING WASTE

In addition to the return of packaging materials, we successfully developed systems with our customers to take back their trim and welding waste. This waste is collected and recycled at a partner facility and integrated into films produced at the **RENOLIT** market unit Interior.

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## INCREASE OF REEL LENGTH

Increased reel length by 150% and, thereby, increased pallet quantity will lead to 40% less transport, 40% less warehouse space, 40% less use of packaging, 2.5 times less handling, and an overall reduction

in customer operational waste. The increased reel length is offered as a single and double-wound option.



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## RENEWABLE ENERGY USE

Our site **RENOLIT** Chile SpA in Valparaiso, Chile, is the first to be completely powered by renewable energy through a Private Power Agreement (PPA) with an energy provider that offers energy produced by the sun, wind, and water.

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## EXTRUSION MODELING TECHNOLOGY (EMT)

EMT allows us to design thinner and, thereby, more sustainable films using less (so far mostly fossil carbon-based) raw materials, having less weight, and more film on a roll, more efficient logistics, and more efficient production for our customers. Most functionally needed properties can be realized as mono-materials, thereby in addition enabling

features that haven't been possible with mono-materials so far, all while maintaining as PE (recycling category 4) or PP (recycling category 5) recyclability in open waste streams.

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## SYSTEM ON A POLYMER CHIP (SoPC) SENSORS



Drug production will become more sustainable by using our **RENOLIT**

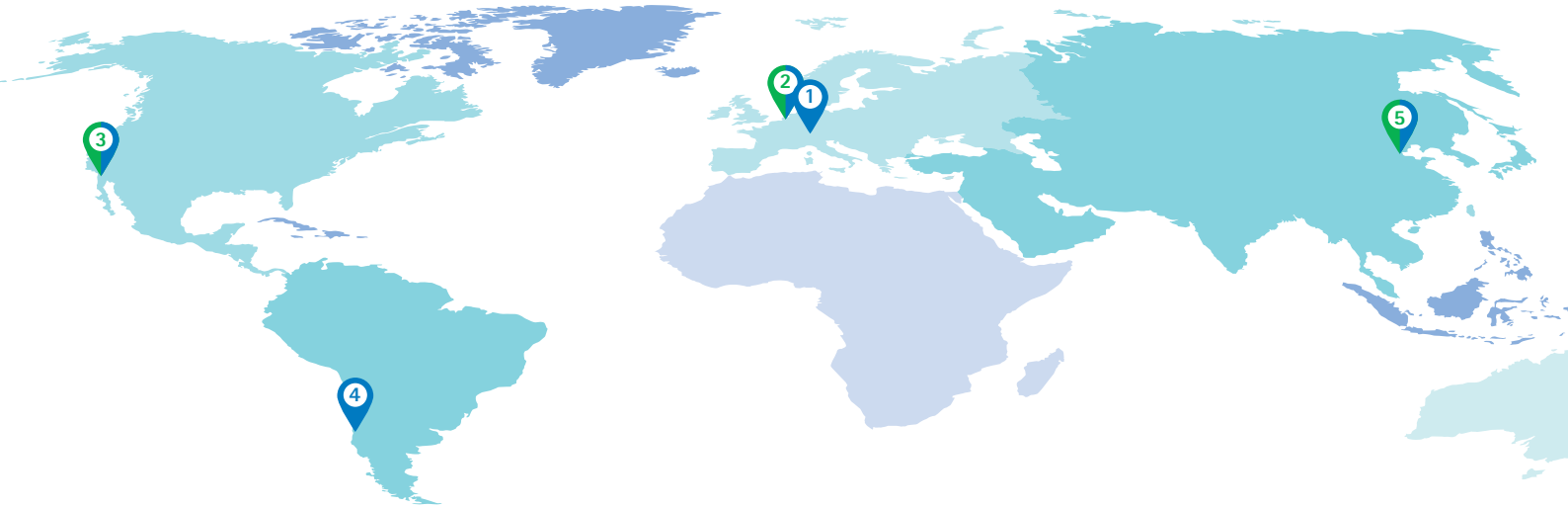
**MULTISENSE** flow sensors. They allow for 24/7 monitoring around the globe and continuously for six parameters. This minimizes the risks of manual, irregular, and remote measuring, which may lead to the loss of full or partial drug production batches. Additionally, eliminating multiple sensors measuring just a single parameter can reduce waste.

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## CRITICAL POLYMERS

Currently, trials of extracting plasticizers from PVC powder under a pressurized CO<sub>2</sub> atmosphere are ongoing. The aim is to re-use and/or recycle PVC and plasticizers for other applications.

# RENOLIT Healthcare – GLOBAL PRESENCE AND GLOBAL RAW MATERIAL SOURCING FOR GLOBAL CUSTOMERS



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