



MAUSER Infinity Series – Giving plastic packaging materials a new life.

Quality, security, innovation and sustainability included!



REDEFINING SUSTAINABILITY

FACILITIES
180+

TEAM MEMBERS
11,000+

GEOGRAPHIC FOOTPRINT
5 CONTINENTS
20+ COUNTRIES



Recollection and recycling across the full packaging life cycle reuses precious materials.



Sustainable Solutions - We think circular

Mauser Packaging Solutions delivers sustainable solutions along the lifecycle of industrial packaging. Our sustainability philosophy is built on our comprehensive ECO-Cycle concept that follows 5 principles:

- RENEW** Investigate promising future materials.
- REDUCE** Minimize raw material use, energy consumption, and environmental impact.
- RECOLLECT** Operate a global recollection system.
- REUSE** View reconditioned packaging as a high-quality, environmentally low-impact solution.
- RECYCLE** Close the cycle, giving materials new life.

As Mauser Packaging Solutions covers the whole lifecycle of industrial packaging with recollection and recycling, used material is collected, recycled and given back to the market. MPS developed many years ago the Infinity-Series for plastic drums and introduced it successfully to the market. The Infinity-Series marks the use of post-consumer-resin (PCR) up to 100 % in monolayer-technology.

MAUSER Infinity Series
The most comprehensive portfolio of UN-certified industrial packaging with recycled content.

- ▶ Post-Consumer-Resin made from used industrial packaging
- ▶ Sorted and recycled in-house in line with procedures acc. ISO 16103:2005
- ▶ State-of-the-art manufacturing technology – mono & multilayer
- ▶ Secure & high quality – UN-approved for use with dangerous goods
- ▶ Environmentally friendly & sustainable, saving natural resources



About MAUSER Packaging Solutions

A global leader in packaging solutions and services, MAUSER Packaging Solutions (MPS) supplies metal, plastic, fiber, and hybrid packaging of all sizes to numerous industries worldwide.

True sustainability at scale

Our unparalleled, innovative solutions cover the full packaging life cycle, providing customized, environmentally friendly options that give businesses across the planet a lighter ecological footprint.

Global reach for worldwide impact

Our network of design, manufacturing, reconditioning, and recycling facilities can deliver high-quality solutions virtually anywhere, helping to boost efficiency and achieve true sustainability at scale, worldwide.



MAUSER is committed to reduce the environmental impact of its products!

In 2017, MAUSER Packing Solutions generated more than 31,000 tons of post consumer resin.



The Infinity Process

Utilizing synergies in return logistics and sorting expertise, cascaded reuse and recycling optimizes efficiency, quality & environmental impact.

Reconditioning

Responsibly extending the lifecycle of industrial packaging.

As Mauser Packaging Solutions we do not only manufacture, but also collect and recondition empty used industrial packaging.

Our reconditioning services include:

- ▶ Responsible collection of empty used industrial packaging
- ▶ Fleet management
- ▶ Closed loop laundry services
- ▶ Washing of IBC
- ▶ Remanufacturing of IBC & drums

Making drums and IBC reusable for the benefit of the environment and our customer's ecological footprint.

Recollection

Reuse starts with responsible collection and selection.

Building on our unique footprint and comprehensive collection service not differing by brand or type of packaging collected, we carefully select inbound material for our high quality reconditioning and recycling activities. We offer

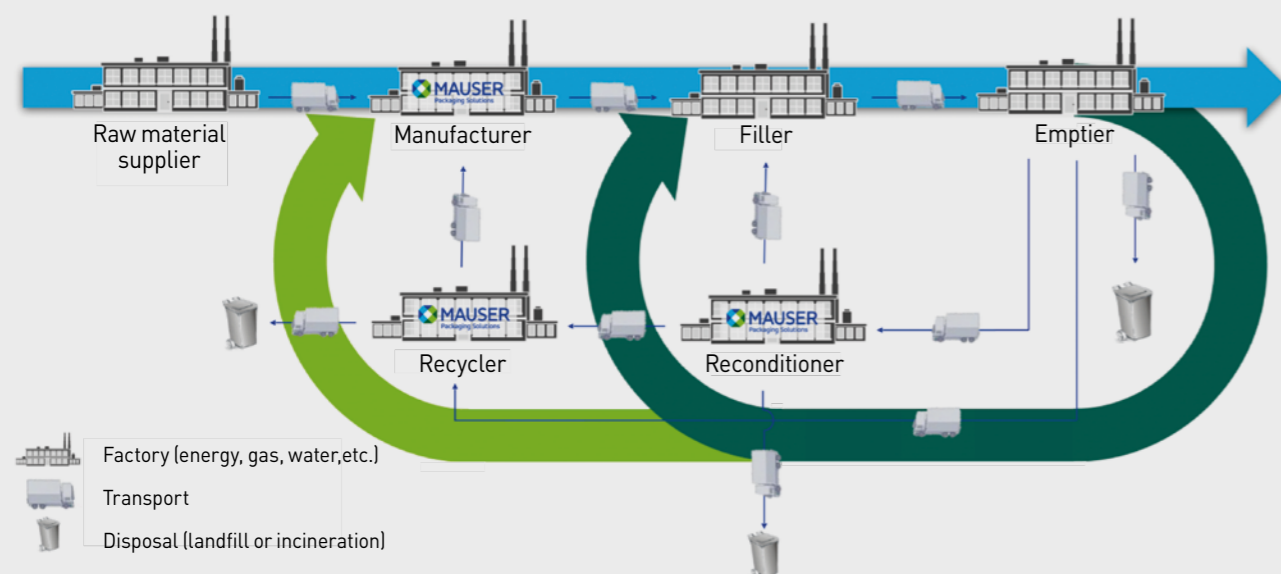
- ▶ Global, easy, fast, safe industrial packaging return/collection program
- ▶ Recollection of all IBCs
- ▶ Customized recollection solutions; fleet management
- ▶ Sustainable transportation
- ▶ Modern, transparent grading and traceability
- ▶ Safe handling of empty packaging
- ▶ Competence in handling dangerous goods

Recycling

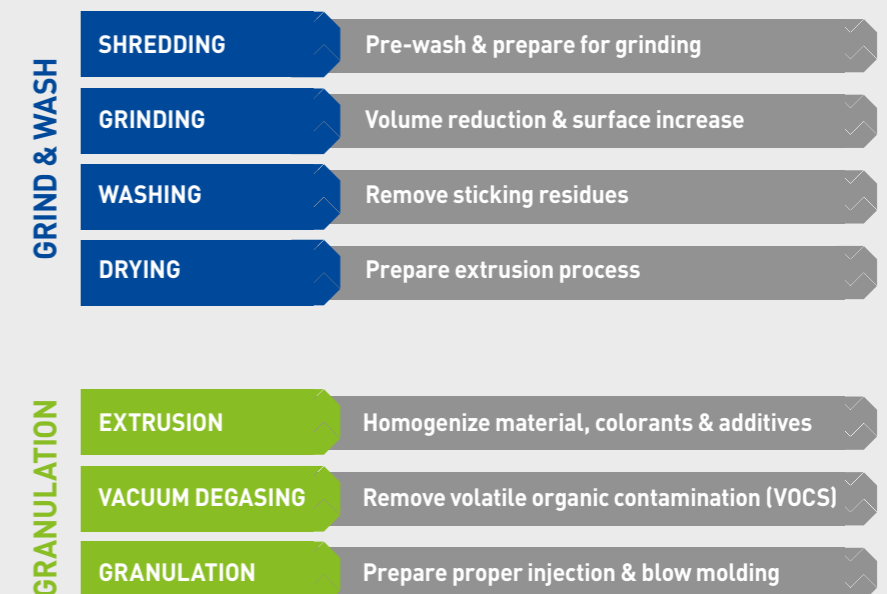
"Closed loop" recycling in "one hand" – from collection to manufacturing.



From a linear to a circular economy



MAUSER recycling process in detail





MAUSER Infinity Series Drums – Benefits & Technologies

The most comprehensive portfolio of UN-certified plastic drums with recycled content made from 100% PCR material generated from industrial packaging.

Advantages:

- ▶ Environmentally favorable packaging with lower carbon footprint
- ▶ Made from carefully selected inbound material stream
- ▶ Sorting & recycling of materials acc. DIN-EN 16103:2005
- ▶ Broad portfolio on UN-certified drums
- ▶ UN certified for solids (Open Head) and liquids (Tight Head)
- ▶ Drum dimensions same as those of drums made from virgin HDPE – hassle-free adoption
- ▶ Manufactured as Mono, 2- and 3- layer configuration
- ▶ Available in equivalent setup in different regions in the world

MAUSER Infinity Series plastic drums are manufactured with state-of-the-art MAUSER blow molding technology. For highest quality and efficiency we produce our plastic drums on in-house developed blow molding equipment. Knowing about the different needs of our clients application we offer our Infinity Series plastic drums in mono and innovative – HDPE only – multilayer technology.

MAUSER Infinity Series – Range of Open Head & Tight Head Drums

O-TOP® MONOLAYER

- ▶ Available in 30, 60, 120, 150 & 220 l size
- ▶ UN-certified for solids up to Packaging Group I
- ▶ Up to 85% recycled (PCR) content
- ▶ Up to 49% lower CO2 footprint compared to drum made from virgin material



O-TOP® MULTILAYER 2

- ▶ Available in 120, 150 & 220 l size
- ▶ UN-certified for solids up to Packaging Group I
- ▶ Up to 60% recycled (PCR) content
- ▶ Up to 35% lower CO2 footprint compared to drum made from virgin material



O-TOP® MULTILAYER 3

- ▶ Available in 120, 150 & 220 l size
- ▶ UN-certified for solids up to Packaging Group I
- ▶ Up to 40% recycled (PCR) content
- ▶ Up to 25% lower CO2 footprint compared to drum made from virgin material



MONOLAYER

INSIDE OUTSIDE

- ▶ Monolayer drum body made from up to 98% recycled plastics
- ▶ Most environmentally friendly & sustainable

MULTILAYER 2

INSIDE OUTSIDE

- ▶ 2-layer drum body with only outer layer made from PCR & process regrind
- ▶ Inner layer in direct contact with fillin good made from virgin material - reduced risk of any potential cross-contamination

MULTILAYER 3

INSIDE OUTSIDE

- ▶ 3-layer drum body with only encapsulated middle layer made from PCR & process regrind
- ▶ Inner layer in direct contact with fillin good made from virgin material - reduced risk of any potential cross-contamination
- ▶ Outer layer made from virgin for good outer finish like virgin

L-RING® PLUS MONOLAYER

- ▶ Available in 220 l size
- ▶ UN-certified for liquids (max. density of 1.4) to be assimilated to model liquid water up to Packaging Group II
- ▶ Up to 95% recycled (PCR) content
- ▶ Up to 60% lower CO2 footprint compared to drum



L-RING® PLUS MULTILAYER 2

- ▶ Available in 220 l size
- ▶ UN-certified for liquids Packing Group II (max. density of 1.6) to be assimilated to any model liquid
- ▶ Up to 75% recycled (PCR) content
- ▶ Up to 45% lower CO2 footprint compared to drum made from virgin material



L-RING® PLUS MULTILAYER 3

- ▶ Available in 220 l size
- ▶ UN-certified for liquids Packing Group II (max. density of 1.6) to be assimilated to any model liquid
- ▶ Up to 50% recycled (PCR) content
- ▶ Up to 30% lower CO2 footprint compared to drum made from virgin material



■ PCR & process regrind ■ virgin

MAUSER Infinity Series IBC bottle – secure and sustainable

Closing the loop – from IBC-bottle to IBC-bottle.

Premium quality PCR, generated from carefully selected IBC-recycling materials only, make our Infinity Series IBC bottles on of the most sustainable options in the IBC market.

- ▶ 2-layer IBC-bottle with outer layer made from premium quality PCR & process regrind, translucent
- ▶ Inner layer in direct contact with filling good made from virgin material - reduced risk of any potential cross-contamination
- ▶ Up to 40% recycled (PCR) content at up to 25% lower CO2 footprint compared to re-ceptacle made from virgin material

Multilayer 2

OUTSIDE

PCR & process regrind – best selected translucent PCR.

INSIDE

Virgin HDPE (IBC) – filling good contact with virgin HDPE only.



Benefits of MAUSER Infinity Series IBC

Driven by the ambition to continuously enhance the circularity of our packaging solutions, the introduction of the innovative 2-layer Infinity Series IBC-bottle marks the next step in offering the most sustainable IBC solutions to the market.

- ▶ Sustainable - Innovative 2-layer bottle with outer layer made from premium quality PCR-material
- ▶ Secure – All components (incl. inner layer of IBC bottle) in direct contact with filling good are made from 100% virgin material
- ▶ Standardized – Same standard dimensions and specifications (non UN) as with any new or reconditioned IBC
- ▶ Flexible – Same portfolio options as with any new or reconditioned (non UN) IBC
- ▶ Circular – No restriction in recollection and reuse compared to new and reconditioned IBC
- ▶ MAUSER Plastic Pallet IBC with overall PCR-content of up to 40% as the complementary IBC-solution for the transport of dangerous goods – UN-certified.

MAUSER IBC wooden pallet

- ▶ Economical IBC solution
- ▶ Rigid wooden pallet
- ▶ Infinity Series IBC bottle non UN
- ▶ Up to 35% recycled (PCR) content



non UN

MAUSER IBC composite pallet

- ▶ Standard IBC solution
- ▶ Strong composite pallet with plastic parts made from PCR
- ▶ Infinity Series IBC bottle non UN
- ▶ Up to 45% recycled (PCR) content



non UN

MAUSER IBC plastics pallet

- ▶ Sophisticated IBC solution
- ▶ Clean plastic pallet with made from PCR
- ▶ Infinity Series IBC bottle non UN
- ▶ Up to 60% recycled (PCR) content



non UN

MAUSER UN IBC plastics pallet

- ▶ UN-certified for use with dangerous goods
- ▶ Sophisticated IBC solution
- ▶ Clean plastic pallet with made from PCR
- ▶ VirginHDPE IBC bottle
- ▶ Up to 40% recycled (PCR) content



UN



Medical waste containers (MWCs)

MAUSER's WIVA™ Infinity Series MWCs are made of 100% circular material and comply with UN regulations on dangerous goods.

WIVA™ Infinity Series containers, available in sizes 30, 50 & 60 liters, combine superior protection and handling with the benefits of recycled plastic resin. Used in a range of medical environments, their CO2 footprint is less than half that of 100% virgin plastic containers.

Advantages of WIVA™ VAT5 containers:

- ▶ Failure-proof locking systems for leak-proof transport & safe disposal of contaminated sharps
- ▶ UN-approved for class 6.2 infectious waste, UN 3291
- ▶ Special solutions available for Category A waste (UN 2814 & UN 2900)
- ▶ Suitable for hygienic autoclaving and incineration processes
- ▶ Nestable when empty and extremely stable, even when stacked
- ▶ Safe, ergonomical, solid handgrips
- ▶ Several lid types available
- ▶ Customizable options



Main benefits of MAUSER's Infinity Series



- ▶ Made from high-quality recycled material (PCR)
- ▶ Dedicated inbound material stream - "closed loop" recycling in "one hand" – from collection to manufacturing
- ▶ Unrivalled product range including UN-certified packaging for transport of dangerous goods
- ▶ Environmentally friendly & sustainable

State-of-the-art manufacturing technology

- ▶ Monolayer – highest level of PCR content
- ▶ Multilayer 2 – virgin inner layer prevents filling good from direct contact to PCR
- ▶ Multilayer 3 – embedded PCR center layer for smell & optics closest to manufactured virgin plastics
- ▶ Environmental friendly & sustainabler – highest possible PCR content
- ▶ 2-layer – virgin inner layer material prevents direct contact with filling goods

MAUSER Infintiy Series & PCR material used comply with:

- ▶ European Directive 94/62/EC on packaging and packaging waste
- ▶ DIN EN ISO 16103:2005 on "Transport packaging for dangerous goods -Recycled plastics material"
- ▶ UN-certification (selected design types)

MAUSER Manufacturing, Reconditioning and Recycling operations and related management

QUALITY



ENVIRONMENT



ENERGY



WASTE MANAGEMENT



Where referenced in this brochure

- Figures on PCR content relate to weight ratio of PCR material incorporated vs. total weight of plastic material used.
- Figures on Carbon Emission origin from: "Life Cycle Analysis of industrial packaging solutions of MAUSER Group" and derived EDS software tool, both done by BECO Group Rotterdam, July 2010, supported by SimaPro 7.2 software using the method ReCiPe and the Ecoinvent 2.2 database (2010), according to ISO 14040-44.



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