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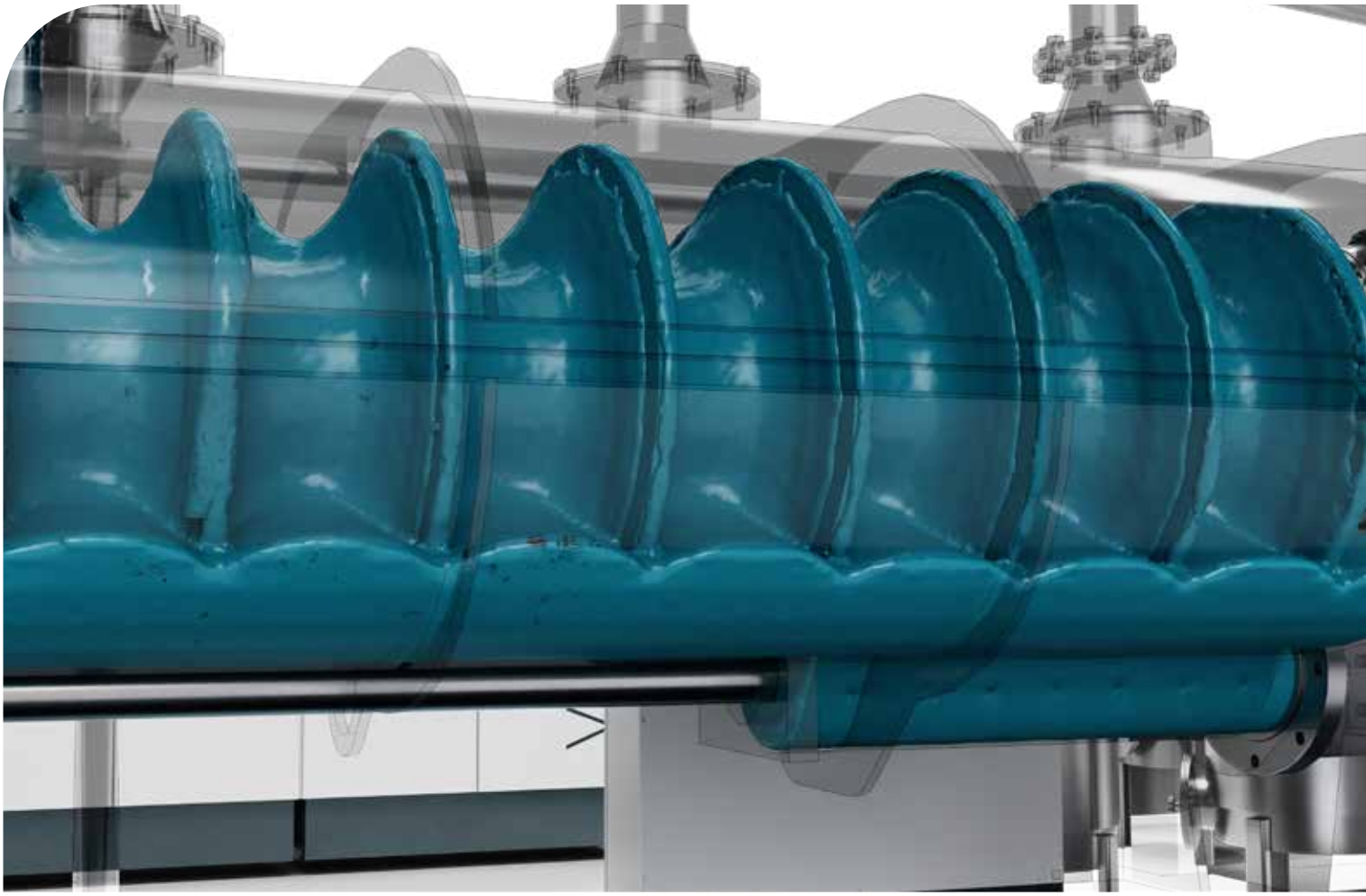
RECYCLING TECHNOLOGY



Food-grade without compromise:
recoSTAR dynamic
viscoZERO
PCUplus

SUPERCLEANING AND ODOR REDUCTION SOLUTIONS FOR PE, PP, PS

packaging with direct food contact, deodorizing,
food-grade without compromise, post-consumer plastics,
flexibles and rigids, modular process setup

Starlinger

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State-of-the-art recycling technology for post-consumer plastics. Modular line configuration **for supercleaning and odor reduction.** Designed for processing film, caps, pots, tubs, trays and bottles made of PE, PP and PS.

The SMARTfeeder optimally prepares the input material and feeds it into the extruder by centrifugal force. The dynamic automation package regulates the ideal operation point. Automatic speed adjustment of rotating disc and positioning of load-controlled intake slider leads to increased output.

The wear-resistant extruders are designed and manufactured in-house. The optional degassing extruder purifies the melt from volatile contamination and monomers. The C-VAC module ensures highly efficient degassing, expanding the melt surface by 300 %.

Melt filters for continuous removal of solid contaminants are available. Depending on the level and type of contamination, melt filters with power backflushing, continuous melt filters or belt filters are used.

PE, PP, PS, and PET can be processed in the viscoZERO melt phase decontamination reactor. Fast increase of intrinsic viscosity (IV) and decontamination of the material due to the use of two mixing shafts which expands the melt surface. The design also ensures defined residence times and a first-in-first-out process.

The superior cleaning efficiency with regard to volatile and non-volatile substances results in a wide range of applications for contact sensitive and/ or food-contact packaging products.
Continuous mixing of the melted polymer in the reactor ensures constant renewal of the melt surface for thorough extraction of contaminants.

Machines pictured may include equipment sold as options.

The pelletising system is chosen depending on polymer type and preferred pellet shape. Typically, waterring or underwater pelletizers are used. Automatic process water filtration reduces operator interference.

Ozone-enhanced process air flushes the pellets for the final touch in the PCUplus unit. The optimised air channel design allows processing temperatures within a tight operation window that ensures high-end decontamination and odor reduction.

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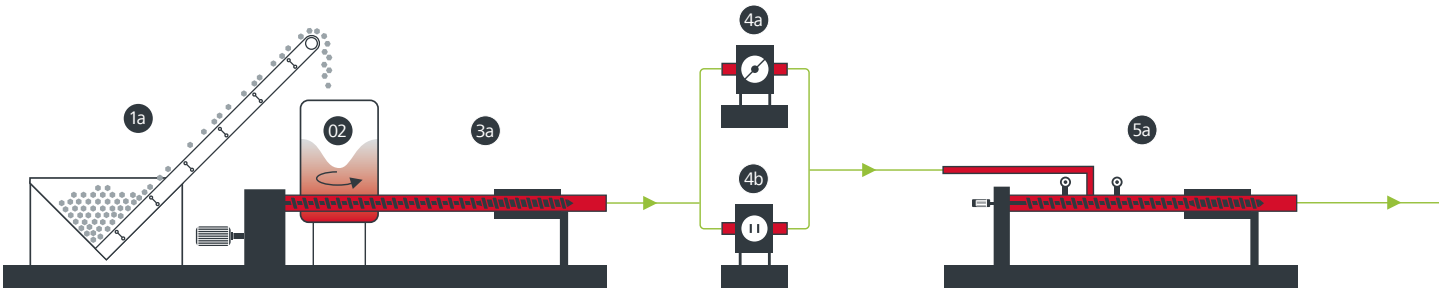
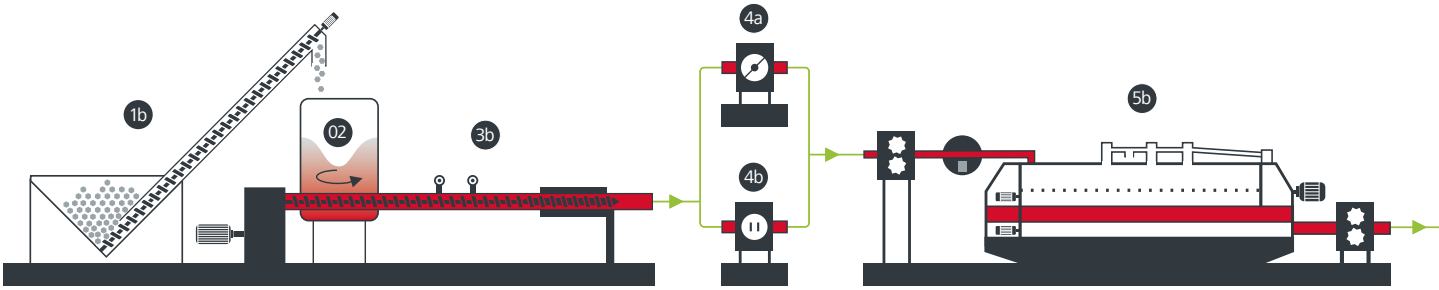


A Process with C-VAC and PCUplus



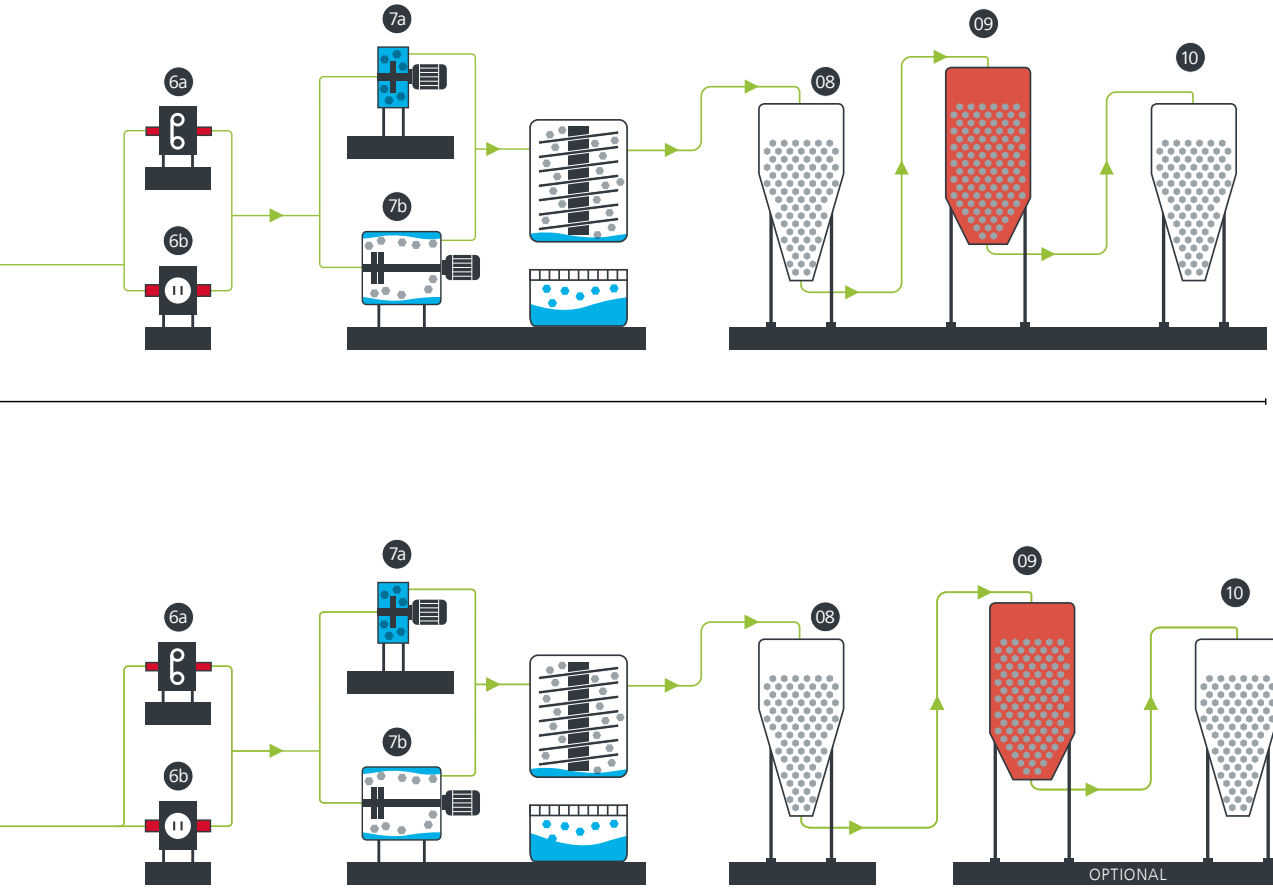
B Process with viscoZERO

C Process with viscoZERO and PCUplus

1a Conveyor belt with metal detector
1b Conveyor screw with metal separator
02 SMARTfeeder
3a Extruder without degassing
3b Degassing extruder
4a Continuous melt filter
4b Melt filter with power backflushing
5a C-VAC degassing extruder
5b viscoZERO with meltpumps and start-up valve
6a Belt melt filter
6b Melt filter with power backflushing
7a Underwater pelletizer
7b Waterring pelletizer

Process	FDA[1)]	EFSA[2)]	Decontamination
A C-VAC and PCUplus	✓	✓	✓
B viscoZERO	✓	✓	✓✓
C viscoZERO and PCUplus	✓	✓	✓✓✓

[1)] FDA LNOs for PET, HDPE, PP, PS depending on process, input material and application.
[2)] under Commission Regulation (EU) 2022/1616, novel or suitable technology for PET, HDPE, PP, PS. Depending on process, input material and application.



08 Filling station
09 PCUplus
10 Filling station

Odor Reduction
✓✓
✓
✓✓✓

Advantages

- Outstanding food-contact decontamination
- Highly efficient odor reduction
- FIFO ensures uniform treatment
- Various polymers and viscosities
- Flexible process setup

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viscoZERO – also available as upgrade for existing lines.

viscoZERO
Technical Data

Model		600	1500
Max. output[1,2]	[kg/h]	400 – 800	800 – 1600
Residence time from/to[2]	[min]	10 – 40	15 – 40
Net volume of reactor	[dm³]	600	1500
Equipment height	[mm]	2200	2200
Floorspace	[m]	5 x 3	6 x 4
High-vacuum system	[mbar]	< 10	
Energy consumption	[kWh/kg]	0.03 – 0.05	
IV increase PET[3]	[dl/g/min]	0.004 – 0.007	

Above table represents general data and average values. We reserve the right to technical modifications.

[1]depending on material (PET, PP, PE, PS) and residence time
[2]recommended residence time: 20 minutes
[3]IV increase equals 0.08 – 0.15 dl/g per 20 minutes

RECYCLING TECHNOLOGY

PCUplus
Technical Data

Model		4500	8500	11500
Max. output	[kg/h]	up to 1050	up to 2100	up to 2600
Residence time		min. 2 hrs	min. 2 hrs	min. 2 hrs
Net volume	[m³]	4.1	8.5	11.5
Equipment height	[mm]	8200	8900	10500
Floorspace	[m]	15 x 6	16 x 7	17 x 8
Energy consumption	[kWh/kg]	0.06 – 0.12	0.06 – 0.12	0.06 – 0.12

PCU plus

plus efficiency | plus deodorizing | plus supercleaning | plus capacity

We reserve the right to technical modifications. Published 03/2026 . DPR-24961

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