



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

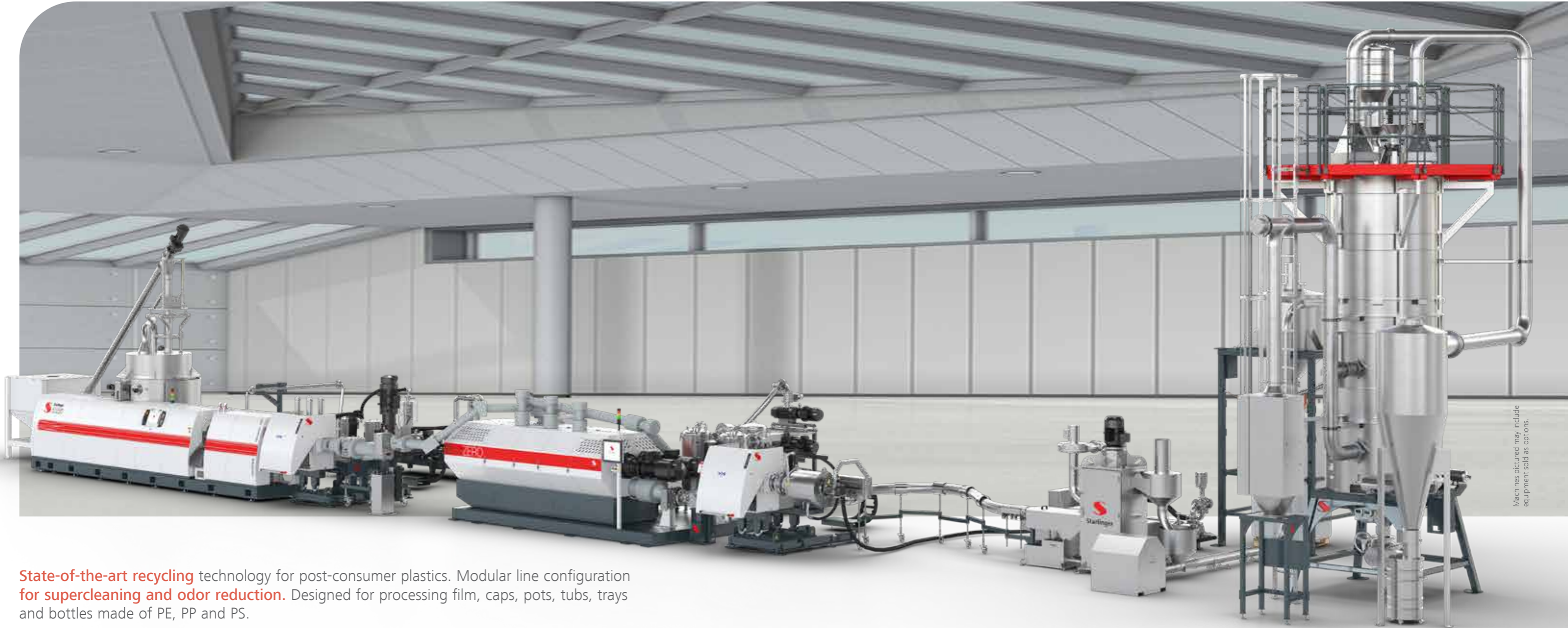


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Machines pictured may include equipment sold as options.

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 by 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.

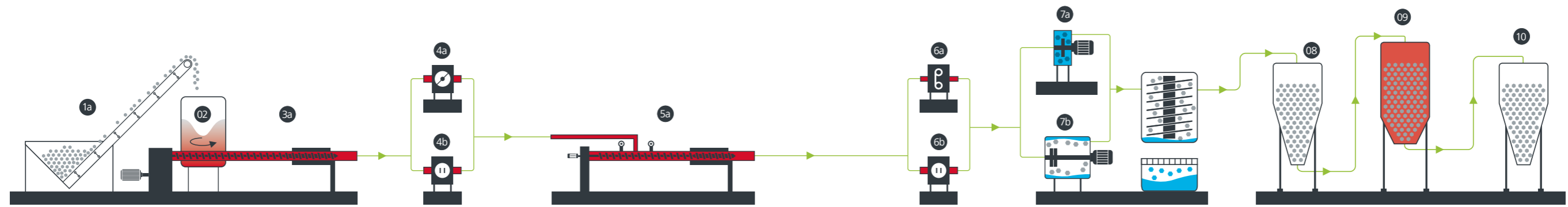


The pelletizing system is chosen depending on polymer type and preferred pellet shape. Typically, water-ring or underwater pelletizers are used. Automatic process water filtration reduces operator interference.

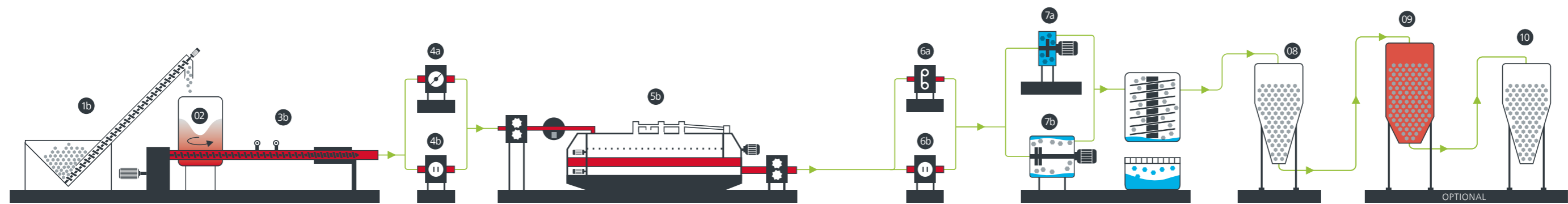


Ozone-enhanced process air flushes the pellets for the final touch in the PCUplus unit. The optimised air channel design allows processing temperatures within a tight operation window that ensures high-end decontamination and odor reduction.





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 melt pumps and start-up valve
- 6a Belt melt filter
- 6b Melt filter with power backflushing
- 7a Underwater pelletizer
- 7b Watering pelletizer
- 08 Filling station
- 09 PCUplus
- 10 Filling station

Process	FDA	Decontamination	Odor Reduction
A C-VAC and PCUplus	✓ ¹⁾	✓	✓ ✓
B viscoZERO	✓ ²⁾	✓ ✓	✓
C viscoZERO and PCUplus	✓ ^{1),2)}	✓ ✓ ✓	✓ ✓ ✓

¹⁾ PCUplus: FDA LNO for HDPE cap-to-cap and bottle-to-bottle recycling (PP cap-to-cap recycling is pending)

²⁾ viscoZERO: FDA LNO for PET bottle-to-bottle recycling (PP cap-to-cap recycling is pending)

Advantages

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

viscoZERO – also available as upgrade for existing lines.



zero compromise | zero waste | zero odour | zero limits

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	[dm ³]	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.

¹depending on material (PET, PP, PE, PS) and residence time

²recommended residence time: 20 minutes

³IV increase equals 0.08 – 0.15 dl/g per 20 minutes

PCUplus
Technical Data

Model		2500	4500	8500	11500
Max. output	[kg/h]	up to 550	up to 1050	up to 2100	up to 2600
Residence time		min. 2 hrs	min. 2 hrs	min. 2 hrs	min. 2 hrs
Net volume	[m ³]	2.2	4.1	8.5	11.5
Equipment height	[mm]	5800	8000	8900	10500
Floorspace	[m]	10 x 5	10 x 5	10 x 6	10 x 6
Energy consumption	[kWh/kg]	0.06 – 0.12	0.06 – 0.12	0.06 – 0.12	0.06 – 0.12



PCU plus

plus efficiency | plus deodorizing | plus supercleaning | plus capacity