# GSR Granules

# RPET

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# History

- ✓ Start of yarn production, 1990's.
- ✓ Establishment of new PET recycling facility in Silivri-Istanbul, 2014
- ✓ Entry into PET recycling business with Senapet brand, 2014
- ✓ New investment decision taken for RPET production site, 2021
- ✓ Installation of Starlinger RPET machinery, 2022-2023
- ✓ Start of RPET production, Q2-2023

# History of Product Range

New products with an innovative and sustainable vision

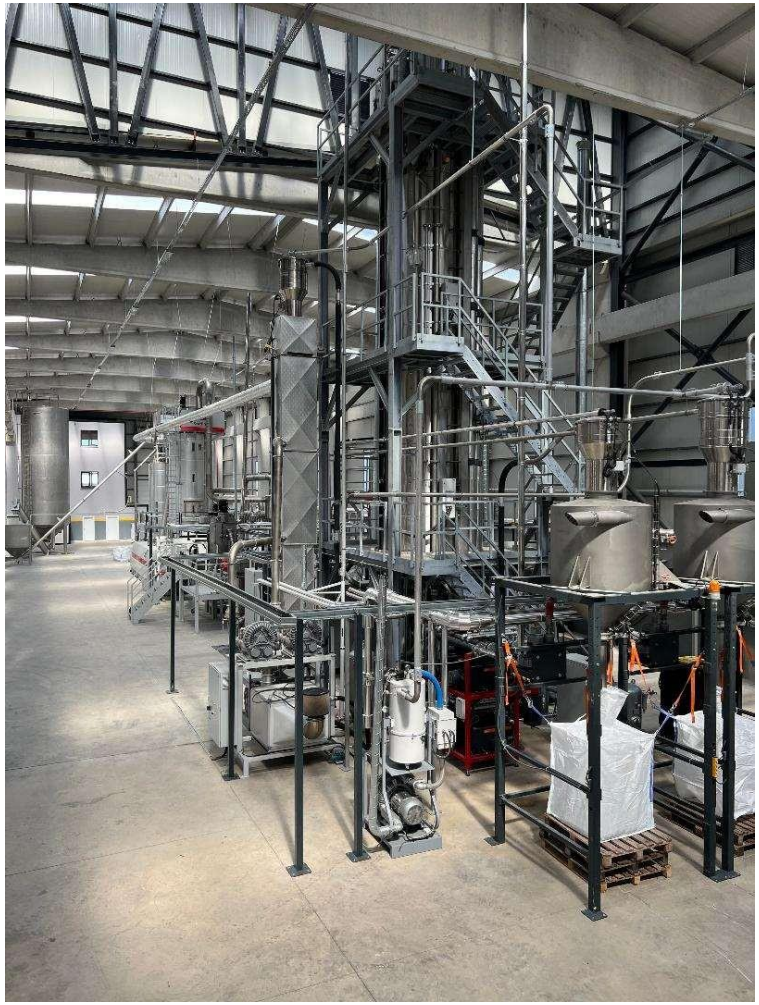
# VISION

To provide a cleaner and more sustainable world to the next generations with a customer oriented approach and to be a Pioneer of the sector worldwide on this path

# MISSION

To be a Pioneer in recycling activities for a sustainable and clean future and to ensure its continuity, to reduce the factors that will cause global climate change and biodiversity reduction and environmental pollution

# High Technology Production Line



# PET Granule Stages

1. Flake Raw material is discharged from the bigbag and transported to the mixing silo
2. Homogenizing the product in the mixing silo (color and foreign matter distribution)
3. The homogenized product is dried with hot air and separated from the metal
4. Transferring the material to the unit for drying with dry air
5. Melting the product by entering the extruder
6. Removal of unwanted harmful gases from the product in the degassing boiler
7. Then removal of unwanted solid particles in the filter

PET FLAKE

PET GRANULE

www.gsrgranules.com

# PET Granule Stages

8. Transfer of the product to IV control (viscosity)
9. Subsequent transfer of the product to the granulating equipment
10. Taking the granulated product to the waiting silo
11. Conducting color control of products in the silo. Transfer of non-food suitable for food to non-food silo; crystallization of suitable ones
12. At a later stage, the product enters the reactor, where the viscosity of the product is increased and final checks are performed
13. All operations are performed by transferring the finished product to the food grade silo and waiting for it to be filled into sacks.

# Quality


Many devices are used for our quality control checks.

We are investing in new equipment to serve better

# Quality

## Testing Capabilities

- Gas Chromatograph - Mass Spectrometer
  - Acetaldehyde
  - Limonene
  - Benzene
  - Xylene
- Intrinsic Viscosity
- Color Tests
- Crystallinity
- Moisture Test
- Bulk Density

# Certification (FDA)

Starlinger

Vienna, 23rd January 2023

**Akmert İplik Sanayi ve Ticaret A.Ş.**
Semizkumlar Mah. Başkumandan Mustafa Kemal Cad. No: 34
Silivri / Istanbul
TUERKIYE

**To whom it may concern**

This is regarding the purchase of the equipment recoSTAR PET 165 HC iV+, machine number MA2019061, you have bought state-of-the-art PET bottle-to-bottle recycling equipment. The equipment complies with FDA criteria and consequently the produced rPET as long as the equipment is operated upon required process parameters.

**recoSTAR PET iV+** technology from Starlinger & Co GmbH is FDA / USA certified (FDA-PNC 608 dated. Oct. 29th, 2007 which was extended Dec. 13th, 2010 by FDA-PNC 958) and produces upon defined process parameters rPET which can be used in direct food-contact on the condition that the operating entity guarantees to maintain the below mentioned parameters:

- PDU: ≥60 min; ≥120 °C
- Extrusion ≥265°C
- Filtration with merchantable wire-cloth
- CRY: ≥ 120 °C
- SSP: ≥ 6 hrs; ≥ 190 °C; ≤ 10 mbar

The input material must consist of post-consumer food and non-food containers (excluding industrial PET) collected from deposit systems or curbside collection. This would enable usage of 100% rPET for PET containers with the FDA Conditions of Use **C-H** (see Enclosure 1).

Only if the a.m. process parameters (provided also during start-up of the equipment) are followed, is the end regranulate fit to be used for direct food-contact applications. Documentation for critical parameters must be maintained in the quality management system of the operating entity. The operating entity Akmert İplik Sanayi ve Ticaret A.Ş.is responsible for the compliance with the parameters when operating the equipment.

Additional to the FDA PNC, national / regional approvals might have to be acquired.

With best regards

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Commercial Head
Starlinger recycling technology



Starlinger

Enclosure 1

**Definitions of Food Types and Conditions of Use for Food Contact Substances**

*These tables were created for easy reference for notifications relating to a food contact substance.*

**Table 1--Types of Raw and Processed Foods**

- **I.** Nonacid, aqueous products; may contain salt or sugar or both (pH above 5.0).
- **II.** Acid, aqueous products; may contain salt or sugar or both, and including oil-in-water emulsions of low- or high-fat content.
- **III.** Aqueous, acid or nonacid products containing free oil or fat; may contain salt, and including water-in-oil emulsions of low- or high-fat content.
- **IV.** Dairy products and modifications: A. Water-in-oil emulsions, high- or low-fat. B. Oil-in-water emulsions, high- or low-fat.
- **V.** Low-moisture fats and oil.
- **VI.** Beverages:
  - A. Containing up to 8 percent of alcohol.
  - B. Nonalcoholic.
  - C. Containing more than 8 percent alcohol.
- **VII.** Bakery products other than those included under Types VIII or IX of this table:
  - A. *Moist bakery products with surface containing free fat or oil.*
  - B. Moist bakery products with surface containing no free fat or oil.
- **VIII.** Dry solids with the surface containing no free fat or oil (no end test required).
- **IX.** Dry solids with the surface containing free fat or oil.

**Table 2--Condition of use**

- **A.** High temperature heat-sterilized (*e.g.*, over 212 deg. F).
- **B.** Boiling water sterilized.
- **C.** Hot filled or pasteurized above 150 deg. F.
- **D.** Hot filled or pasteurized below 150 deg. F.
- **E.** Room temperature filled and stored (no thermal treatment in the container).
- **F.** Refrigerated storage (no thermal treatment in the container).
- **G.** Frozen storage (no thermal treatment in the container).
- **H.** Frozen or refrigerated storage: Ready-prepared foods intended to be reheated in container at time of use:
  1. Aqueous or oil-in-water emulsion of high- or low-fat.
  2. Aqueous, high- or low-free oil or fat.
- **I.** Irradiation.
- **J.** Cooking at temperatures exceeding 250 deg. F.

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# Certification (EFSA)

- EFSA opinion is received and published, link is below
- https://www.efsa.europa.eu/en/efsajournal/pub/7924