



# Press Article

Vienna, September 30, 2014

## **PET Bottle-to-Bottle recycling in the Andes**

One of the most recently installed recoSTAR PET 330 iV+ recycling lines from Starlinger recycling technology operates at 1,300 m above sea level. An established producer of fibers, filaments, yarns and resins for the textile industry based in Medellín, Enka de Colombia S. A. recognised the great potential of bottle-to-bottle recycling and decided to move into this application.

### **rPET for up to 100 % recycled content**

"After we started to recycle post-consumer PET bottles for fiber production in 2009 we saw PET recycling both as a new challenge and an opportunity for a new line of business that aligns perfectly with our sustainability strategy", said Aníbal Celis Carvajal, Group Coordinator for Integral Management and Processes at Enka. "With PET consumption in Latin America steadily growing and PET recycling gaining a foothold, we began to study the various recycling technologies in different continents of the world, especially in the area of bottle-to-bottle recycling." Having looked at the various technologies available on the market, Enka opted for the Starlinger super-clean process and purchased a recoSTAR PET 330 iV+ PET recycling line in 2013. "Approvals of FDA and EFSA as well as of major brand-owners, decontamination efficiency, viscosity increase, compliance with product specifications and pellet shape were the criteria we were looking for in the equipment", Celis explained. "But also global recognition, the quality of equipment, machine footprint, technical support and the price played a significant role."

The PET recycling plant took up production in December 2013. Enka's experiences with the produced rPET on the Colombian market are promising: Evaluations of the recycled PET resin made by Enka customers showed very satisfying results – both as raw material and in bottles produced with different mixing ratios. "Tests were carried out with bottles that have been produced with a recycled content ranging from 25 % to up to 100 %. All of them received very good acceptance from our customers", said Aníbal Celis. In December 2013 Enka also obtained the approval of the Colombian health authority INVIMA (National Institute of Surveillance of Drugs and Food) for four years.

### **Production flexibility**

The Starlinger recoSTAR PET 330 iV+ recycling line for Enka is designed for an output capacity of 2.4 t/h and features two 165 mm single-screw extruders and adequately sized upstream and downstream equipment. The input material is cleaned in a Sorema washing line; two viscoSTAR 120 solid state polycondensation reactors ensure constant IV level increase according to product specifications.

An important feature of this recoSTAR PET 330 recycling line is the flexible production output: it can be adjusted between 1.1 and 2.4 tons per hour. The newly developed Single Mode Operation Package enables Enka to operate the recycling line at 45 % of its nominal production capacity. In this case only one extruder is used and production of smaller quantities is possible without losses in pellet quality or a disproportional increase in energy consumption. This gives Enka total flexibility in adjusting their production according to raw material availability and rPET demand.



### **Accurate IV control, energy efficiency**

This installation is also the first to be equipped with a newly developed automatic IV control system that is integrated in the process. After setting the desired IV level the recycling line automatically adjusts operation parameters to reach it. During production the IV level is constantly monitored and parameters readjusted if necessary. This avoids IV variations after the extruder and ensures very constant IV values already during pellet production.

In compliance with Enka's sustainability strategy, energy efficiency plays an important role in this installation. Enka operates its own electric plant, and the steam generated during electricity production is used to supply the predrying unit and the SSP reactor of the recycling line. Together with the included energy recovery kit (ERK) used for the hot air dryer, this helps to reduce electrical energy consumption by more than 40 %.

### **About Enka de Colombia S.A.**

Founded in 1964, Enka de Colombia S.A. started out as a producer of resin as well as polyamide and polyester synthetic fibers and filaments for the textile, tyre and plastics industries. Today, Enka is the largest synthetic fiber producer in the Andean region. The company's production plant is located 28 kilometres north of the city of Medellín. In 1993 Enka opened its first recycling plant to process PET waste from the production of filaments and fibers, adding a project for recycling PET bottles for fiber production in 2009. With the new PET recycling line from Starlinger Enka de Colombia has now entered the bottle-to-bottle market.

### **Super-clean PET recycling technology**

Starlinger recycling technology, a business unit of Starlinger & Co. GmbH, has been producing recycling lines for polyolefines and PET for more than 25 years. The PET recycling process on Starlinger recycling lines achieves excellent decontamination results and has been declared safe for food grade applications by international authorities such as FDA and EFSA as well as various brand owners. With a worldwide sales and service network and a full range of technical consulting services, Starlinger recycling technology supports its customers in achieving the best possible production results.

[www.enka.com.co](http://www.enka.com.co)

[www.recycling.starlinger.com](http://www.recycling.starlinger.com)

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### Image captions:

Picture 1: The Enka plant outside Medellín

Picture 2: The Starlinger recoSTAR PET 330 iV+ recycling line

Picture 3: Elfriede Hell, General Manager Starlinger recycling technology, and Aníbal Celis Carvajal, Group Coordinator for Integral Management and Processes, Enka



**Starlinger**

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