

24 February 2014

esfa-approved and energy consumption tested:

VACUREMA[®] clear global market leader in plastics recycling for direct food contact, market shares up to 50%

Around 779,000 tonnes of PET are collected in the USA every year and in the region of 514,000 tonnes remain in the country. Approximately 295,000 tonnes thereof are processed to make rPET for direct food contact. Half of the rPET is produced using VACUREMA[®] technology from EREMA, which corresponds to a market share of 50%. In Europe the market share in this segment has also already reached 30%. All in all there are more than 150 VACUREMA[®] systems in use around the world, producing high-quality repellets and end products such as films, with an overall annual capacity of around 1 million tonnes.

What is the secret behind VACUREMA[®], which has become the world's most used technology for the recycling of post consumer PET bottle flakes, PET in-house waste and also PE-HD bottle flakes since it was launched in 1998?

Decontamination BEFORE extrusion

The deciding factor is the highly efficient, food contact compliant decontamination BEFORE the extrusion process. The patented pre-treatment of PET flakes at raised temperature and in high vacuum before the extrusion process removes moisture and migration materials from the feedstock very effectively and in a stable process environment. Thanks to the vacuum treatment, stable IV values can be achieved even in the case of varying moisture levels and different IV values in the input material. As input materials with up to 1.5% moisture can be processed, no expensive pre-drying is necessary, unlike other processes available on the market. Extruder degassing is not required either, meaning that a short extruder screw can be used and the thermal stress on the material is reduced as a result. Furthermore, the unique, patented configuration means considerably less maintenance compared to other systems.

esfa approved and tested through automatic operation mode with FCC

The repellets/end products produced with VACUREMA[®] technology for direct food contact fulfil the purity requirements of major brand owners and, besides country-specific approvals, also has internationally recognised certification from the North American FDA and esfa, the European Food Safety Authority. "Some 347,000 tonnes of rPET for direct food contact are produced every year with VACUREMA[®] systems. And in doing so, our customers use up to 100% of the recycled pellets for the production of bottles and food contact grade thermoforming sheet in accordance with esfa guidelines," explains Christoph Wöss, VACUREMA[®] Product Manager.

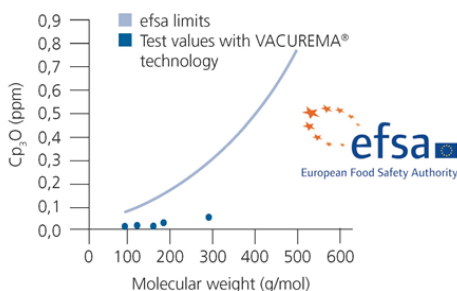


Fig. 1: esfa test values for VACUREMA[®] technology (source: EREMA)

efsa-approved and energy efficiency tested: VACUREMA® clear global market leader in plastics recycling for direct food contact, market shares up to 50%

Users can rely on a stable process at all times thanks to the automatic operating mode with FCC – Food Contact Control. The parameters for direct food contact compliance are monitored and archived continuously in the recycling process on all VACUREMA® systems. The Food Contact Control (FCC) feature supervises the stored recipe data which enables you to switch to the process parameters required for the production of the respective recyclate simply by pressing a button. If levels go beyond defined limits an alarm is triggered automatically and (optionally) material flow is diverted away from the production line. This guarantees traceability.

Confirmed by independent testing institute as most energy-efficient process

An independent testing institute has confirmed that VACUREMA® technology has the best energy efficiency ratings compared to others. A total of eight different PET recycling technologies available on the market were tested for electrical and thermal performance. The VACUREMA® Inline Sheet system (used to produce food contact grade thermoforming sheet) of a customer in Germany came out on top in an energy comparison with other systems available on the market, recording the lowest specific total energy consumption (including sheet downstream) of 0.29 kWh/kg (Fig. 2).

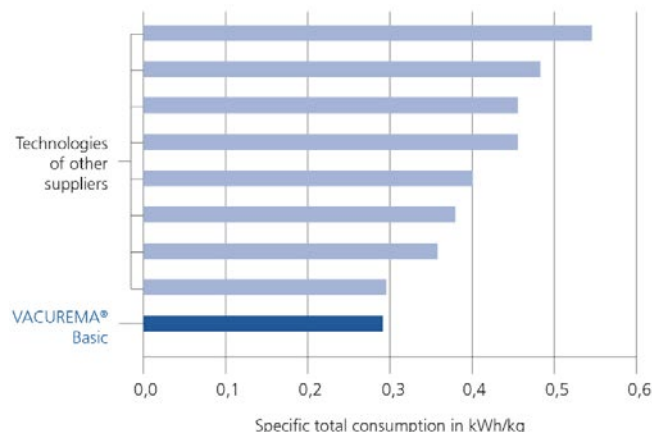


Fig. 2: VACUREMA® Basic (source: SKZ – Das Kunststoff-Zentrum)

VACUREMA® technology proved to be 40% more energy efficient than other systems also in the bottle-to-bottle field with a rating of 0.295 kWh/kg. This is due on the one hand to the decontamination BEFORE extrusion which – unlike other systems on the market – requires only a single energy input for processing. Plus, on the other hand, no additional pre-drying is required as materials with input moisture of up to around 1.5% can be processed.

Large area ultrafine melt filtration

The very large active filter areas of the EREMA filter systems likewise contribute to the system's remarkable efficiency performance. The patented partial surface backflush screen changers from the RTF series feature a fully automatic self-cleaning system which, despite extremely fine filtration (32 µm screen mesh), allows low pressure losses, high filter capacity and long filter service life. The result is highly clean pellets. Users are also spared from having to buy expensive special filters which are often necessary with other manufacturers. EREMA's high-performance filters, which can be connected directly to the extruder outlet, have been so successful for large area ultrafine melt filtration in the production of flat film that other manufacturers of film plants now use the EREMA piston screen changer as standard. These are available in a variety of sizes and output levels, up to the six-piston system with twelve parallel filter screens.

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Only supplier of inline crystallised strand pellets

Compact Inline Crystallisation (CIC) makes VACUREMA® the only system on the market which is able to produce strand pellets. As around 80% of virgin material is produced in strand form, mixtures of repellets made using VACUREMA® and virgin material are now easier and actually possible.

CONCLUSION

VACUREMA® is convincing thanks to its enormous flexibility, maximum efficiency, extremely straightforward operation, remarkable energy saving process and unique production opportunities with plastics recycling for direct food contact. The global market share of VACUREMA® speaks for itself.

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Pictures/text:

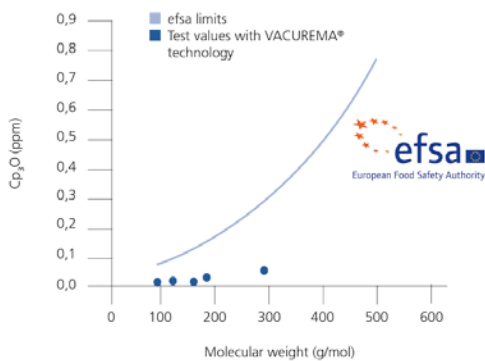


Fig. 1: EREMA_VACUREMA®_efsa_Test_values.jpg

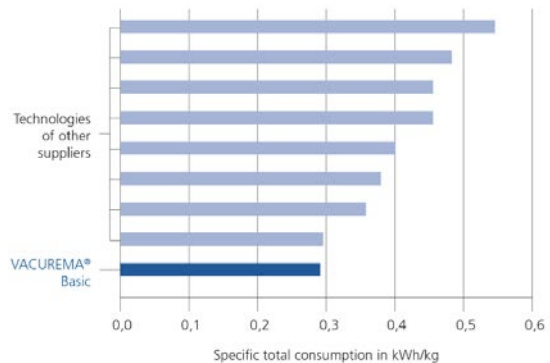


Fig. 2: EREMA_VACUREMA®_Basic_Energy_efficiency.jpg



Fig. 3: EREMA_Melt_filtration_system_SW_4/170_RTf.jpg



Fig. 4: EREMA_VACUREMA®_Prime.jpg

Photo credits: EREMA

EREMA press releases are available from www.erima.at

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About the company:

Since it was founded in 1983, EREMA Engineering Recycling Maschinen und Anlagen Ges.m.b.H has specialised in the development and production of plastic recycling systems and technologies for the plastics processing industry and is regarded as the global market and innovation leader in these sectors. EREMA technology has become firmly established as the leading global standard for a wide variety of recycling jobs in the applications in-house recycling of production waste and severely contaminated post consumer waste.

The wide-ranging product portfolio can be divided into the following main segments:

- Plastic recycling systems for standard applications and production waste
- Plastic recycling systems for heavily printed/contaminated post-consumer waste
- FDA-approved PET recycling systems, VACUREMA®, efsa approval requested via customers (e.g. for bottle to bottle recycling)
- Inline PET applications (e.g. for fibre, film and strapping)
- COREMA® plastic recycling system for the production of highly filled and customised compounds
- Fully automatic, self-cleaning melt filters
- Pelletising systems

Around 400 people around the world work for the Austrian company group. With its own sales and service companies in the USA, China and Japan, plus around 50 local representatives in all five continents, EREMA provides custom recycling solutions for international customers. Innovative technology and global service support additionally ensure that owners enjoy the maximum benefit from their EREMA systems.

Numerous patents, particularly energy-saving, environmentally friendly systems, exacting quality requirements and proactive commitment to customers form the basis for the continuing international success of EREMA.

EREMA Group in figures:

117	million euros turnover in fiscal year 2012/13
400	employees worldwide in all 5 continents
3,800	EREMA systems in operation around the world
12	million tonnes of plastic recycled every year with EREMA systems
20	tonnes of steel machined every day