

GALA® KUNSTSTOFF- UND
KAUTSCHUKMASCHINEN GMBH
SYMPOSIUM 2012

EFFICIENCY MEETS FLEXIBILITY
&
INNOVATIONS IN GALA FORM™

On September 11 and 12.th, 2012, GALA Kunststoff- und Kautschukmaschinen GmbH of Xanten (Germany) held its 5th Gala Symposium. More than 130 attendants followed the presentations of independent guest speakers from the plastics processing and plastics machinery industries. Efficiency and Flexibility in processing compounds, plastics recycling and natural raw materials were the general themes of this year's Symposium. As regards efficiency, the ambitious aim was to present opportunities and ideas that can be easily implemented in the compounding, recycling and plastic processing plants in order to improve efficiency and effectiveness on the machines in use. As regards flexibility, the presenters also reported on the state of the art of flexibility and cost-efficient plastics processing in various industries and outlined what the engineers are doing to design advanced machinery that provides flexibility and cost-conscious users with increased economic benefits. Further the ambitious target was set to identify innovations in the field of compounding. The theoretical considerations were complemented by in-depth studies of various system suppliers with a focus on long-term cost-efficiency, equipment layout, application characteristics and the resulting potentials for the future.

As part of the technical presentations at the Gala Technical Center, various pelletizing processes were demonstrated in sequence on three extrusion lines. A high degree of automation, low manpower requirements and the automatic and risk-free shutdown of the process in borderline situation were identified as the particular advantages of underwater pelletizing compared with other processes. Not only the innovative technology selected by Gala for the demonstrations but also the practical processes themselves met with high

interest among the attending professionals. After the equipment demonstrations of the individual machines it became quite crowded for pellet collection and their evaluation at the outlets of the equipment.

One of the pelletizing processes demonstrated was the pelletizing of PP for automotive applications. For this demonstration Gala had invited the Company ROC (Rapid Optical Control) to help identify the flexibility of the Gala pelletizing lines. With the help of the ROC technique the color was measured on the pellets and corrected online during production, a concept that holds great potential for the Compounding industry. The related technical presentation highlighted the significant economic benefits of the ROC method and its related pay back for the market. On the first day the color measurement was introduced and the online correction on the running machine was demonstrated successfully and extremely fast. Within minutes the correct color could be achieved while the whole extrusion and pelletizing machine needed to neither be stopped nor cleaned during its operation.

Another presentation on the first day of the seminar concerned the direct crystallization of recycling PET material supplied by the recycling company 4 PET from the Netherlands. For this practical demonstration Gala had invited the company Leuders Extrusionstechnik to help with suitable melt filtration to clean out the dirt and metal parts from the fairly contaminated recycling PET flakes continuously. This demonstration resulted in clean and spherical PET pellets made with the Gala Underwater Pelletizer running the Gala CPT (Crystalline Pellet Technology) process with airflow accelerated and at safe production conditions and temperatures. This resulted in pellets exiting the Gala dryer with well above 140 °C, meaning high enough for direct crystallization throughout sufficient latent heat inside the pellet for crystallization. Many of the observers could physically watch the pellet color change from almost opaque directly at the dryer exit into white / crystalline further down in the pellet container. They were equally impressed by the ease of process ability and the resulting potential of economical benefits. The final practical presentation of day one was on the topic of micropelletizing a bio material, which was demonstrated on the Gala LPU (Laboratory Pelletizing Unit) System. With the smallest scale machine Gala builds, the participants could see that such micro pellets can be easily produced even in small scale and at small rates.

On the second day of the Symposium the guests saw the production of another automotive color PP, but this time with the complete color change over online. Gala's tools were principally the die plate concept for such online color change and the MB 500 BF2 water system and dryer with integrated band filter. In this demonstration there was no need to clean the downstream equipment such as the water system or the centrifugal dryer as the line stayed in production without interruption. This was a remarkable demonstration of the advances that have been achieved in the development of "self-cleaning" systems for continuous operation. The participants were able to witness the changeover from a darker brown PP to a white-yellow PP in an extremely short time. The visualization of the graphic demonstration based on the L-a-b color levels allowed the participants to follow the formula change live and during operation of the machine.

The brown formula with a total pigment level of about 2 % was completely run on SPC (Single Pigment Concentrates) with pigment concentration of about 30%. After reaching the required tolerances $L-a-b = 0,4$ the next formula was loaded to produce the next color a white-yellow PP. For this color white and yellow SPC were used instead of brown, black and white SPC earlier. After about 12 minutes and several online corrections the new white-yellow PP color formula has reached the required tolerance of $L-a-b = +/- 0,4$. Neither the upstream nor the downstream side of the equipment was cleaned manually for this color change during production.

The economic benefits of this solution, based on the automatic sampling station ROC-ContiSampling, the color measurement of the pellets ROC-ColorControl, the dosing system ROC-ColorDosage and the GALA-MB 500 BF2 Pelletizing and drying system enables increases of productivity of 20% and more. The team elaborated further, how this processing equipment package would also allow compounders to produce small lot orders even on large extruders with large capacities, but efficiently. The result of the self-cleaning processes, the short time required for the color change and the quality of the produced pellets as a whole were found to be quite impressive.

At the same day, the small LPU pelletizing system was used to study the processing range of a Gala underwater pelletizing system for wood filled compound supplied by Tecnar GmbH, who also presented the advantages of a Gala Underwater Pelletizing system for such

product range earlier. The result was quite satisfactory: It was possible to produce perfectly round pellets with low surface moisture quality.

The second day also included another highlight of the Symposium. While the terms of reference were not very demanding - an LLDPE with more than 80 % Calcium filler was to be pelletized with smooth pellet surface and optimum moisture conditions. The innovative die plate design allowed such results throughout low pressure generation. The implementation of the Gala MCD (Melt Conditioning Device) was a real attraction. This new device eliminates the creation of large melt blocks usually produced during the startup phases completely since it makes instead manageable small portions and so reduces significantly the known hazards and workload for the operators.

In addition to the practical demonstrations, Gala also opened its doors to permit a look on quite a number of machines under construction. Of particular interest was the production machine for PET including CPT- Technology that not only included a top mounted pelletizer but also incorporated the latest technology in a number of other components. The participants also took the opportunity to inform themselves in detail about the advanced manufacturing engineering in the new production hall extension, which was just completed at the end of 2011. The guests were quite impressed about the comprehensive in-house testing prior to the delivery of the components.

Gala's own innovations in underwater pelletizing technology on the one hand and in dryer engineering on the other were so extensive that the presentations could only run the bullet points to match the time frame available for the two days of the Symposium. Additional and explanatory Information could be collected either directly after the presentations or demonstrations from the presenters or within the exhibition at the displays. Some of the examples are: - the newest Pelletizer model EAC (Electronically Advanced Cutter) with rotational clamp, - the latest Heat Flux Die Plate design for low pressure and energy consume and large operation window, - the modern MB 500 BF 2 dryer with band filtration included, as well as - the CBF (Continuous Band Filtration) Water Filter.

The participants unanimously agreed that the combination of technical papers and practical demonstrations and above all the opportunity to exchange experience and opinions

make the Gala Symposium an ideal venue bringing together machine manufacturers, plastics producers, equipment users and compounders in a way that is informative for all of them. The guests especially valued the discussions with the presenters and participants as an important source of information and an opportunity to help them in their decision making, gather ideas and ask additional questions on the innovations presented during the two-day program. For GALA Kunststoff- und Kautschukmaschinen GmbH, the success of the past 25 years at the Xanten location as well as the positive reaction from the guests during the event show that involving customers and responding to their needs is the best way to ensure the future success in producing high performing efficient, effective and flexible pelletizing systems.

GALA Kunststoff- und Kautschukmaschinen GmbH would like to take this opportunity to express its gratitude to the participating and contributing companies for their impartial and detailed presentations on the various subjects.

Michael Eloo
Managing Director
Gala Europe