

PVC Granulator

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One of Aberdare Cables' (from this point referred to as 'the company') manufacturing operations is based at the Group Operations Centre, in Elandsfontein, Johannesburg. Two of the key strategic objectives for the company, are to manage and contain costs and to manufacture efficiently. As a result of this company strategy, the company sighted to pursue an endeavour that allowed it to manage the PVC Bleed by recycling at this site.

PVC is a significant component of manufacturing power cables and therefore scrap will always be a result of the production process. The process that the company followed was, that the purged extrudate, also known as 'bleed' was sold off to a buyer as per the company's tender process. This material was sold at the best price offered, and resulted in an average loss of R8,50 per kg to the company. Financial analysis indicated that during financial years 2014 and 2015 the loss of 'bleed' was in excess of R300 000 per month.

The root cause of this situation is a process requirement and in 2014 questions had to be asked and solutions explored. In line with the Company's Environmental Policy (The Company is ISO 14000 compliant), it made more sense to explore how we could reuse this material. Trials were undertaken to understand what the reusable PVC could be used for. This was done using a dosage of re-chip PVC to virgin PVC whilst meeting specifications. A successful option was found in the 'bedding' phase of production. The next phase was to identify a suitable, economical and long term solution to rechip, deliver and reuse the PVC to the bedding extruders.

Investigations were made into what the best fit solution would be and this resulted in the company investing in a Granumatic – Granulator arrangement and Piovan transfer system to a silo located centrally at the extruders. This machine is manufactured in Sweden by a company called Rapid Granulator. 2015 brought a year of approval and

the installation and commissioning of the system was commenced in November 2015 by a local company, Eder Design.

The features of this machine are:

- **Designed for plastics:** The GranuMATIC has been designed exclusively for efficient recycling of polymer materials
- **Energy saving:** A GranuMATIC followed by a granulator is a solution that is very energy effective. Compared to a solution with a single large granulator for the job, the GranuMATIC in combination with an optimised granulator do the job much more effectively
- **PolyCUT cutting technology:** The unique Rapid PolyCUT technology, is a combination of knife cutting angle, cutting speed and sequential cutting. It provides a superior shredding solution for plastic materials. PolyCUT provides a sheer and smooth cut with low stress and therefore requires less motor power
- **FlexiPUSH feeding system:** The pneumatic FlexiPUSH-system is self-regulating-, efficiently absorbing vibrations and mechanical stress that occur in tough applications. The special hopper design allows material to be transported automatically into the rotor
- **Robust gear box design:** The GranuMATIC design contains no compromises. Its unique cutting technology together with a robust gearbox requires lower motor power for the job, minimising energy consumption
- **Easy cleaning/access:** The design puts handling in focus. Cleaning





Compared to a solution with a single large granulator for the job, the GranuMATIC in combination with an optimised granulator does the job much more effectively and with energy efficiency.

Aberdare Cables, is an industry leading power cable manufacturer in Southern Africa. Aberdare specialises in manufacturing low and medium voltage electrical cables for application in power generation, transmission, distribution, rural electrification, rail, petrochemical, mining, ports, airports, wholesale, construction and domestic building environments.

the machine for new materials or colours is easy. Just remove a single plate, and you have instant access to the machine's interior

- Screenless operation: As the material is cut into uniform pieces, the GranuMATIC operates without a screen, although screens can be installed as an option when smaller chip sizes are desired
- Easy maintenance: The front opening makes it possible to access the heart of the machine fast and easily. All knives, rotating and fixed are easy accessible. The rotating knives are reversible and are of cassette type, simplifying maintenance.

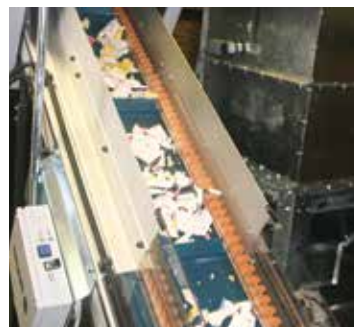
It is estimated that annual gains/savings generated will be in the region of R 2 000 000 by recycling 75 % of the bleed generated.

Conclusion

This granulator runs for 12 hours a day and is operated by one person and this covers material for both shifts of the factory. The energy consumption is efficient. Aberdare Cables offers cable design, product development, as well as installation support, commissioning and diagnostic testing through the company's Engineering Services business. In addition comprehensive value added services such as Key Account Management, Customer Relationship Management, product and application training, laboratory testing and a Technical Help desk is offered. With over 69 years' experience, Aberdare's focus remains on its people, customer relationships, cabling solutions, value added services, embracing innovation and technology and overall embodying high standards of quality.

Acknowledgement

Information marked with * is taken from the Intellectual Property of Rapid Sweden.



Laurence Braithwaite has 25 years' service with Aberdare Cables and has had the pleasure and privilege of managing all three manufacturing sites of Aberdare Cables namely, Gauteng, Pietermaritzburg and Stanford Road. His current portfolio of managing Yield at Aberdare Cables ensures that the in-process allowances are managed for benefit to the customer and that scrap is significantly reduced during production. He holds the position of General Manager.
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