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Regional Activity Centre for Cleaner Production

GOBIERNO DE ESPAÑA · MINISTERIO DE MEDIO AMBIENTE Y MEDIO RURAL Y MARINO

Generalitat de Catalunya
Government of Catalonia
Ministry of Territory and Sustainability

No. 129 Pollution Prevention Case Studies

Waste Reduction through Technical and Organisational Practices

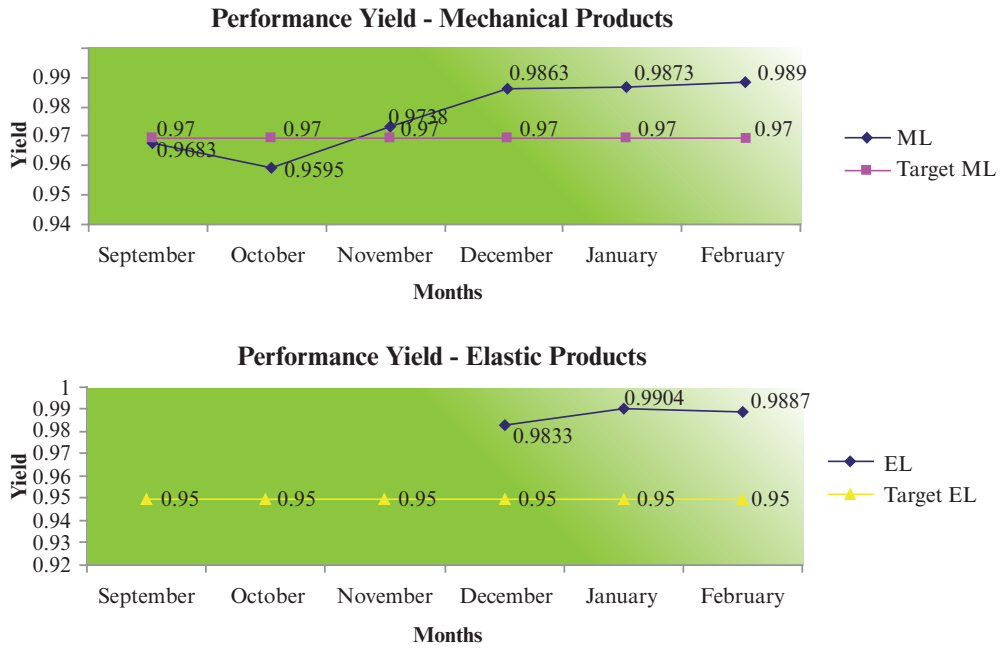
Company	3M Turkey, Çerkezköy plant (Turkey)
Industrial sector	Printing ISIC Rev. 4 no. 1811 (International Standard Industrial Classification of All Economic Activities)
Environmental considerations	3M's plant in Çerkezköy has been ISO 14001-certified since 2004. The plant is a strong constituent of EHS pollution prevention, as seen in 3M's Corporate Environmental Guidelines. As part of this "EHS culture", in 2008, the Cerkezköy plant decided to start an action plan with the objective of improving the processes in order to reduce the waste generated.
Background	The Çerkezköy plant is a multi-product manufacturing site that produces several goods, such as Scotchprint® graphics for vehicles. Production processes at the plant are dedicated to the following goods: • Consumer & office product conversion. • Personal care products. • Industrial filters. • Paint replacement & paint production films.
Summary of actions	The processing units on which actions were focused were laminating, slitting and converting raw materials into end products and then packaging. In order to minimise the waste generated as well as the raw materials utilised and reduce the energy consumed, some technical and organisational actions were implemented. Technical measures: • Tension mismatch of product: The production line couldn't reach the required web tension for certain products. Mechanical adjustments implemented to laminators solved the problem for the production of some special products. • Hook web breaks: Production without side flanges or without using the appropriate ones decreased yield. Appropriate side flanges have been purchased and the position of some rollers has been modified. • Adjusting machine process parameters: The process is highly dependent on the machine process parameters. Setter operators have been trained to adjust process parameters more accurately and to take into consideration waste generation. • Raw material length: Some of the raw material lengths have been optimised. Waste and material remaining on the core can be prevented in certain cases.

Organisational measures:

- Operator trained according to best practices in other plants. The content of the training includes raw material length and product tolerance limits, knife and ultrasonic adjustments, Tesa-tape change and sensor adjustments.
- Operators have been assigned to each position based on their operational skills.

Raw material quality: Several quality problems regarding dimensions occurred because either raw material widths were not always within the tolerance limit of the machine or the operator-in-training could not adjust dimensions accurately. Critical end-customer dimensions have been defined. If a dimension is not within the tolerance limit, it is evaluated in the production area and categorised as not critical to the end customer.

Diagram



ML- Mechanical Laminate
EL- Elastic Laminate
Yield – Waste ratio

Balance

	OLD PROCESS	NEW PROCESS
Waste generation	42,604 kg	10,252 kg
Raw material savings		USD354,924
Investment	-	USD2,500
Return on investment	-	Less than 1 month

Conclusions

By implementing both technical and organisational cleaner production practices, the site has reduced its solid waste production by 32 tonnes per year, which means important economic savings in raw material costs.

NOTE: This case study seeks only to illustrate a pollution prevention example and should not be taken as a general recommendation.

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