New set up model packaging cold mill CM11

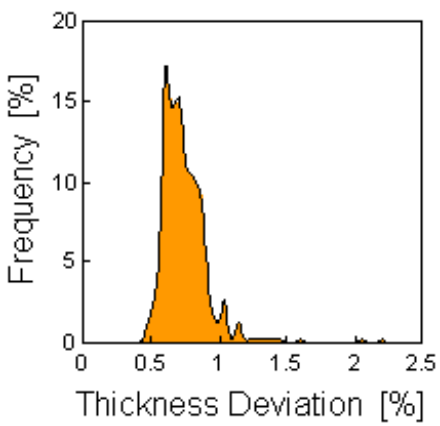
Corus Packaging Plus wants to supply tinplate material with an excellent gauge performance. To reach this performance the mill has to be equipped with excellent control loops hand in hand with an accurate preset model which calculates the right setpoints for the regulators. Since presetting of the cold mill has been considered as a critical technology by CPP, Rolling Metal Strip has been asked to develop a new preset model in-house and to implement the model at their cold mill 11. The demands on the new preset model were expressed from product point of view: a perfect product quality joined with high productivity.

Approach

The model has to have the flexibility to cope with different rolling strategies and different process conditions. Therefore the model consists of three main parts:

- A rolling strategy for different products
- A physical basis to describe the rolling process
- An effective adaptation routine to ensure accurate prediction of preset and other process values.

The model has been developed, tested during offline conditions and subsequently implemented at CM11 end of 1995.

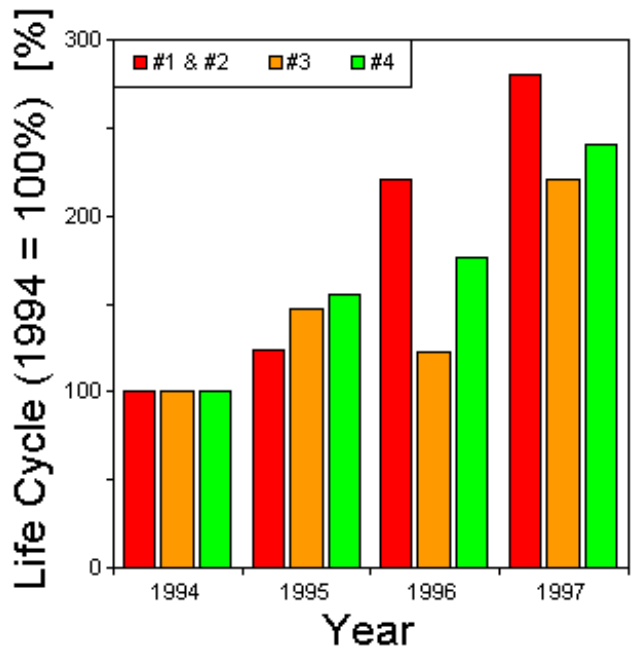


Results

To assess the performance of the preset model the gauge performance and the average work roll life have been evaluated.

After implementation of the new set up model about 97% of the coils are seen to show a thickness deviation within ± 1%. This is a major improvement, compared to conventional mills which produce thickness deviation between ± 2 and ± 3%.

A second characteristic for the performance of the mill is the life cycle of work rolls. This is normally expressed in tonnes product per mm work roll diameter.



The figure above shows the evolution of the relative improvement of the life cycle where the averaged life cycle in 1994 is set to 100%.