

Calendering of thick rubber sheets without gas entrapments

Competence in Rubber

Calendering

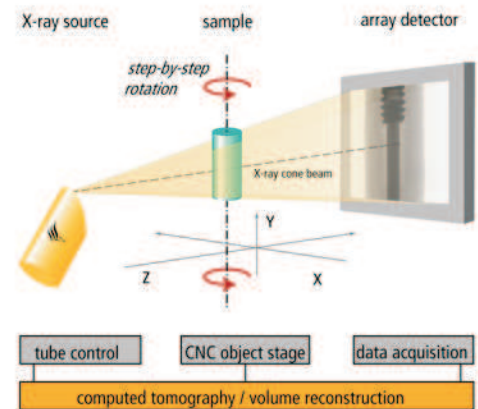
Calendering is the deforming of heated uncured rubber compounds to rubber sheets and tissues surrounded by rubber. The rubber sheets and tissues produced in one or more roll gaps will be used in rubber industry such as in tyre and belt-conveyor production.

Deformation process

The occurring deformation processes in the roll gap influence the dimension stability, surface finish, formation of gas entrapments and shrinkage of calendered rubber sheets. By using the power law of Ostwald and de Waele the flow behavior for isotherm systems in the roll gap can be described. Calculation of velocity and pressure dispersion in roll gap permits conclusions to the calendering behavior. Together with the roll gap the affinity of rubber to gas entrapments can be verified.



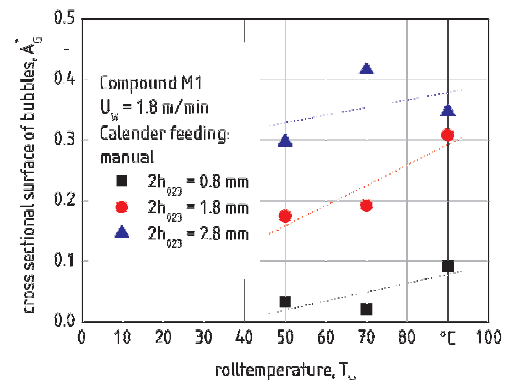
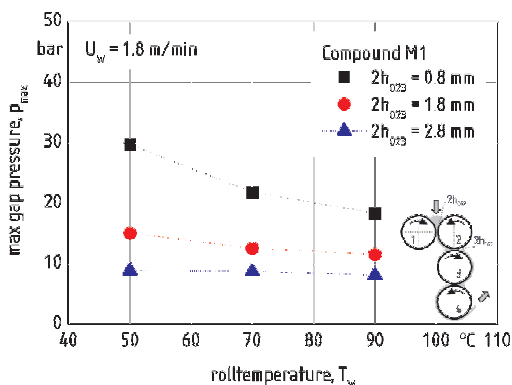
By means of **X-ray tomograph** the number, distribution and aspect ratio of gas entrapments will be detected. Especially small, for the producer hard to detect gas entrapments (diameter $>0,1\text{mm}$) can be located by this non-destructive testing method.



The variation of the processing parameters has a deep influence on aspect ratio of the gas entrapments.

Investigations

With the laboratory standard 4-roll L-type calender at DIK all important processing parameters as roll temperature, friction, roll gap and angular velocity can be varied. Investigations show that the maximum pressure into the roll gap is dependent on the roll temperature and the roll gap.



The combination of the usual techniques and the X-ray tomograph is a definite plus.

Are you interested in calendering?

Should you have questions or remarks about calendering please don't hesitate to get in touch with us.

Your Contacts

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