

RELATIVE DEPENDENCE BETWEEN OPERATING PARAMETERS AND QUALITY OF BITUMEN OBTAINED IN AN ASPHALT AIR BLOWING PROCESS

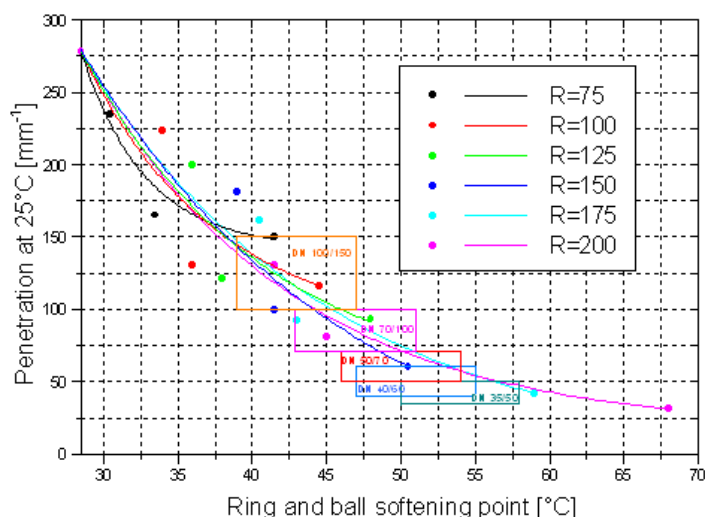
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Abstract

The bitumen blowing process is used mainly for the production of industrial bitumen grades with a high softening point and low penetration [1]. A number of factors affect the properties of the final product produced by air blowing: source and type of blowing flux, air feed rate, blowing time, and the blowing temperature [2].

Air blowing of feed stock was carried out in a static mixing gas-liquid reactor at 280 °C. Softening point of feed material was 28.5 °C, and penetration at 25°C was 278 mm⁻¹. The relationship between softening point and penetration is the most important consideration in an asphalt air blowing process. Graphical representation of these relationship is called “blowing curve”



Blowing curves as function of volumetric air-feed stock ratio (R) in the air blowing process

The softening point dependence of the penetration is given by the equation:

$$Pen = (278 - a) \cdot e^{-b \cdot (SP - 28.5)} + a$$

It was obtained four main sorts of paving asphalt (romanian standard): DN 40/60, DN 50/70, DN 70/100 and DN 100/150

References

- [1] S. Parkash, Petroleum Fuels Manufacturing Handbook, McGraw-Hill, 2010.
- [2] V.P. Puzinauskas, E.T. Harrigan, R.B. Leahy, Current Refining Practices for Paving Asphalt Production, Strategic Highway Research Program Report SHRP-A/FR-91-102, 1990.