ABSTRACT:
Over the past few years, Shell Bitumen has been actively involved in extensive testing of a wide variety of conventional and modified binders.
Amongst the tests currently being used, a very large amount of effort has been given to assessing the rheological measurement of complex properties at low, intermediate and high temperatures. The solid deformation, shear and elongational properties are investigated using the Bending Beam Rheometer (BBR), Dynamic Shear Rheometer (DSR) and Ductility test, respectively.
The compilation of these data provides a full characterization of the tested bitumen, i.e. a fingerprint of its fundamental properties.
In this paper, the focus will be on DSR measurements: frequency sweep between 10 and 80 °C, Zero Shear Viscosity (ZSV) and Low Shear Viscosity (LSV).
The extensive data collected on conventional and modified binders have been used first to illustrate the reliability of these rheological tests.
In a second step, as these tests are very time-consuming, the obtained data have been analyzed from a purely rheometrical perspective to show that LSV values can be derived from frequency sweep measurements.

KEY WORDS: Bitumen, rheometry, specification, DSR, ZSV, LSV