GUIDELINES FOR THE USE OF PROCESSING AIDS IN FKM

Elastomer Technology and Engineering

Polycomp B.V. develops, tests, and manufactures high performance rubber compounds for demanding applications in e.g. automotive, oil & gas, food & pharma, and chemical process industries. Main focus is on compounds based on FKM, FFKM, and HNBR, as well as specialties based on most of the other elastomers. Polycomp is based in Vorden, The Netherlands. Polycomp is having its own laboratory and pilot plant for product development, as well as modern production machinery.
Processing aids are used in small amounts in our compounds, but are a major contributor to the properties of the material in view of processing at our customers. Currently, some 5-10 different processing aids are being used, in various combinations and concentrations. However, it is unknown which are the optimal choices. Therefore, there is a high need for a solid knowledge base, as well as practical guidelines for the use of processing aids.

Objective
The objective of this assignment is to make an overview of available processing aids used in FKM, the use of these materials, and mechanisms that make them work. Samples have to be mixed, and physical properties as well as processing have to be tested. All information will ultimately result in a set of guidelines on the use of processing aids.

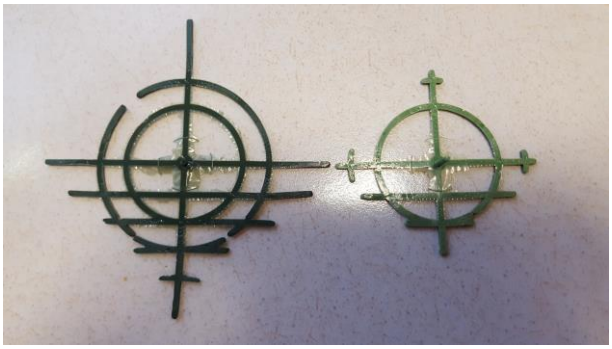

Fig. 1 : Difference in flow behaviour determined with a Göttfert Rubber-Capillary-Rheometer RCR.

Assignment
At the beginning of the assignment the student will make an overview of available processing aids for FKM and their mechanism of action. Thereafter, compounds will be mixed, and physical properties as well as processing will be tested. One of the devices that will used is the Göttfert RCR, see also Fig. 1. The results obtained will be discussed based on mechanisms, and will ultimately lead to a set of guidelines on the use of these processing aids. Practical work will be performed at the laboratory of Polycomp, and optionally at ETE and/or customers.

Report
The report should contain: **1**. The reasoning behind the choice and concentrations of the proposed processing aids; **2**. Guidelines for use of processing aids in view of type of FKM and processing method; **3**. Literature overview; **4**. Test results, their evaluation, discussion and conclusions.

Partners
This project will be done in cooperation with Polycomp B.V., Handelsweg 7, 7251 JG Vorden. See www.polycomp.nl .

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