conTEX friction disks: process security with spun dyed filaments

Eckhard SONNTAG, Joachim BOLZE, Hans-Dieter WEBER
Emil BRÖLL GmbH & Co, Austria; www.broell.com

key-words
friction disks, texturing, conTEX, se40, se60

The automotive industry is the driving force for textured spun dyed (dope dyed) PES and Nylon. As the filaments are already dyed when they reach the texturing process, the thermodynamical and tribological behaviour during texturing is quite different to non dyed, white filaments and changes from dye to dye. Changing lots becomes demanding and time consuming (Fig. 1).

Fig.1: spun dyed (dope dyed) filaments.

A new friction surface on conTEX friction disks has been introduced for these kinds of fibres. The big advantage, besides much longer service life, is the intrinsic self cleaning behaviour of the surface: the surface of conTEX stays absolutely clean and it is possible to change lot colours without an intense cleaning cycle being necessary. On conventional white ceramic disks glazing can occur which makes it necessary to remove the disks and intensively clean them, while with PU no cleaning is possible and the operator has to look for darker colours to be textured from lot to lot. The following picture shows a non-cleaned conTEX disk after texturing for 6 months, processing 6 different colours. It can be seen that the friction surface of the disk remains as clean as new (Fig. 2).
BROELL has developed two versions of conTEX - a smoother surface for superb yarn values, named se40, and a rougher surface named se60 for secure grip with sturdy yarns and higher percentage of spin finish, most suitable for spun-dyed filaments.

Fig.2: conTEX still clean after 6 months production of 6 different spun dyed yarns without cleaning.

It is interesting to note that conTEX is not only able to run with very low levels of spin finish, below 0.3%, but does this with improved performance. The following graph shows the differences in the yarn values for a sensitive spun-dyed octolobal PES 167/48 where a white alumina disk could not be used. With conTEX the textured values are very competitive. The influence of the surface roughness is also visible (Fig. 3).

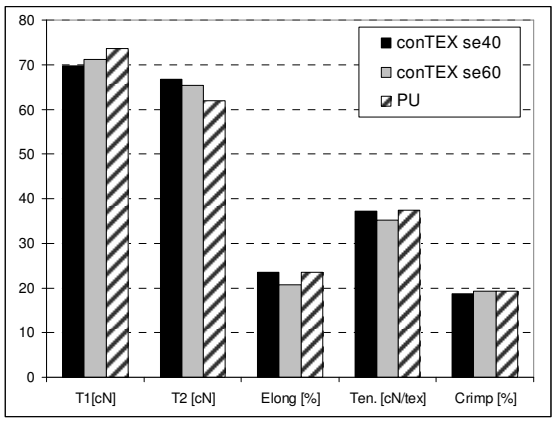

Fig.3: Comparison of conTEX se40, se60 and PU on spun dyed octolobal PES 167/48 (HE); (a white ceramic disk did not work.)

Nano-ceramic-metal disks (conTEX) are designed and manufactured at BROELL and have been on the market for four years. Industrial trials conducted with spun-dyed PES, PP and Nylon showed that it is possible to replace PU disks with conTEX se40 and se60 for improved textured yarn quality.