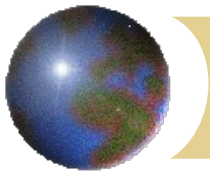


High Speed Spinning Additive for PET Fibers

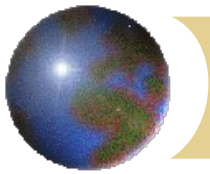


Annalisa Agricola



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Introduction



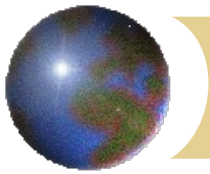
1.1 General informations on High Speed Spinning Additive

The additive is a special copolymer to increase spinning speed and plant capacity of PET-POY production. It is added in the spinning plant by master batch at levels vary between 0.3 – 1% w/w depending on desired spinning speed:

- at 0.3 – 0.4% w/w of pure additive allows up to about + 25% higher winding speed*

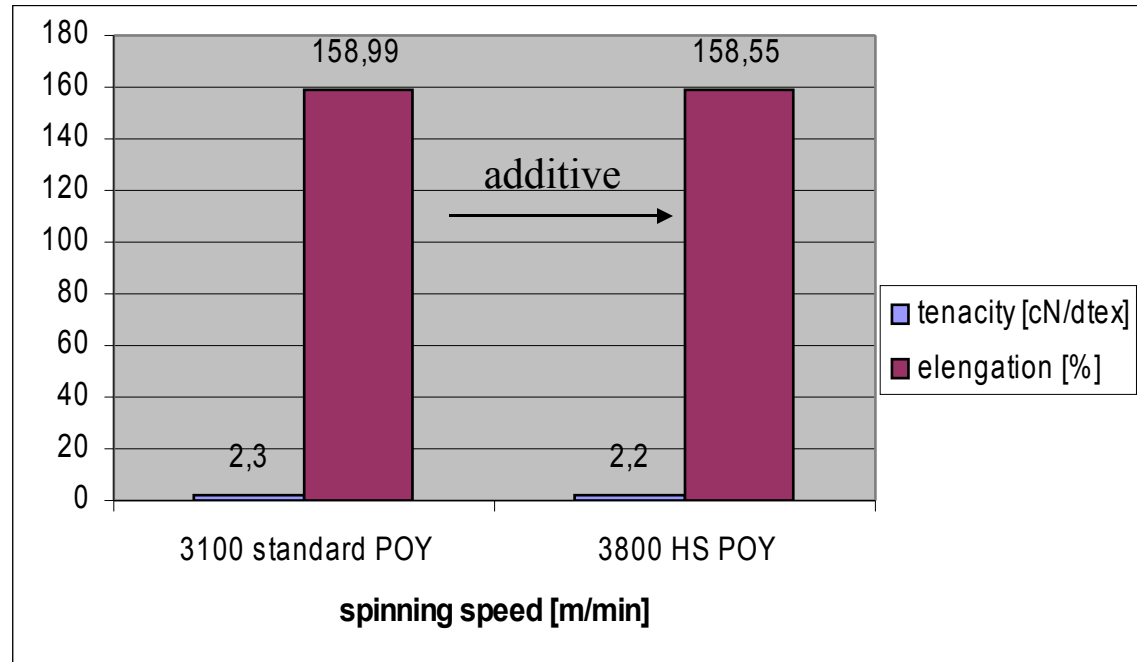
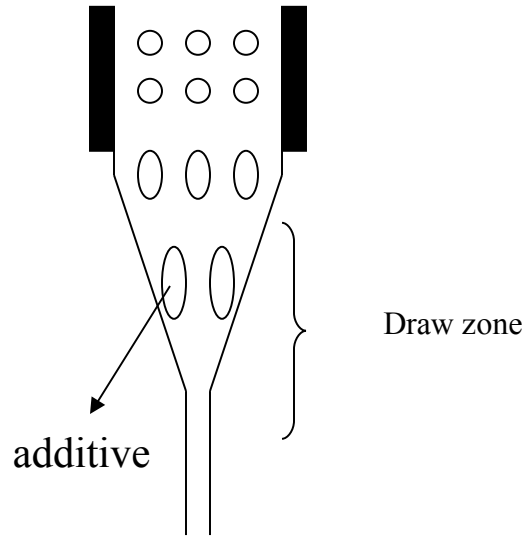
The additive permits final identical properties to conventional yarn and matches high standards of top POY and DTY producers. It can be applied for wide range of products and with different PET resins (different I.V., bright PET, etc.).

Particular requirements are: interlacing should be provided and godets are beneficial to achieve good package quality, choice of spin finish is important as well.

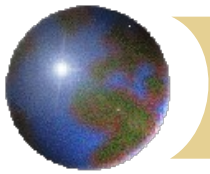


1. Introduction

1.3 Mechanism: example of made industrial production



Pet + additive
3800 m/min

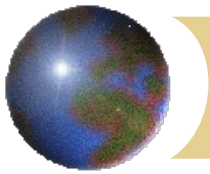


2. *Pep Additive 0143 (50%)*

Pep Additive 0143 (50%) is a master batch produced on Pet carrier with the 50% of High Speed Spinning Additive. On request, it is possible to prepare master batch also using other carriers suitable for Pet (for example: Copet and PBT).

The technical parameters of this product are:

- Chips Medium Weight: 0.50 – 0.70 g/30 chips (PT-06)
- Water Content: < 0.20% (PT-07)
- Aspect: regular (PT-02)
- Contamination: absent (PT-04)
- Filter Test: < 10 bar/kg (PT-05)
- These parameters are temporary until the 3a production.



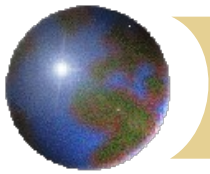
3. Test

The Pep Additive 0143 (50%) has been spun at 0.8% of dosage (that means at 0.4% of additive in yarn) at 288/48 dtex (count of POY yarn) for final 167/48 dtex (count of DTY yarn), round section, using Pet semi dull. This trial was made by industrial spinning plant.

1) Test on POY PET Fibers

% DOSAGE MB	0% : PET SEMI DULL ALONE	0.8%: 0.4% OF PURE ADDITIVE IN PET SEMI DULL YARN
WINDER SPEED POY	3100 M/MINUTE	3800 M/MINUTE
COUNT POY	288/48 DTEX	288/48 DTEX
TENACITY	2.3 CN/DTEX	2.2 CN/DTEX
ELONGATION	158.99 %	158.55%
USTER	0.86%	0.7%

As above table, it has been possible to increase the winding speed with the same values of elongation and tenacity of conventional POY yarn.

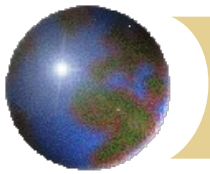


3. Test

1) Test on DTY PET Fibers

% DOSAGE MB	0% : PET SEMI DULL ALONE	0.8%: 0.4% OF PURE ADDITIVE IN PET SEMI DULL YARN
WINDER SPEED POY	3100 M/MINUTE	3800 M/MINUTE
COUNT DTY	167/48 DTEX	167/48 DTEX
TENACITY	3.6 CN/DTEX	3.6 CN/DTEX
ELONGATION	28.22 %	29.5%
COLOR L	94.49	94.69
COLOR a	-0.76	-0.78
COLOR b	1.2	1.17

As above table, it has been possible to increase the winding speed with the same values of elongation and tenacity of conventional DTY yarn.



4. Conclusion

MMF, with the help of a friend-Customer, has shown the efficiency of High Speed Spinning Additive:

- ✦ *it has been possible to increase the winding speed with the same values of elongation and tenacity of conventional POY yarn.*
- ✦ *it has been possible to increase the winding speed with the same values of elongation and tenacity of conventional DTY yarn.*
- ✦ *It has been made trials of traditional dyeing on socks produced with conventional PET POY yarn and with Hight Speed PET POY yarn. The obtained results does not show particular differences.*