CHAPTER 7

PROBLEMS FACED.
7.1 Problems Faced During Spinning of Staple Cut Silk and its Blends

Most of the problems faced during spinning of silk and its blends were related to development of static charge during processing at various stages of spinning. Anti-static agent should be sprayed uniformly. A combination of LV-40 and P-2152 (0.5 % each) was found to be best for smooth processing at card. Due to static charge generation problem doffer speed was kept low (10 rpm). The drawframe speed was kept low (100 m/min) so as to avoid roller lapping. This was also controlled to some extent by reducing the width of slivers entering at the back of the drafting zone. At simplex selection of suitable condensor and spacer is very important. During spinning at ringframe front roller speed was kept at 200 rpm.

The performance of the silk and silk blended yarns was highly satisfactory with minimum or zero breaks during knitting. Silk-acrylic bulked yarns also performed equally well during knitting.

There were few problems during knitting of silk and silk blended fabrics, which are also common during knitting of cotton fabrics. These are as follows

Holes in the fabric - These were mostly due to bad needles. This defect was avoided by replacement of needles and adjustment of stitch cam to get uniform yarn feed at each feeder.

Drop end stitches - These were due to defective needles that can be avoided by replacement of needles.

Barre - Barre defect is due to bad yarn and uneven tension. This can be avoided by replacing the yarn and check yarn feed at each feeder.

Needle breakage - Needle breakages are due to bad or old needles and bad yarn (slubs, knots etc.). This defect can be eliminated by replacing the needle and electronic clearing of the yarn on winding machine before knitting.
7.2 Problems Faced During Filament Core-Spun Yarn Production and Knitting

Although core-spun yarn have several advantages, some precautions are necessary during spinning and processing of these yarns. There are some typical problems associated with core-spinning system. The following are important among them:

1. The filament package should be handled with care and it is preferable to use extra illumination near the ring frame to see the filament clearly.
2. Defects like 'sheath voids' are sometimes produced during spinning due to breakage of roving or when hard fibre bunches break through the drafting and disappear into the pneumafil. In such cases, lengths of yarn in which sheath fibres missing are formed. Careful supervision is, therefore, necessary during spinning.
3. Ring frames with knee-brakes and arrangement for holding filament bobbins on the creel are essential in core spinning.
4. The piecing technique adopted is also different from the usual method and some initial training for operative is necessary.
5. During winding care should be taken that the yarn does not rub against very rough surfaces.

During knitting core-spun yarns didn't pause any problem.

7.3 Problem Faced During Spandex Core-spun Yarn Production

Elastic yarns can be prepared by feeding spandex core on conventional spinning frame after modifications. Elastic core-spun yarns are more sensitive than ordinary core-spun yarns to substandard spinning practices. Lycra is a continuous filament yarn, it must be handled carefully to prevent damage. Tubes should not be bumped, thrown or mishandled in any way. Following defects can arise in the elastic core-spun yarns.

Grin-Through -- This defect is an incomplete covering of the core of spandex and is caused by improper positioning of the core with respect to roving. This
can be effectively controlled by directing the core yarn to the left edge of roving ribbon as its leaves the front roll nip for the yarn having Z twist.

**Short core voids** -- This defect comes in short sections (25 to 75 mm) of yarns with no stretch because the core broke after the yarn was spun. This may happen due to poor positioning of spandex yarn to roving, over-drafting of core-yarn (use recommended drafts), poor mechanical condition of rings, excessive traveller speed, too heavy traveller.

**Long core voids** -- It is long section of yarn with core missing. This defect may arise due to nicked or rough guide surfaces, back drafting of spandex on the tube resulting from insufficient feed-roll contact, over drafting of core yarn and mishandling of spandex supply tubes.

**Sheath Voids** -- It is short length of yarn from which the sheath (roving) fibres are missing or partially missing. The causes of this defect are breaks in roving during drafting, over drafting of roving, poor quality roving, improper position of roving allowing pneumafil to rub staple fibres and worn cots, aprons.

Globe’s Enfield points to a number of specific cautions regarding processing of spandex [158].

--- Product age is a concern, as spandex can have a restrictive shelf life. It is best to use the fiber within six months of manufacture. It typically should not be aged for more than nine months to a year.

--- Polyester-spandex blends can be sensitive to high moisture conditions.

--- Polyester spandex can be sensitive to chlorine.

--- Certain chemicals like phenols can have an adverse effect on properties of spandex.

--- Once the elastomer gets into a fabric, however, its breaking strength is less critical because the inelastic fabric components usually limit its extension sharply. Spandex breaks in fabric are more likely to come from cutting by adjacent hard fibres or from chemical attack.