

M4-EN.6 FIRE SAFETY

M4-EN.6.1 Particularities of cotton

Description of Chapter M4-EN.6

In this chapter titled “Fire safety in the Textile Industry” the particularities of cotton in the event of fire are developed.

Aim of this chapter is to familiarize all the involved parties with the Occupational Health and Safety in the sector of the Textile Industry, with this particular material (cotton) and the way it ignites.

M4-EN.6.1 Particularities of cotton

Cotton, depending on its cleanliness, has a point of ignition about 200° C. Apart from cleanliness it also depends on humidity and pressure of cotton.

Humidity also influences the temperature of cotton itself. Particularly, cotton with high levels of humidity easily develops a high temperature (“burns”). Humidity and potential resistances (friction) that cotton finds at its route in the air-ducts are the main reasons for temperature rise.

Therefore, the operation of the system of cleaning - drying is critical for fire safety. The first drier depending on the humidity of cotton, operates between 70° C and 130° C (usually 100° C), whereas the second drier usually operates in lower temperature for the improvement of the initial regulation of humidity (70° C - 80° C).

If the initial seed cotton has much a higher humidity and driers need to operate in very high temperatures, then there is a severe risk for ignition of cotton without even the existence of a spark.

Due to the characteristics of cotton, it is likely that the flame does not extend immediately in the ducts but it remains enclosed and non-detectable in some places of the ball of final packing. The result will be a direct ignition when the parcel will be decompressed in spinning frames. Therefore, particular attention should be paid in the initial humidity of cotton and the limits of humidity reduction for each unit should be known.