

METTLER TOLEDO APPLICATION NOTE

Wool Carbonizing Process In The Textile Industry

BACKGROUND

Wool yarns and fabrics frequently contain vegetable matter that is not removed during the carding process.

These contaminants are removed by immersing the wool fabric in a solution of sulfuric acid (H_2SO_4) followed by a brief exposure to high temperature, which converts the vegetable matter to carbon (Figure 1). This carbon is then removed by scouring (washing with synthetic detergent) or, if necessary, by brushing.

To prevent damage to the wool fabric, the process must be carefully controlled. By control of the acid bath with toroidal conductivity, control of high temperature exposure is a matter of temperature and feed rate control.

INSTRUMENTATION

Toroidal conductivity is the choice for measuring the sulfuric acid bath (typically 4% H_2SO_4), since it is resistant to coating by oils and grease that can be carried by the wool. The most easily mounted sensor would be the InPro[®] 7200 series of toroidal conductivity sensors, which are resistant to sulfuric acid below 20%. These sensors can be used with the CondI 7100 Toroidal Conductivity analyzer.

Care should be taken to position the conductivity sensor in the tank where there is some agitation in order to provide the most representative sample. If there is a recirculation line, the sensor can be mounted in the line.

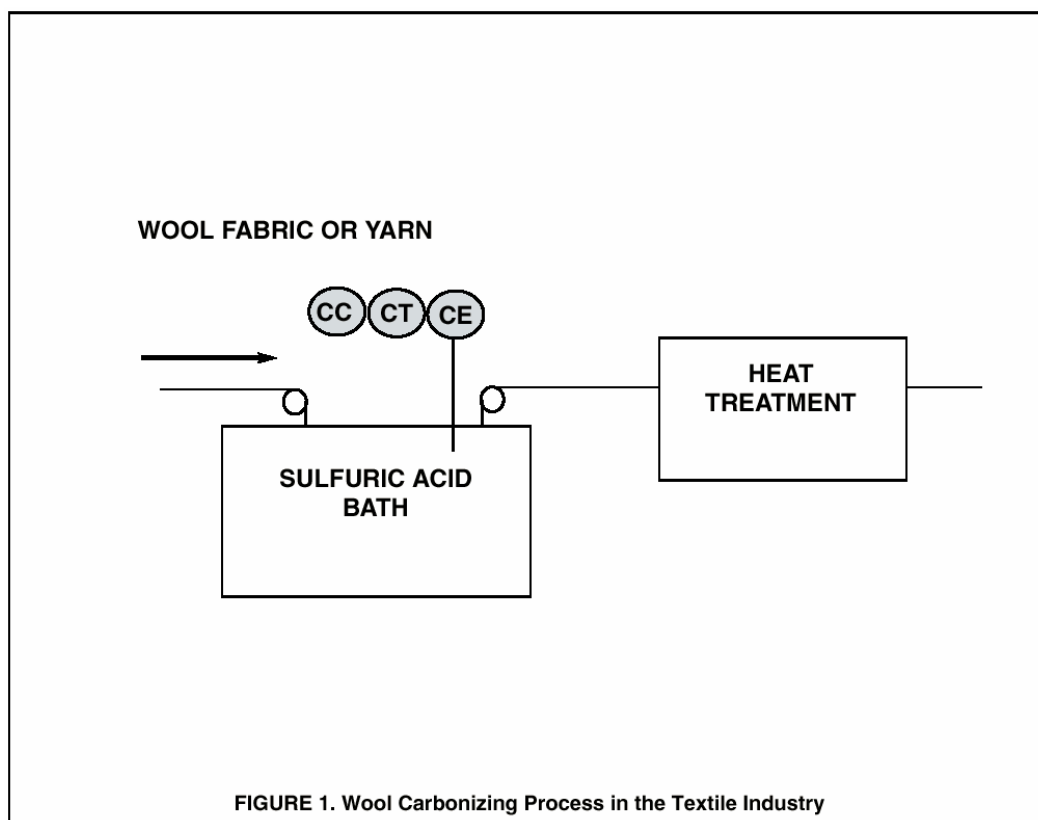


FIGURE 1. Wool Carbonizing Process in the Textile Industry

PRODUCTS

Model Condi 7100 Toroidal Conductivity Analyzer

- Measures conductivity, resistivity and % concentration
- Detachable front panel and plug-in terminals for ease of installation
- All functions accessible through the keypad for increased ease of use
- Continuous sensor and transmitter diagnostics to monitor performance
- FM certification for Class I, Div 1 & 2 Environments
- 3 year warranty

InPro[®] 7200 Toroidal Conductivity Sensors

- Recommended for high accuracy measurement in high conductivity processes
- Choice of materials of construction for increased chemical compatibility
- High temperature range option suitable for CIP and Boiler Blowdown applications
- FM approved for electrical safety