

CRITERIA FOR ACCEPTANCE OR REJECTION IN THE
IDENTIFICATION AND COMPARISONS OF FIBERS

Identification and comparison of fibers require that fibers be characterized by color, physical appearance, and generic class. Fiber analysis that is performed should be a combination of methods that extract the greatest potential for discrimination between samples.

The analytical techniques that aid in determining generic class are as follows:

- Polarized Light Microscopy
 - FTIR Spectroscopy
- Pyrolysis/Gas Chromatography
 - Solubility Schemes
 - Thermal Analysis
 - Chemical/Physical Tests
- Energy Dispersive X-ray Analysis

The analytical techniques that aid in determining the physical appearance are as follows:

- Stereomicroscopy
- Light Microscopy
 - longitudinal mounts
 - cross-sectional mounts
- Scanning Electron Microscopy

The analytical techniques that aid in determining color are as follows:

- Light Microscopy
- Microspectrophotometry
- Thin-Layer Chromatography
- Fluorescence Microscopy

In order to perform an IDENTIFICATION, the number of analytical tests performed is left to the discretion of the analyst.

In order to perform a COMPARISON, a minimum of two of the analytical techniques must be performed for each category of discrimination (generic class, physical appearance, and color).

All characteristics of question fibers that are observed should correspond to the known fibers being compared.

If characteristics of question fibers are missing or altered due the physical condition or lack of sufficient sample then the analyst may reach an inconclusive opinion.

If characteristics of question fibers are different from that of the known then a comparative "match" should be rejected.

In comparing fibrous or polymeric materials such as fabric, yarns, tape, buttons, and cordage, all observable manufacturing details should correspond.

A "physical match" of fibrous evidence such fabric or tape is only exception to where multiple tests are not required.