

# Application note n° 56

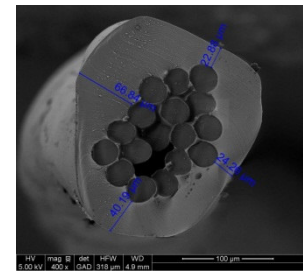
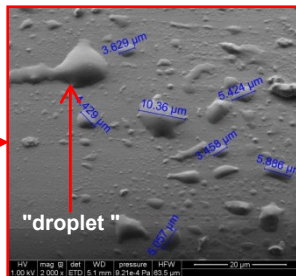
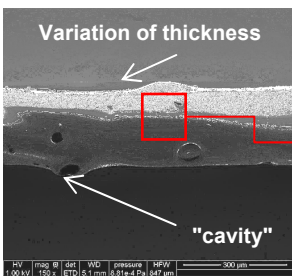
## Study of siloxane coated threads

**Subject:** Morphological and chemical characterization of siloxane coated threads on surface and on a cross section.

**Techniques:** **SEM-FEG and ToF-SIMS**

- ✓ morphology and position of threads in the siloxane coating
- ✓ search for residues of sizing

**Results:** 1. SEM surface and cross section observations



SEM surface and cross section observation on the threads in SE mode (Secondary Electrons)



- Observation of "cavities" and thickness of siloxane variation
- Observation of « droplets »



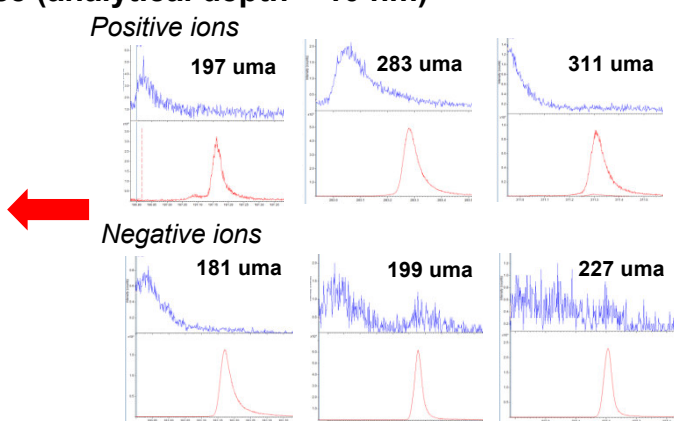
Position of threads in siloxane

2. ToF-SIMS identification on the surface (analytical depth < 10 nm)

Molecular and non quantitative composition

- Thread
- Sizing oil

- Determination of sizing oil signature
- Comparison with the thread surface composition
- Removing of the sizing validation



**Conclusion:**

Both MEB-FEG and ToF-SIMS techniques involve the homogeneity and the chemical nature on the surface of the threads. The presence of the sizing oil residues is studied by ToF-SIMS.