## MicroLap Technology

### **Depth Profiling of Composition**

Some samples are too opaque to allow the IR beam to penetrate to the depth of interest. Spectral overlaps may also interfere with depth profiling.

In these cases a micro-lapping approach allows spectra to be measured layer-by-layer.

In other cases micro-lapping can be used to calibrate PAS non destructive depth profiling during methods development.

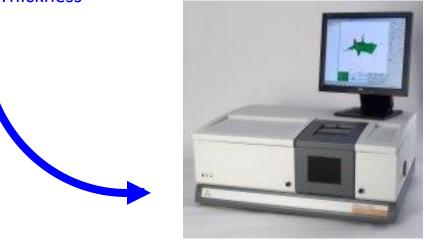
### Depth Profiling Using the MicroLap Process



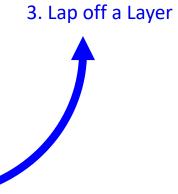
4. Repeat layer by Layer



1. Measure Thickness



2. Measure Spectrum

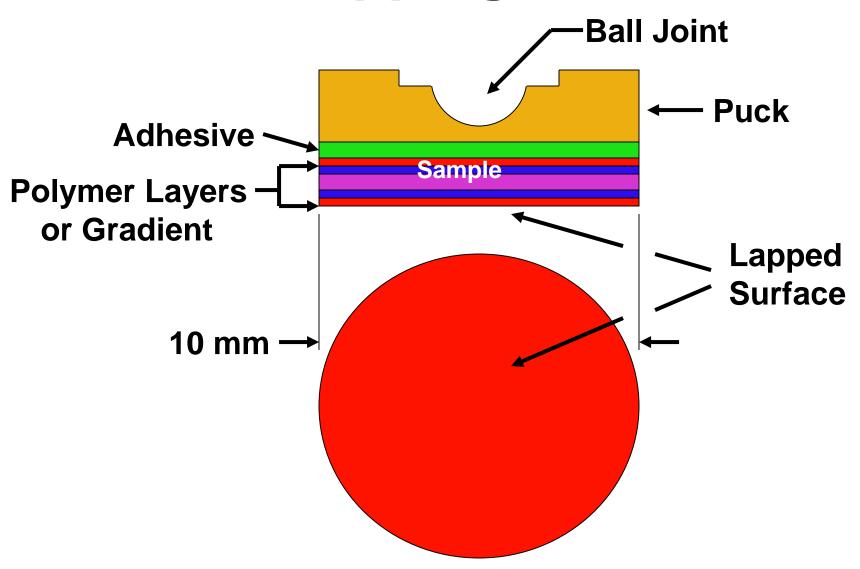


# MTEC MicroLapper and Thickness Gage

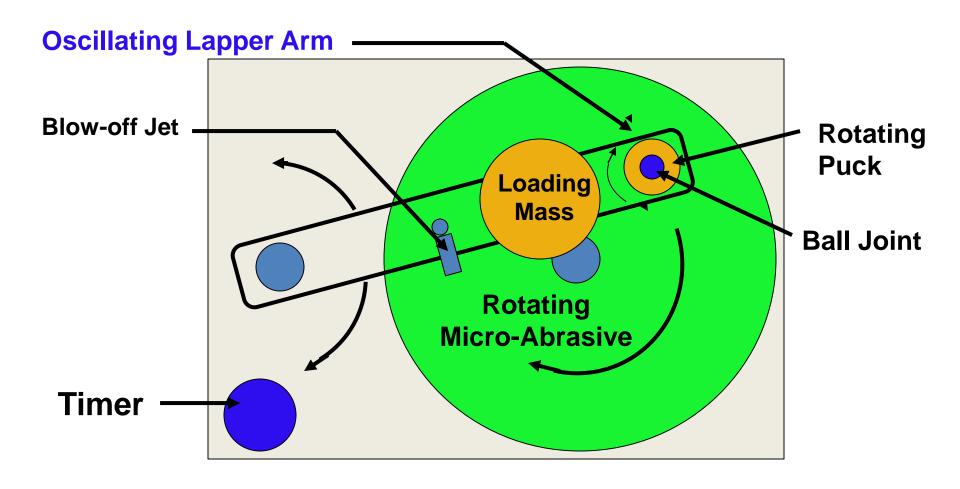




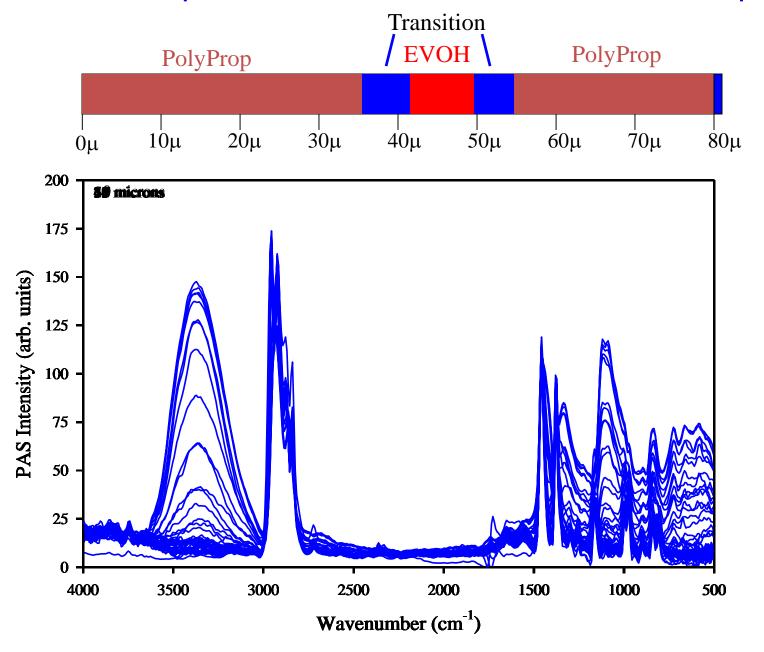
## **Lapping Puck**



### **Lapper Motion**



#### Successive Spectra Measured as a Function of Depth



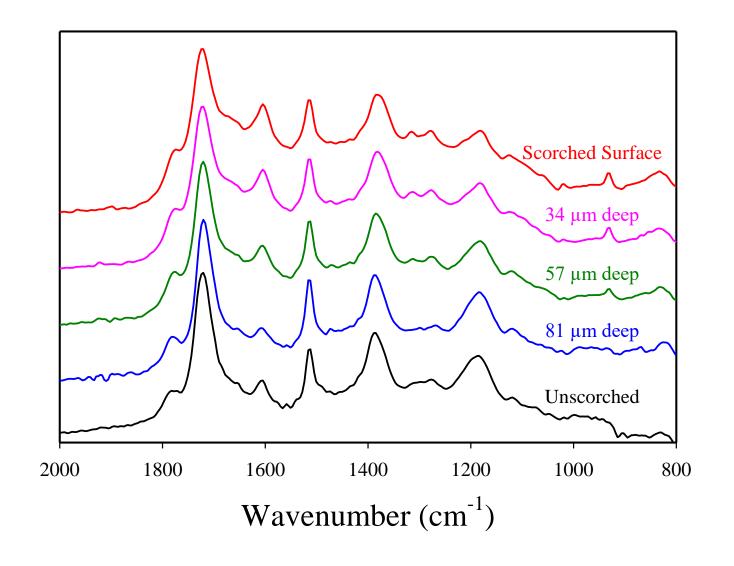
# PAS Analysis of Composite Scorching

Scorching occurs when jet exhaust strikes nearby aircraft (navy carrier decks).

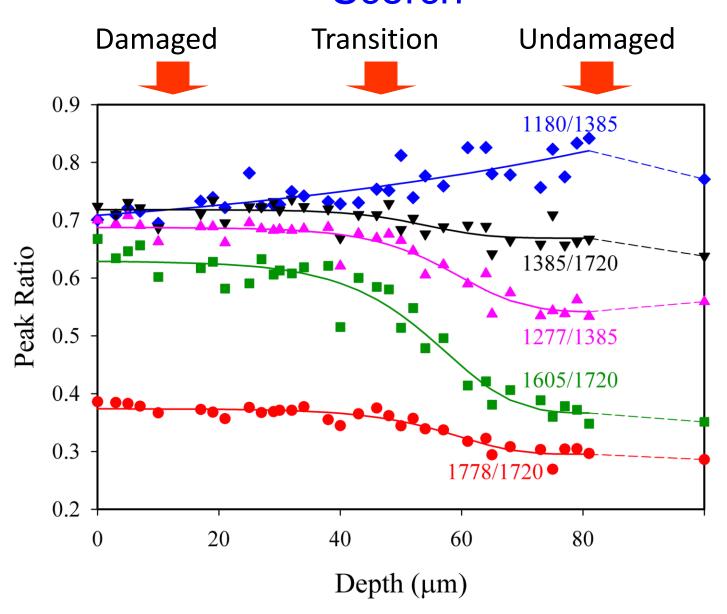
Carbon fiber/BMI panel scorched with air stream at 617 °C for 15 seconds. No visible change.

PA spectra taken as material removed by microlapping.

# PA Spectra Taken During Microlapping of Scorched Area



# Peak Height Ratios versus Depth into Scorch



# Additional Information Can Be Found in the MTEC Applications Library:

Microlap Depth Profiling of a Paper Coating

MicroLap Depth Profiling of Automobile Paint Weathering

Quantitative Depth Profiling Saturation-Equalized Photoacoustic Spectra