OMIC SUBTRACTIVE

OMP 413

GRINDING PROCESS SIGNAL MONITORING

Industries that frequently perform grinding processes often struggle to monitor the condition, health, and useful life of their grinding wheels.

OMIC R&D developed a real-time monitoring process to assess the health and performance of grinding wheels. By using sensor signals, OMIC R&D could monitor the surface condition of the grinding wheel throughout its useful life. The sensors tracked spindle power, acoustic emissions, and vibrations using accelerometers.

This research was conducted in a real-life industrial setting at Oregon Tool, focusing on a grinding process that involved high-volume and high-mix parts.

This work helps manufacturers maximize the utility of their grinding wheels, ensuring repeatable and reliable processes that result in high-quality parts at the lowest total cost.

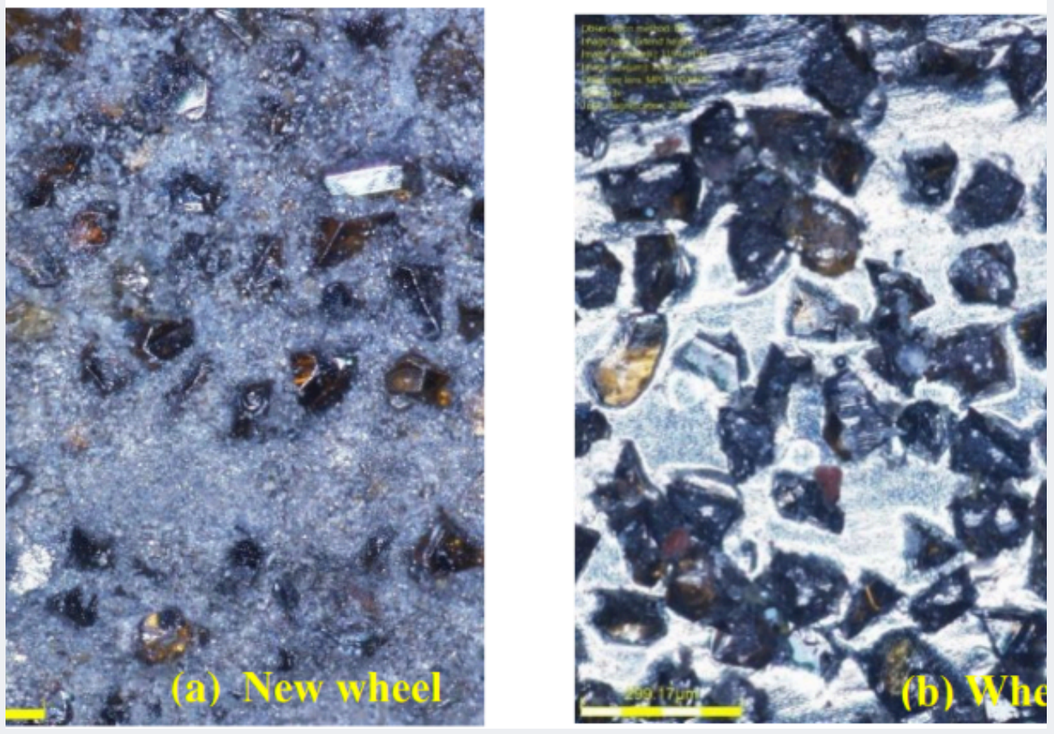

Fig 1 - Grinding Example, before and after.

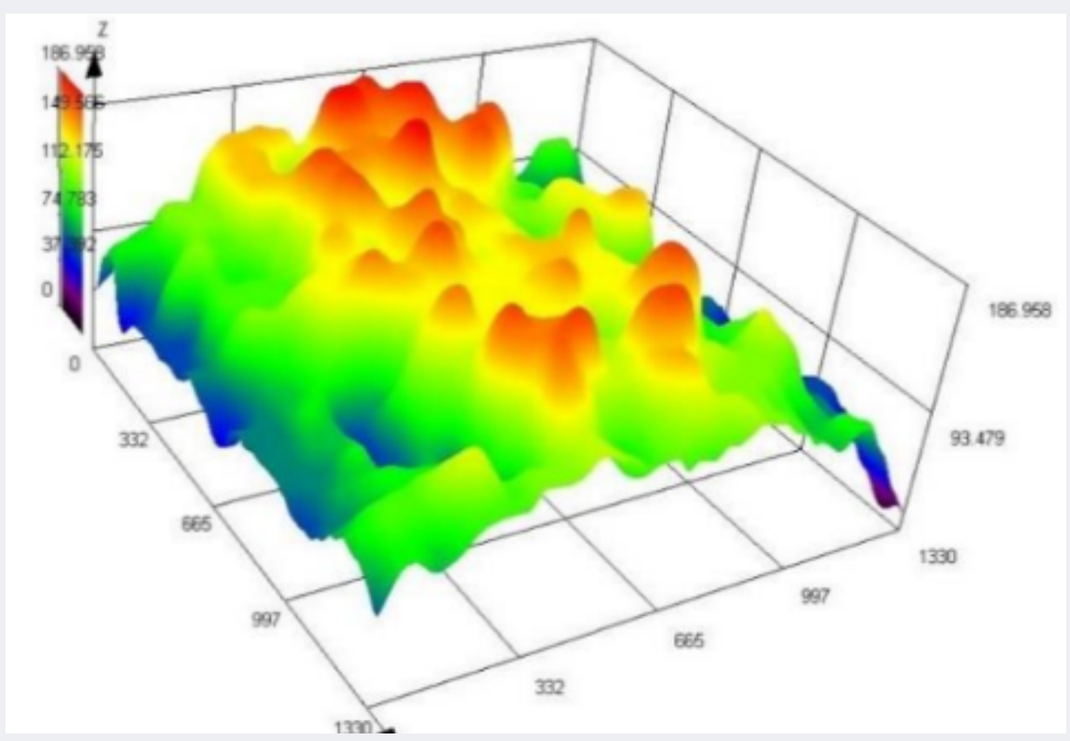

Fig 2 -Topography of a used wheel

Research was conducted primarily by Dr. Chien Wern of Portland State University.

Industry participants include:
Boeing
Oregon Tool