

Application in Automotive

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Fluid Circuits Components

As the automotive industry transforms with new technologies, timely, accurate, and quality production becomes increasingly critical to manufactures. Cleanliness requirements for certain components in the automotive industry is dramatically rising. For example, brake systems and fuel-injection systems need to be fitted with increasingly smaller diameters and they have to withstand increasingly higher pressures. Therefore, also a very minor particle contamination may lead to big problems (the reliability and life expectancy of that component).

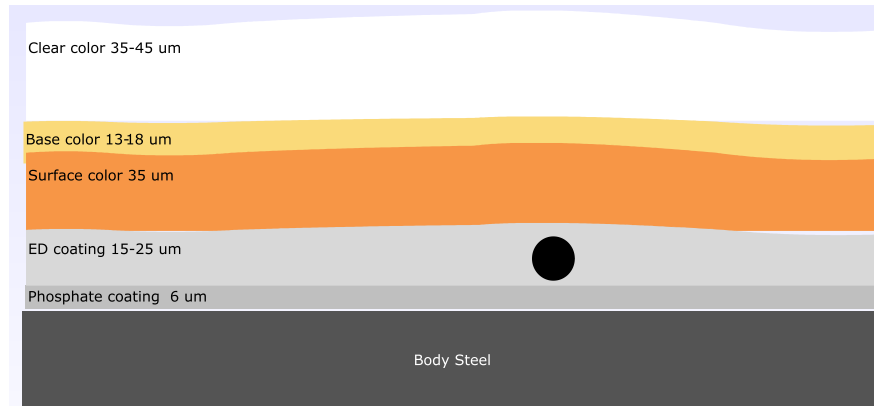
The international standard, ISO 16232 Road Vehicle - Cleanliness of Components of Fluid Circuits was developed for this area, describing methods which can be used to control the compliance with the cleanliness requirements. ISO 16232-9: Particle sizing and counting by automatic light extinction particle counter

Stamping

Particles on the sheet metal or on the die cause "pimples" in the panel that are difficult to see on the bare panel but show themselves more dramatically after paint. Particles as small as 30 micron are suspected to cause the "pimple" defect. Suspected causes of the "pimple" defect include particles on the die (possibly caused by insufficient cleaning or environmental contamination), or particles on the surface of the sheet metal.

Paint Booth

There are multiple layers in the painting process. E.D. coat, primer, paint layers, and clear coat. The 15micron particle defect grows with each paint coating, eventually ending in a visible defect on the surface of the vehicle.



ED powder seed



Paint seed



Dust seed



Yarn seed



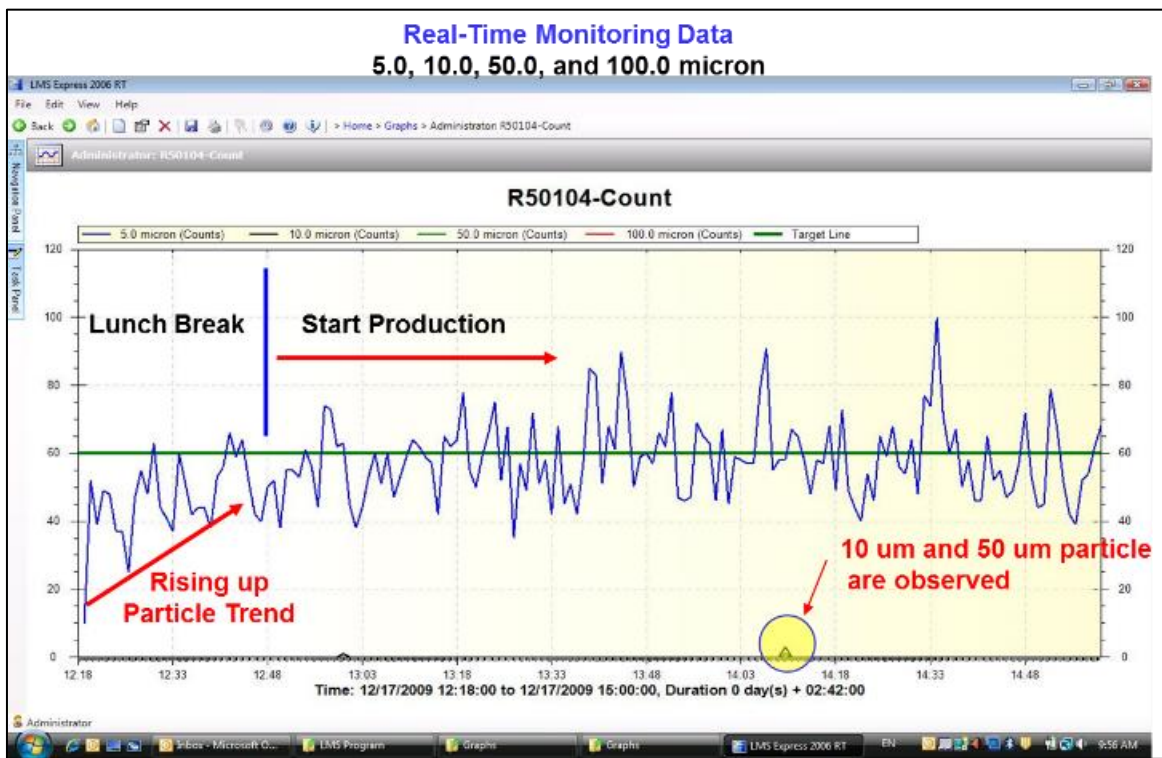
Oven seed

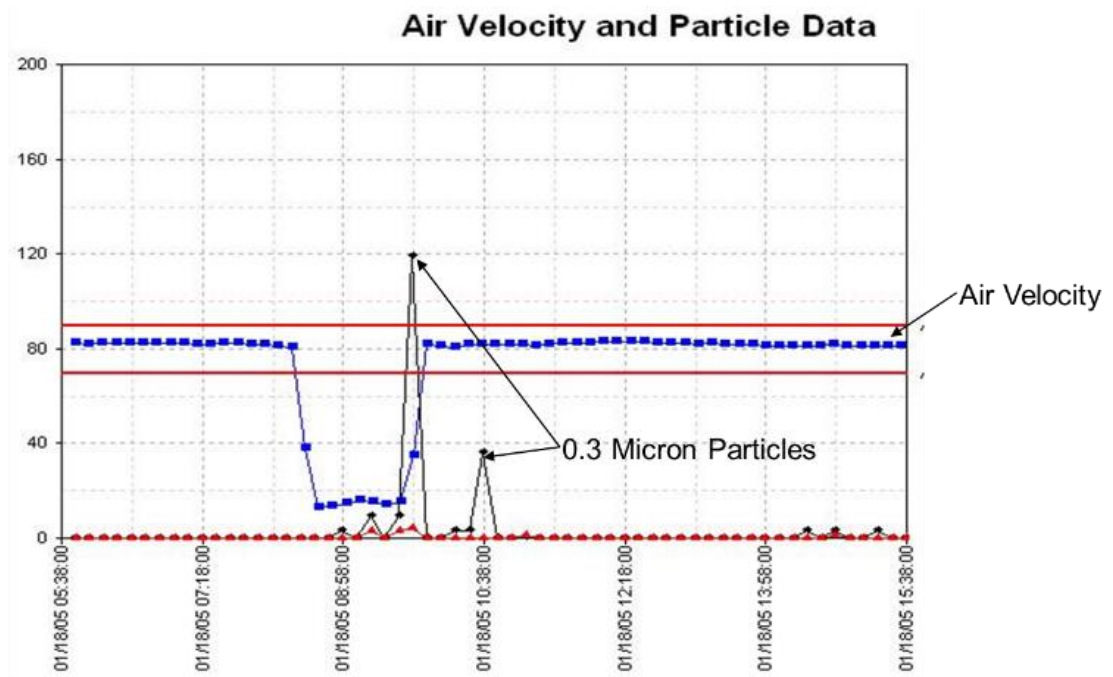
Lighthouse Worldwide Solutions offers a variety of contamination monitoring systems

- Particle on surface
- Particle in Compressed Dry Air
- Liquid Particle Counter
- Environment

Lighthouse Real Time monitoring system

Due to the rising innovation speed, the industry cannot afford to identify possible failures at a relatively late stage. With real time monitoring system, high Particle or shift in any parameters can be observed during the manufacture process. Thus process control and optimization could be achieved and results in better product quality, less rework and higher customer satisfaction.





A Change in air velocity inside of this tool had an effect on particle count concentration inside the tool.