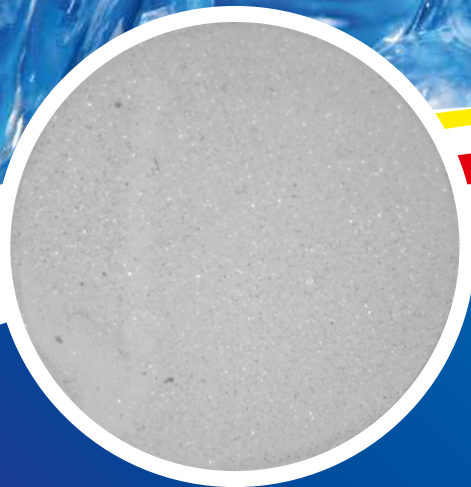




FPAS-M

Filter Particulate Analysis System



Microscopic Analysis of Filter Membranes
by Measurement of Particulate Contaminants
in cleaning of automotive components

Introduction

The FPAS-M image analysis based particulate counting System is being offered to fulfil the requirements of automotive industry for measurement of cleanliness levels of the manufactured components.

The presence of particles residue from the manufacturing and assembly process will

cause a substantial increase in wear rates of the system during initial run up and early life and may even cause catastrophic failures. Hence in order to achieve reliable performance of components & system, it is necessary to have control over the amount of particles introduced during the build phase.

The System

The consists of

- High resolution optics
- Precision engineered Stand
- High resolution microscopy camera
- Filter sample holder
- Latest high configuration computer
- Advanced proprietary software for particle counting & classification as per industry standards.

Methodology

The automotive component received after the manufacturing & cleaning process are taken to the lab where they are sprayed with a solvent fluid (IPA) using a high pressure spray gun.

The solvent fluid is collected in a pan and the same is passed through a membrane filter. The residual particles are collected on the filter.

The filter is dried in an oven. the dried filter is held in a special filter holder.

The entire filter surface is imaged by the high resolution camera and optics.

Particulate analysis software

The advanced particle analysis software detects, counts and measures all the particles present on the surface of the filter. The detected particles are automatically classified into metallic, non metallic and fiber types. Each type of particles are further divided into different size classes ranging from 100 to 1000 μ m & above

Methodology

Particles Size : $\leq 100\mu$

Time taken

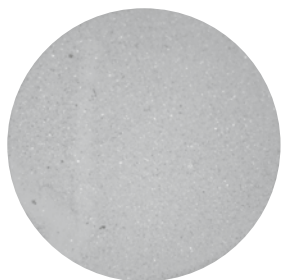
per filter : 3-4 minutes Approx

Filter Holder : For holding standard Dia 47 Filters

Computer : Computer with 19" monitor

Software : Advanced user friendly software for Particulate Analysis

Professional reporting, Compliance with international standards

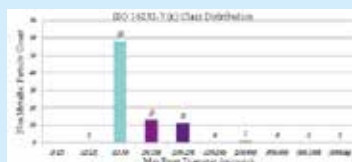


Sample No : XYZ	Date : 04.04.18
Sample Type : Filter Paper	Microscope : FPAS-M S.No.XXX
Manufacturer : ABC	Examiner : METAVIS

Analyzed Area (mm2)	1017.9
Total Filter Area (mm2)	1296

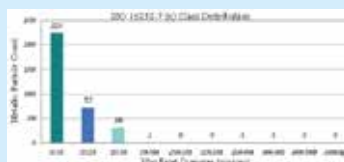
Non Metallic Particle Classes

Sl. No.	Feret Max Low (um)	Feret Max High (um)	Particle Count	Normalized count	ISO 16232-7 Code
1	100	150	883	883	F883
2	150	200	294	294	G294
3	200	400	163	163	H163
4	400	600	9	9	I19
5	600	1000	3	3	J3
6	Above 1000		0	0	K0
Total Particle Count			4694		



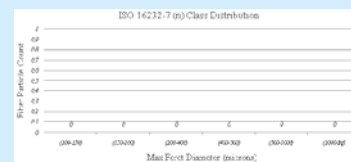
Metallic Particle Classes

Sl. No.	Feret Max Low (um)	Feret Max High (um)	Particle Count	Normalized count	ISO 16232-7 Code
1	100	150	200	200	F200
2	150	200	85	85	G85
3	200	400	12	12	H12
4	400	600	0	54	I0
5	600	1000	0	5	J0
6	Above 1000		0	0	K0
Total Particle Count			837		



Fiber Particle Classes

Sl. No.	Feret Max Low (um)	Feret Max High (um)	Particle Count
1	100	150	0
2	150	200	0
3	200	400	0
4	400	600	0
5	600	1000	0
6	1000		1
Total Particle Count			1



Parameters of largest particles

Sl. No.	Feret Max (um)	Area (um ²)	Perimeter um	ECD (um)	Particle Type
1	109.9	3,908	337	70.5	Non Metallic
2	83.9	3,348	280	65.3	Non Metallic
3	49.6	671	132	29.2	Non Metallic
4	49.6	849	175	32.9	Non Metallic
5	49.6	622	151	28.1	Non Metallic
6	49.6	542	159	26.3	Non Metallic
7	48.2	726	137	30.4	Non Metallic
8	44.4	597	143	27.6	Non Metallic
9	44.4	523	115	25.8	Non Metallic
10	42.1	689	139	29.6	Non Metallic

Supply Of Sample Preparation Kit

(Millipore Contamination Analysis Kit)

VACUUM / PRESSURE PUMP

This Oil free pump is a portable AC powered source of vacuum for filtration of liquids.



HYDROSOL SST FILTER HOLDER, 47MM

Used for vacuum filtering of liquids. Consisting of Funnel, base and support screen which are made of SS, anodized locking ring, Teflon gaskets, grounding set and silicon stopper.



DISPENSING PRESSURE VESSEL

Dispensing pressure vessel is used to hold solvent fluids. It is connected to vacuum pressure pump which creates pressure to spray solvent fluids through the filter jet solvent dispenser.



VACUUM FILTERING FLASK, 1L

Used for vacuum filtration with filter holder. Side arm connects to vacuum source with vacuum hose. Also used as water trap to prevent (liquid/mist) entering the pump

FILTER JET SOLVENT DISPENSER

Used to spray concentrated jet of ultra cleansolvent on surfaces of components for cleaning.



PETRI SLIDES

Recommended for storage of filter samples comes in packets of 100 above.



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