



SURFACE VEHICLE RECOMMENDED PRACTICE

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Glossary of Terms Related to Fluid Filters and Filter Testing

RATIONALE

The Filter Test Methods Standards Committee has completed a Five-Year Review of SAE J1124 and made revisions to terms and references to reflect current industry use.

1. SCOPE

Over the years during which fluid filtration systems have been developing, many terms have come into use for descriptions of characteristics of filter media, filter assemblies, test methods, and test materials. Inevitably, some terms have been applied loosely so that the same term may have different meaning to different people, or in different frames of reference.

Recognizing the need for clearly defined terms, which can have only one meaning for all persons in all circumstances, so that documents dealing with standard methods of evaluation of filters will have only one interpretation, the Filter Test Methods Subcommittee of the SAE Engine Committee has compiled this Glossary of related terms. No attempt has been made to produce an all-inclusive document, containing definitions of all terms related to all types of fluid filters. Instead, the Glossary is confined to the terms likely to be encountered in relation to filters for lubricating oil and fuels. At the same time, we have recognized that some terms are common to all types of fluid filters and have been careful to avoid conflict with the definitions published by other standardizing groups. If not identical, the definitions of these terms are at least worded to convey an identical meaning, hopefully in fewer, simpler, or more precise words.

We hope that this effort will be effective in helping to eliminate the ambiguities which have resulted from imprecise use of terminology and filtration.

This Glossary is referenced in the SAE filter test methods documents. Terms used in those documents are intended to have the definitions shown by this Glossary, and no other.

As new terms and their definitions become associated with the science of filtration and are relevant to the documents prepared by this subcommittee, revisions to the Glossary will be made, either by issuance of addenda or by revision and republication of the entire document.

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2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 Other Publications

Allen, T. (1968). *Particle size measurement*. Chapman and Hall.

3. DEFINITIONS

3.1 ANTI-DRAINBACK VALVE

A check valve used in a filter housing in some spin-on filters to prevent oil drainage from the filter during and after engine shutdown.

3.2 FILTER BASE OR FILTER HEAD

The foundation or support for the filter which may also contain one or more ports and a by-pass valve.

3.3 BY-PASS

An alternate flow path around the filter element. Flow of fluid through the by-pass is usually blocked by a valve until a predetermined differential pressure across the element is reached.

3.4 CLEANABLE ELEMENT

A filter element, which when clogged, can be restored by a suitable cleaning process to an acceptable percentage of its original flow/pressure differential characteristics.

3.5 CLOGGING INDICATOR

An indicator which is activated when a predetermined pressure differential across the filter is reached.

3.6 COALESCER

Filter unit whose primary function is to cause finely dispersed droplets in an emulsion to form into larger droplets.

3.7 COMBINATION MEDIUM

A filter medium composed of two or more types, grades, or arrangements of filter media to provide properties which are not available in a single filter medium.

3.8 CREST

The outer fold of a pleat.

3.9 DEPTH MEDIUM

A filter medium which primarily separates and retains contaminant within tortuous passages within the body of the medium.

3.10 DIFFERENTIAL PRESSURE INDICATOR

A device which indicates continuously during operation the differential pressure across a filter element.

3.11 DISPOSABLE ELEMENT

A filter element which is discarded and replaced at the end of its service life.

3.12 DISPOSABLE FILTER

A filter consisting of a filter element encased in a housing which is discarded and replaced in its entirety at the end of the service life of the element.

3.13 DUAL POROSITY ELEMENT

An element which contains two media of different porosity in parallel.

3.14 DUAL POROSITY FILTER

A filter which contains two media of different porosity offering parallel flow paths to the fluid.

3.15 EDGE MEDIUM

A filter medium whose passages are formed by the adjacent surfaces of stacked discs, edge wound ribbon, or single layer filaments.

3.16 EFFECTIVE AREA

The area of a filter medium through which fluid flows.

3.17 ETCHED MEDIUM

A filter medium having passages produced by chemical or electrolytic removal of unwanted material.

3.18 FILTER

A device having a porous medium, whose primary function is the separation and retention of particulate contaminants from a fluid. The major filter components are the housing and the element.

3.19 FILTER DRAIN

A port located near the lowest extremity of a filter through which fluid may be removed.

3.20 FILTER ELEMENT

A subassembly of a filter which contains the filter medium or media.

3.21 FILTER HOUSING

A ported enclosure which contains the filter element and directs fluid flow through it.

3.22 FILTER MEDIUM OR MEDIA

The porous material which performs the process of particle separation and retention.

3.23 FILTER PAPER

A porous paper, matted, or felted sheet of fibers (usually vegetable, but sometimes mineral, animal, or synthetic).

3.24 FINAL FILTER

The last stage of a multistage filter system.

3.25 FULL FLOW FILTER

A filter which is designed to filter all of the system fluid flow.

3.26 INSIDE-OUT FLOW ELEMENT

A cylindrical filter element designed for flow radially outward from and perpendicular to its longitudinal center.

3.27 MULTISTAGE FILTER

A filter system with two or more filters in series.

3.28 NONWOVEN MEDIUM

A filter medium composed of a mat of fibers. Filter paper is one type of nonwoven medium.

3.29 OPEN AREA

The total pore area of a filter medium, often expressed as a percent of total area of filter medium.

3.30 OUTSIDE-IN FLOW ELEMENT

A filter element designed for flow radially inward and perpendicular to its longitudinal center.

3.31 PARTIAL FLOW FILTER

A filter which filters only a part of the total system fluid.

3.32 PLEATS

A series of folds in the filter medium used to increase effective filter area within a given space.

3.33 PORE SIZE DISTRIBUTION

The ratio of the number of pores of given sizes to the total number of pores, per unit of area.

3.34 POROSITY (VOID FRACTION)

The ratio of pore volume to total volume of a filter medium.

3.35 PRIMARY FILTER

The first stage of a multistage filter system.

3.36 ROOT

The inner fold of a pleat.

3.37 SECONDARY FILTER

The second stage of a multistage filter system.

3.38 SINTERED MEDIUM

A metallic or nonmetallic filter medium composed of particles of the medium processed to cause diffusion bonds at all contacting points.