

Hydraulic Fluid Analysis Kit

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Contamination Control

Hydraulic fluid used in governor applications does an excellent job of standing up to high loads and high temperatures while providing good lubrication. These abilities, however, are compromised when the fluid retains an excess of solid contamination. It is estimated that when hydraulic system problems or failures are encountered, 70–80% of the time the failure is due to poor hydraulic fluid condition. Thus, the proper care of the hydraulic fluid has a profound effect on governor performance and component life.

Quantifying Fluid Cleanliness

An initial approach to contamination control is determining whether the hydraulic system currently meets standard target cleanliness levels. Woodward has established the following minimum recommended cleanliness levels based on system pressure:

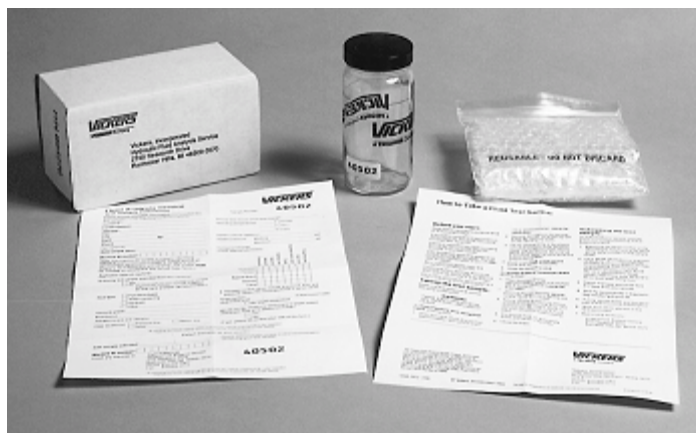
System Pressure psi (bar)	Cleanliness Code (2/5/15 μm)
< 400 (28)	20/18/15
400–2000 (28–138)	18/16/13

This method of classification uses the number and size (in μm) of solid particulates in a 1 mL sample of fluid. The three range cleanliness code quantifies particulates greater than 2 μm , 5 μm , and 15 μm .
(1 μm = 10⁻⁶ m = 0.000039 inch)

Range Code	Particle Count / mL	Range Code	Particle Count / mL
13	40–80	18	1300–2500
14	80–160	19	2500–5000
15	160–320	20	5000–10 000
16	320–640	21	10 000–20 000
17	640–1300	22	20 000–40 000

Test Sample Kit

Woodward uses the Vickers Hydraulic Fluid Analysis Service to test samples and obtain quantitative results of fluid cleanliness. Follow the instructions included with the test kit in order to properly submit the sample and receive test results. The site name must be included on the 'Test Sample Data Form'. Basic fluid and hydraulic system information is required to complete the data form.



Vickers Hydraulic Fluid Analysis Kit

Woodward Support

If more information is desired after receiving the test results, feel free to contact the Technical Assistance group at Woodward/Colorado (1-970-482-5811). Be prepared to send or fax a copy of the Test Sample Data Form and the test results.

In the event that the hydraulic system does not meet established target cleanliness levels, the Technical Assistance group at Woodward can offer suggestions on how to achieve a balanced level.

We appreciate your comments about the content of our publications.

Send comments to: icinfo@woodward.com

Please reference publication 55104.



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