

Fluid Rx Instant Lubricant Diagnostics Test Pads Versus Copper Test Strips

Fluid Rx Instant Lubricant Diagnostics is a patented radial planner chromatographic DOT-3 & DOT-4 Brake Fluid test and analysis tool. No tools or special knowledge needed. It provides a comprehensive evaluation of the fluids condition including additive package, dispersant properties and total particulate contamination.

Simply place one drop of brake fluid on the test pad. As the fluid percolates through the unique Fluid Rx filter paper, bands and/or zones of different colors, densities, wear metals and debris form a chromatogram. Now compare to the results to the Fluid Rx ISO Laboratory Analysis Chart.

NEW / GOOD: Phase 1: Uniform in appearance / color
CHANGE: Phase 2: Center of spot is darker
BAD: Phase 3: Circular zone or band of debris

- Phase 1: When the specimen is uniform in hue, the additive package is good and any particulate matter present is being evenly distributed.
- Phase 2: The center of the specimen is darker indicating particulate contamination; the additive package is depleted and no longer able to evenly disperse the particulates.
- Phase 3: The circular ring of debris indicates a high concentration of particulates in the same size range and shows the additive package is unable to perform its intended purpose.

Brake line tubing is usually made of wound thin strips of steel brazed together with a copper-zinc alloy. As the tubing is used, the copper and zinc are the first metals to appear in the fluid. As the additive package is depleted the fluid becomes corrosive eating away at the steel. Through electrolysis the copper in the fluid then plates to the metal surfaces. Accordingly we see high concentrations of copper in new-good fluid and lower concentrations of copper in depleted brake fluid. Therefore the copper test strip results are often erroneous.

Copper test strips compared to Fluid Rx Test Pads are:

- A) Often erroneous in test results
- B) Have a short time window in which to accurately view the results
- C) Subject to deciphering color which can be misconstrued
- D) The copper test method is more expensive
- E) Copper test strips have a short shelf life

Fluid Rx Instant Lubricant Diagnostics provides a simple and accurate diagnostic test that the customer can understand. The test results can be stored for future reference. The diagnostic kits have no shelf life limits and are a fraction of the cost of the copper test.

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The following documentation supports these claims and are available upon request.

*NISTIR 6233: (National Hwy Traffic Safety Admin. – US Dept. of Transportation)
Preliminary Investigations Into Corrosion in Anti-Lock Braking Systems*

*Herguth Laboratories Research Paper:
Evaluation of Field Test Methods for DOT- 3 & DOT-4 Brake Fluids*

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Herguth Laboratories support documentation:

Please see the attached (www.fluidrx.biz) Herguth Laboratories Research Paper: Evaluation of Field Test Methods for DOT-3 & DOT-4 Brake Fluids.

Please go to page 11, the 23 sample fluids came from AMRA/MAP (Automotive Maintenance & Repair Association / Motorist Assurance Program) Taskforce members:

The "COPPER" column samples highlighted in yellow depict fluids that were failed by the copper test strip. The "Lab No." column samples highlighted in red depict fluids that were failed by the Fluid Rx patch test. Please note samples are listed by mileage, low to high.

As we discussed, copper content tends to be high in lower mileage fluids and diminishes in higher mileage fluids as does the additive package (last 4 columns).

Now please go to pages 9 & 10, Fluid Rx patch test results.

- Good (Phase 1): The specimen is uniform in hue, the additive package is good and any particulate matter present is being evenly distributed.
- Change (Phase 2): The center of the specimen is darker indicating particulate contamination; the additive package is depleted and no longer able to evenly disperse the particulates.
- Bad (Phase 3): The circular ring of debris indicates a high concentration of particulates in the same size range and shows the additive package is unable to perform its intended purpose.

Please view the Laboratory results on Page 11. The copper test failed the first 9 low mileage fluids; only 3 were bad. Now please go to page 9, Lab #774692 and view its chromatogram. This sample easily passed the copper strip test (50 ppm) but its additive package is depleted and it has high concentrations of particulate contamination.

NOTE: Although both test failed about the same number of fluids the Copper Test was Erroneous more than 60% OF THE TIME.

Our radial planer chromatographic testing & diagnostics program, "Fluid Rx Instant Lubricant Diagnostics" provides a simple to use and comprehensive diagnostics of the fluids condition; 1. additive package 2. dispensing properties 3. particulate contamination, all of which are accurately correlated to Laboratory analysis.

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