



Suspension Hydraulic Damper (Shock and Strut) Contamination Measurement and Threshold Definition

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. The purpose of this document is to outline the method by which contamination is measured, and how an allowable threshold will be set, for contamination in dampers (shocks and struts) to avoid degradation or loss of damper function. This procedure applies only to TWIN TUBE applications.

1.2 Applicability. For all hydraulic suspension dampers to ensure that manufacturing (production and prototype) process and materials will not result in contaminant inclusion in the damper that could adversely affect any target function.

1.3 Remarks. Not applicable.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW14243

2.3 Additional References. None.

3 Resources

3.1 Facilities.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment. The following is a list of test equipment necessary to perform the procedures. Figure 1 shows a typical filter system setup.

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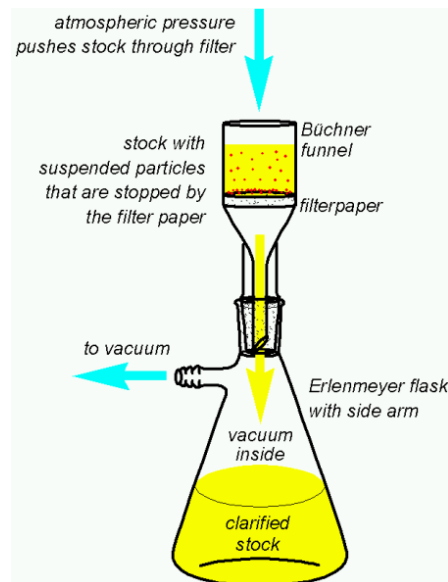


Figure 1: Typical Filter System Setup

3.2.1 Contamination Analysis Kit.

3.2.1.1 Tempered glass or stainless steel filter holder with stainless steel screen (i.e., Millipore XX10-047 or equivalent Buchner Funnel with filter holder).

3.2.1.2 Filtering flask, minimum size of 1 L. Tempered glass Erlenmeyer flask (i.e., Millipore XX10-047-05 or equivalent).

3.2.1.3 Stainless Steel forceps for handling filter paper.

3.2.1.4 Solvent filtering dispenser.

3.2.1.5 Vacuum pressure pump.

3.2.1.6 Watch glass or petri dishes for sample filter handling and storage.

3.2.1.7 Small laboratory oven.

3.2.1.8 Laboratory analytical balance (0.01 mg minimum resolution) for contaminant measurement.

3.2.1.9 Laboratory scale for damper mass measurement (0.1 g minimum resolution).

3.2.1.10 Shock absorber test machine capable of running required content found in GMW14243.

3.2.1.11 Wire mesh filter screen with holder. Not applicable if using Polyamide (PA) or Polyethylene Terephthalate (PET) mesh filters.

3.2.1.12 Ten (10) μ filter paper or PA/PET mesh filter equivalent.

3.2.1.13 Washing solution/solvent.

3.2.1.14 Collection containers, two (2) glass or stainless steel.

3.2.1.15 Tube cutter.

3.2.1.16 Appropriate disassembly tools.

3.2.1.17 Workbench with vise.

3.2.1.18 Torque wrench with newton meter (Nm) graduations and hex standard socket to remove piston nut from rod assembly.

3.2.1.19 Mallet or hammer.

3.2.1.20 Microscope.

3.2.1.21 Digital camera.

3.3 Test Vehicle/Test Piece. Not applicable.

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