



Internal Cleanliness of Non-metallic Fuel Tanks

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. This standard is used to determine the internal cleanliness of non-metallic fuel tanks. This includes measuring the amount of solid and soluble contaminants present in the tank.

1.2 Applicability. Fuel tanks.

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.

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.

3.2.1 Duct tape or other heavy gage tape.

3.2.2 Vacuum tube or other suction device capable of drawing water out of fuel tank.

3.2.3 Graduated cylinder 500 ml.

3.2.4 Filter paper 500 µm.

3.2.5 Glass beaker or pan with 500 ml capacity.

3.2.6 Ring stand.

3.2.7 Glass funnel.

3.2.8 Scale or balance with 0.01 g accuracy.

3.2.9 Heat source such as Bunsen burner or hot plate.

3.2.10 pH meter or pH paper.

3.2.11 Air-circulating oven.

3.3 Test Vehicle/Test Piece. Production fuel tank.

3.4 Test Time. Not applicable.

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Not applicable.

4 Procedure

4.1 Preparation. Not applicable.

4.2 Conditions.

4.2.1 Environmental Conditions. Not applicable.

4.2.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

4.3 Instructions.

4.3.1 Pour 500 ml of distilled water into the fuel tank, seal all openings with tape and agitate by hand to wet the entire inner surface.

4.3.2 Draw the water out of the tank with the suction device and return it to the 500 ml graduate cylinder. Measure volume to be certain that 95% of the water has been withdrawn from the tank.

4.3.3 Read and record the pH of the captured solution.

4.3.4 Weigh a piece of filter paper and record the weight.

4.3.5 Weigh a glass breaker or pan and record the weight.

4.3.6 Pour the water from the graduated cylinder through the pre-weighed filter paper and collect in the pre-weighed glass beaker or pan. Rinse the graduated cylinder with distilled water and pour through the filter paper. Rinse the filter paper with fresh distilled water.

4.3.7 Dry the filter paper in an oven, let cool to room temperature and reweigh the filter paper. The difference between this weight and the initial weight is recorded as the weight of solids in the tank.

4.3.8 Take the beaker of filtered water and boil until all the water has evaporated. Do not overdry. Cool to room temperature and reweigh the beaker. The difference between this weight and the original weight of the beaker is the weight of the solubles in the tank.

5 Data

5.1 Calculations.

5.1.1 Calculate the weight of solids in the tank.

$W_t \text{ paper final} - W_t \text{ paper initial} = W_t \text{ solids.}$

5.1.2 Calculate the weight of solubles in tank.

$W_t \text{ beaker final} - W_t \text{ beaker initial} = W_t \text{ soluble.}$

5.2 Interpretation of Results. Not applicable.

5.3 Test Documentation.

5.3.1 Report results in g (grams).

5.3.2 Report pH of captured solution.

6 Safety

This Engineering Standard may involve safety requirements for hazardous materials, the method of operations and equipment. This standard does not propose to address all the safety issues associated with its use. It is the responsibility of the user of this standard to ensure compliance with all appropriate safety and health practices. This would include any specific training that may be required. The safety and health standards include site specific rules and procedures, company rules and procedures, and Government Standards. Contact shall be made with the appropriate site Safety and Health personnel for further direction and guidance in these matters.

7 Notes

7.1 Glossary. Not applicable.

7.2 Acronyms, Abbreviations, and Symbols. Not applicable.