



In systems prone to water contamination, it is imperative that the contaminated oil be able to shed water, or demulsify, in order to maintain lubricity, viscosity and prevent the formation of acids.

Contrary to the cliché that “Oil and water don’t mix,” most oils, at some level of water contamination, will mix, or emulsify. The [Water Separability Characteristics Test, ASTM D-1401](#), is a guide for determining the demulsibility of both new and used oils. 40mL of the test oil and 40mL of distilled water are placed in a heated bath and agitated. The test concludes when the water and oil separate into their respective phases.

If the emulsion is still present after 30 minutes, the test is concluded and the volumes of oil, water, and emulsion are reported. If, after 30 minutes, more than 3mL of emulsion is present, the oil is considered to have failed the test. It would be recommended that the oil be changed and the root cause of the oil’s failure to pass determined as an emulsified oil will lead to lubrication starvation, sludge formation, corrosive wear and, eventually, failure.