

Water Resistance

Water resistance tests measure the ability of a grease to resist degradation by the action of water.

SKF determines the water resistance of a grease in accordance with DIN 51807/1. A glass strip is coated with the candidate grease and immersed in a water circulating bath for three hours at a specified test temperature (90 °C in the standard procedure). The change in the grease is evaluated visually and reported as a value between 0 (no change) and to 3 (major change). This visual test gives an idea if a grease is likely to be severely adversely affected in the presence of water. The grease water washout test (ASTM D 1264) uses a small shielded test bearing which is grease filled. A water spray is directed onto the shield while the bearing is rotated. The loss of lubricant is measured after the test. This test is considered more severe than the DIN 51807.

The Water spray off test (ASTM D4049) uses a spray of water directly onto a thin film of grease. The resistance of the grease to be sprayed off the test metal plate is a measure of both the water resistance and the ability of the grease to resist the physical spraying off (tackiness or sticky additives help a lot in this test). The test has a great relevance to chassis lubrication or other lubrication conditions where water sprays may be employed (i.e. cleaning operations), it is a very severe test.

The water resistance of a grease can also be determined by making use of the wet roll stability test.

In this modified ASTM D 1831 test the grease is subjected to rolling in the presence of water e.g. 10 % water is added to the grease. The change in penetration of the grease is reported. Versions of this test have been developed using the extended penetration tests and other grease test apparatus, though none have reached the stage of a national standard at this time.

Note: water resistance tests differ considerably, only compare results where the same test method has been used.

Test for water resistance of greases

