

Energy-Cured Coatings – Acetone Rub Test

Scope	<ul style="list-style-type: none"> - Qualitative test used to assess the relative condition of an Energy-Cured coating film by testing the chemical resistance by exposure to Acetone using controlled conditions/method. - This testing type/method is also referenced under ASTM 5402-15 ‘Standard Practice for Assessing the Solvent Resistance of Organic Coatings Using Solvent Rubs’.
Test Instruments	<ul style="list-style-type: none"> - Acetone - Cotton Swabs (Q-Tips) - PPE as noted in the Acetone SDS – solvent-resist gloves, respirator, eye protection
Test Limitations	<ul style="list-style-type: none"> - Acetone testing is qualitative yet subjective as the testing process and observed results can vary by individual. - This testing method is best used for comparative purposes – interpretation of results is subjective. - Variables that influence the testing results: <ul style="list-style-type: none"> • Coating film thickness • Degree of film cure – cross-link density • Coating film quality/homogeneity – consistency of the film • Coating film defects – voids, breaks, pinholes, ruptures • Coating formulation – intended characteristics/attributes • Anything that is beneath the coating film – ink, substrate, fountain solution, etc.
Test Procedure	<ol style="list-style-type: none"> 1) Obtain a clean and dry coated sample and determine the area to be tested. 2) Determine the number of double-rubs (one back-forth motion) to conduct during the initial test – if there is no existing quality specification for testing, consult INXCAC with the coating product number to be tested for a recommendation. 3) Wearing PPE, dip the end of the cotton swab into the Acetone solution and immediately rub the coating surface using a firm stroke in a back-forth (one double-rub) motion at a consistent pace for a length of 3” for the pre-determined number of double-rubs – determine a consistent method of conducting the test that is repeatable for each test. 4) Examine the coating film for the effects of the testing: <ul style="list-style-type: none"> □ If the coating film has been removed down to the substrate, re-conduct the test in a new area of the coated sample using a lower number of double-rubs. □ If the coating film has not been removed down to the substrate, re-conduct the test in a new area of the coated sample using a higher number of double-rubs. 5) Repeat the testing process until the number of double-rubs just removes the coating film down to the substrate surface – this is considered the Acetone resistance of the coated sample. <ul style="list-style-type: none"> - If there is an existing quality specification for a prescribed number of rubs, conduct the test using the prescribed number of rubs and visually assess the condition of the coating film and compare to existing pass/fail standards.