



A Simple Procedure To Improve The Precision Of Micrometers

Micrometers are generally reliable and do not require a lot of maintenance but it is most important that the measuring anvils (or contact faces) are kept clean. Specks of dust, paper fibers or sticky residues can accumulate on the anvil surfaces after repeated contact with specimens. These accumulations may not affect readings at first because they tend to bed into the next specimen without noticeably adding to the measured thickness. They can, however, rapidly build up to a depth that will add falsely to the measured thickness.

More important is that even minute specks of dust or debris will affect the micrometer zero setting considerably. A digital micrometer with a resolution of one micron can indicate a positive zero offset of up to 5 microns after just one series of measurements. Operators should resist the temptation to reset the micrometer zero control as a first action. Readings will be affected if the zero control is adjusted when there is debris between the measuring faces. First clean the measuring faces by drawing a piece of paper between the pressure foot and lower anvil. Then check zero again. You will probably find the loose dust or fibers have been removed and adjustment of the zero control is unnecessary.

Periodically wipe the upper and lower contacts with a lint free material moistened with isopropyl alcohol to remove any tacky residues that may be building up.

Another tip which will improve the precision of a micrometer when testing thickness of plastic films: consider reducing the diameter of the upper anvil/pressure foot to 5 mm (0.2 inch). Having a smaller diameter pressure foot will reduce the measurement error due to particulate or debris building up between the pressure foot and lower anvil. See illustrations below.



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