

Q. Dear Dr. Galv: *Is there any easy way to check the sidewall thickness without pumping all the zinc out of a kettle?*

A. Years ago some plants used to put one of their maintenance men in a specially designed asbestos SCUBA suit and then submerge them into the molten zinc with a thickness gauge. This practice was discontinued when asbestos was found to be hazardous. Although the usefulness of this method was somewhat questionable, it did help maintain discipline within the department.

Today, many galvanizers use a steel rod (1/4 to 3/8" diameter with an L-shaped foot at the bottom) to probe the kettle sidewalls. This technique is still effective in locating gross defects in the kettle walls (e.g. wash line, pits, etc.). Unfortunately, this method is not capable of detecting gradual erosion of the sidewall. If a galvanizing kettle and furnace have been designed and maintained properly, then the loss of steel from the sidewall is gradual and quite uniform. Probing with a rod will not detect this type of thinning. This can only be determined by direct measurement: pump out the zinc, let the kettle cool, and then measure the wall thickness with an ultrasonic tester (UT). The only future hope for a higher tech method was evaluated by a galvanizer several years ago using a high temperature transducer. The transducer is inserted on a pole through the access ports on the furnace; the kettle wall thickness is then measured from the furnace side, not the molten zinc side. Unfortunately, this method needs a lot more development, so don't expect to see it in the immediate future.