

## **Measurement of thickness of sprayed metal coatings on steel**

by

**K. Chandler, B.Sc., A.R.S.M.**

and

**R. E. Mansford, A.I.M.**

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**Mr R. M. C. Logan** (Finishing Manager, Metal Containers Ltd) wrote that the assessment of instruments for measuring non-magnetic layers on steel had been made many times before. For example, van der Hoeven studied measurement of paint layers and described his work at the F.A.T.I.P.E.C. Conference in 1953. More recently, the American Hot Dip Galvanisers Association published results of testing five different instruments in the same way as Chandler and Mansford. Even the influence of the state of the steel surface on results was observed by Kronsbec in 1952. However, it was found necessary to pursue the subject more deeply when Ir Stap of his Company's Amsterdam Laboratory discovered that there was a relationship between the degree of roughness and the Elcometer reading and in fact roughness could be measured by Elcometer using a smooth steel surface first to zero the instrument. This gave rise to a question not mentioned in the Paper. When the Authors were measuring layer thickness on grit blasted surface, what did they regard as zero: the top of the peaks, the valleys, or halfway? These remarks also emphasized the point made by the Authors that a zero should be taken at an agreed point before metal spraying.

**The Authors**, in reply, wrote that although the instruments investigated were widely used for assessing the thickness of other non-magnetic layers on steel, the measurement of sprayed metal coatings was rendered more difficult by the fact that the surface of the coating, as well as the surface of the grit blasted substrate, was rough. The writers agreed that the magnetic instruments were markedly affected by the degree of roughness produced by the grit blasting and they pointed out (§ 48) that where the roughness varied greatly from that usually produced on the type of work under examination, e.g. in deeply pitted steel, special precautions were necessary to reduce the error in calibration.

67. The calibrations on grit-blasted surface, the results of which were shown in Table 5, were made by adjusting the instruments to read 5 mil on a 5 mil shim in close contact with the peaks of the grit blasted surface. The measurements of the sprayed metal coatings therefore referred to the minimum thickness of metal above the peaks of the grit blasting. As Table 5 showed, the method gave reasonable agreement with the calculated mean thickness as determined by the weight of sprayed metal applied.