

PAPERS ON SOLDERING (1962)

INTRODUCTION

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Soldering is an ancient art and yet one that is of vital importance in our modern everyday living. Examples of its usefulness today are seen in many of the things we use but almost take for granted; water from copper pipes with soldered connections, food and drink from cans with soldered seams; and in many of the things we depend on for communications and enjoyment such as radio, telephone, television, and a host of other electrical and mechanical equipment. Certainly some of these connections could be made by other techniques but they would probably be more costly. Soldering has an additional advantage over most alternate joining methods in that a large number of soldered joints can be visually inspected to give a reliable indication of the quality of the joints. In view of its many time-proven advantages, it appears evident that soldering will continue to be a major joining method for making numerous electrical and mechanical joints.

In the interval since the last ASTM Symposium on Solder,² it became ap-

parent that there were still some unsolved problems associated with solders, fluxes, and soldering. With the continuing trend toward mass soldering operations more emphasis has had to be put on the study and evaluation of the solderability of surfaces to be soldered, such as printed wiring boards, component lead wires, terminals, and tinned copper wire. Studies were conducted on the fundamentals of the wetting of a solid surface by a liquid metal or alloy. With our advancing technology soldered joints now must be able to withstand many new service environments which can vary from locations under the oceans to the Arctic and outer space. Trace elements, impurities, and small amounts of purposely added elements have to be studied in relation to their effects on soldering as well as to the reliability of the joint in service.

The papers presented in this 1962 Solder Symposium describe some of these new problems and their solutions in addition to reporting on the present status of some of the older problems which are being studied in a more scientific manner than in the past.

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² *ASTM STP No. 189* (1956).