

## SYMPOSIUM ON APPLIED RADIATION AND RADIOISOTOPE TEST METHODS

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### INTRODUCTION

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The American Society of Testing Materials has long been a leader in the field of standardization of test methods and procedures. More than 1200 published ASTM methods bear witness to the Society's activity in this field and to the acceptance these test methods have had in industry, government, and commerce. In keeping with this responsibility, the Society in 1948 recognized the unique potentialities of radioisotopes in testing procedures and formed Committee E-10 on Radioisotopes and Radiation Effects.

For the past several years Committee E-10 has served primarily as an advisory group to other committees concerned with specific industrial products. At this session the committee is taking another step by proposing a number of radioisotope test methods fitted to specific industrial problems.

The history of a test method is reflected in its progress from the conceptual to the qualitative, from the qualitative to the quantitative, and finally to the accepted standard.

This symposium represents the first concentrated effort of Committee E-10 to integrate the conceptual and the qualitative and to develop some proposed ASTM methods of analysis and testing involving the use of radioisotopes as analytical tools. The second objective of

this symposium is to stimulate the thinking of ASTM members by suggesting ways in which methods involving radioactivity might be applied to other current test methods and to research problems. If the stimulation of thought is achieved, this symposium will have served its purpose well.

In the invitation for papers, prospective contributors were informed that the symposium committee was seeking information on radioisotope test methods that are reasonably well developed. These methods were to look toward the needs of specific industrial testing problems, and the written paper was to be developed as a "proposed" ASTM method. The benefit of the radioisotope method, as compared with existing competitive methods, was to be highlighted so as to stimulate interest and lead to ultimate adoption of the technique as an accepted routine test procedure.

There are many of the ASTM testing methods that currently could be markedly improved through use of radioisotopes. Radioisotope test methods possess a degree of sensitivity and specificity several orders of magnitude greater than conventional techniques. In many cases measurements can be made quicker and easier than by conventional means.

Radioisotopes possess virtually unlimited capabilities as new analytical tools. As these are further developed and proven, a significant number of the older test methods should yield to radioisotope procedures.

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