

MANUAL ON INDUSTRIAL WATER

INTRODUCTION

The Manual on Industrial Water is intended as a brief reference source of information for three types of users: executives and plant designers; individuals engaged in industrial operations involving the use of water; and analysts, operators of special instruments, engineers, and consultants. It will not replace an adequate library on the subject for any of these users, but it does provide basic information for routine use and gives direction into the technical literature, thus serving as a point of departure for more specific and detailed studies.

For executives, plant managers, designers, and similar technologists and administrators, it offers information on the influence of water on industries in which it is used either as a raw material or in conjunction with manufacturing processes. The influence of water on various industries ranges from that in paper manufacture, for example, where enormous volumes are used and its quality is of great importance, to small industries where only incidental supplies are needed. At no level, however, can the amount and nature of the available water be disregarded lest a plague of supply failure, contamination, corrosion, scaling, or other difficulty arise to interfere with the manufacturer's operations and to sap his profits. The Manual should serve as a guide to the nature of water planning required at the supervisory and investment levels.

Operating personnel will find in the

Manual a guide to the significance of the treatment they are applying. Combined with general discussion of the problems arising from industrial use of water are details of specific control procedures and instructions for such critical operations as sampling water under the various conditions and in the several forms in which it is employed. The Manual will be useful as a text for training plant operators and for the indoctrination of technologists from other fields.

Chemists and other technologists having special knowledge of water can use the Manual as a reference for specific information unassembled elsewhere. Standard methods for sampling, analysis, reporting, and testing water which have been developed cooperatively by ASTM Committee D-19 are included for ready reference, together with constants, names, and factors of immediate usefulness to water practitioners. The techniques which have not yet achieved standardization are discussed to aid the water specialist in keeping abreast of new developments which he may not have applied in his practice.

It is hoped that the Manual also will be used as a text in technical schools and colleges. While this was not the prime purpose of its preparation, the material presented appears suitable for classroom use. Suggestions for improvements in this respect will be particularly welcome for inclusion in later editions.

Despite the extensive use which can be

made of the Manual, it should not be expected to replace competent and well-trained technologists. It will give general information to some and detailed information to others, but the design and efficient application of the treatments and techniques discussed require experience which no books can supply.

The first two chapters of the Manual give general information regarding utilization of water by industry. The first chapter discusses the industrial uses of water and the factors to be considered in selecting an industrial water supply, and the second reviews the various difficulties which may be encountered in the use of water. Chapter III provides a transition to the more technical portion of the Manual, defining the terms used and introducing the technologist's conception of water and water deposits.

Chapter IV discusses the applicability and nature of various physical, chemical, and combined treatments which may be employed for different purposes. Chapters V to VIII give the details of the procedures and precautions to be observed in sampling, analysis, and examination of water, water-formed deposits, and the reaction and corrosion products of water. This is supplemented by the inclusion in the Appendix of all industrial water standards and methods that have been adopted by the American Society for Testing Materials. Considerable information of particular utility to water technologists, including a glossary of terms used, also has been assembled into this Appendix.

It is hoped that this organization will make the information in the Manual readily accessible to all types of users.