

(PREVIEW)

HANDBOOK ON PIPES AND FITTINGS FOR DRINKING WATER SUPPLY

INTRODUCTION

Pipes have been used for many centuries for transporting fluids especially drinking water. The Chinese first used bamboo pipes thousands of years ago and lead pipes were unearthed at Pompeii. In later centuries wood stave pipes were used in England. It was only with the advent of cast iron that pressure pipes were manufactured. Cast iron was extensively used in 19th Century and is still used. Steel pipes were first introduced towards the end of the last century, facilitating small and large bore pipe-lines. The increasing use of high grade steels and large rolling mills has enabled production of pipe-lines with larger diameters and higher working pressures. Pipe-lines are also made in reinforced cement concrete, prestressed concrete, asbestos cement, plastics and clayware, to suit varying conditions. Reliable flow formulae became available for the design of pipelines during this century, thereby promoting economical use of pipes.

Protected water supply in rural areas is essential in improving the environment and health of the community, and piped water supply is one of the methods adopted for protected water supply, when the source of water is located at a distance from the area of consumption.

The selection of appropriate type of pipe material for vastly varied rural community set up in India will involve many factors and no single solution can be found. The varied factors include different patterns of settlement and areas of rural community, economic level, availability of finance, quantum of potable water, skill and experience of local people in installation, operation and maintenance of the system, etc. The optimum and practical solution should take the above factors into account and wherever possible the standardized design for similar set up should be used. The areas with special features shall be studied in detail and the relevant features considered for selection of the right type of pipe material.

Pipe-lines are major investments in water supply projects and as such constitute a major part of the assets of water authorities. Therefore, pipe material shall be judiciously selected from the point of view of durability, life and overall cost which includes besides the pipe cost, the installation and maintenance cost necessary to ensure the required function and performance of the pipe-line throughout the designed life time.

Bureau of Indian Standards has published a number of Indian Standards for various types of pipes and fittings and codes of practice for laying and jointing of pipes. This hand book has been prepared mostly based on them with an intention to guide the field engineer in selecting the right type of pipe material to suit the field conditions and requirements of the project and to give a guidance in proper handling, laying and jointing and testing of completed pipeline.

Although an attempt has been made to summarize the requirements given in the relevant Indian Standards in this hand book a reference may invariably be made to those Indian standards, a list of which is given in Annex A for exhaustive study. Further, the terminology used in this hand book is as given in IS 2065 : 1983 and IS 10446 : 1983.