

Magnesia Insulation Manufacturer's Association. The new simplified nominal inch thicknesses for these insulations are 1, 1½, 2, 2½, 3, 3½, 4, 4½ and 5 for most pipe sizes ¼ to 33 in. Most of these new nominal thicknesses are slightly greater than the actual thickness. Revision of

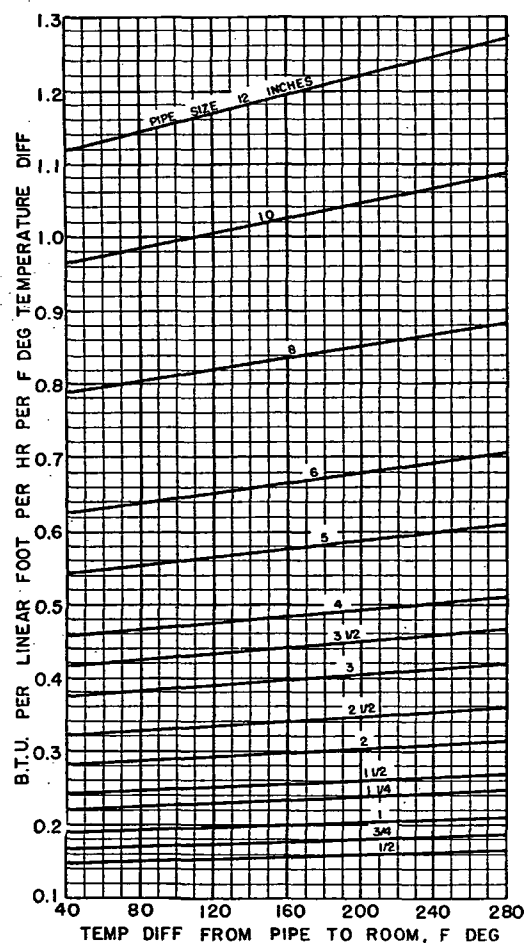


FIG. 1. HEAT LOSS THROUGH 1 IN. THICK 85 PERCENT MAGNESIA TYPE COVERING

the heat loss charts, Figs. 1, 2 and 3, will be made, but for the present these charts may be used with the factors given in Table 7 for all of the insulations shown in Table 6 without serious error.

Pipes operating at high temperatures are frequently insulated to the best advantage by combining a high temperature insulation near the pipe

with a moderate or low temperature insulation around it as an outer layer. By this method an efficient material may be used for each of the two temperature ranges encountered. In calculating the heat loss through such a combination the mean temperature of each layer must be determined along with the thickness of each. This is readily done in three or four calculations performed as a series of approximations, in which assumptions

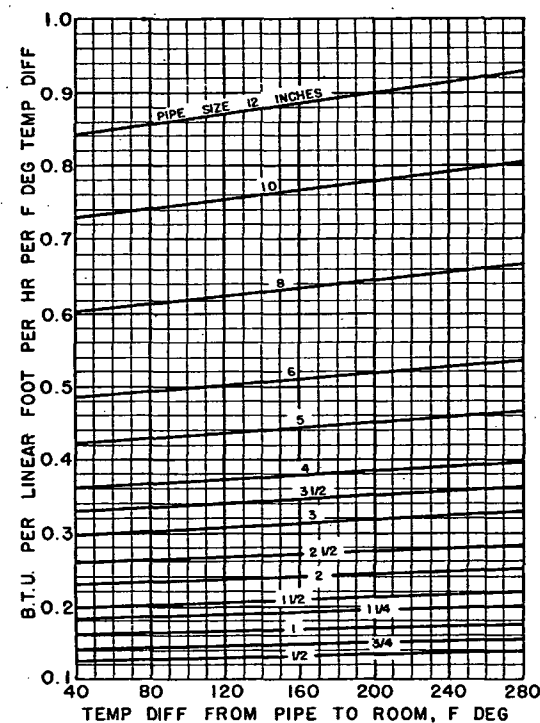


FIG. 2. HEAT LOSS THROUGH 1½ IN. THICK 85 PERCENT MAGNESIA TYPE COVERING

of thickness and mean temperature are adjusted as indicated in the discussion which follows.

In the case of a single thickness of pipe covering, the quantity of heat transferred per square foot of outer surface of the insulation is given by the equation:

$$q_o = \frac{k(t_1 - t_2)}{r_2 \log_e \frac{r_2}{r_1}} \quad (1)$$

where

q_o = Btu per (hour) (square foot of outer surface of insulation).

r_1 = outer radius of pipe or inner radius of insulation, inches.