

TOPIC: INSULATION MATERIALS

A complete list of all insulation materials is beyond the scope of this lesson; only the principal materials used on this plant will be described.

1. 85% Magnesia

85% magnesia has been for many years the standard molded insulation for temperatures between 70°F and 500°F. Although its properties have been varied somewhat during this time, at present it is a fairly well standardized product containing 85% hydrated basic magnesium carbonate, 10% asbestos, 5% clay or other binds.

The material is formed while plastic under controlled flow and pressure conditions, then dried and cut to size. The final product is available in blocks up to 4 inches x 12 inches x 36 inches size, and as pipe insulation in sections 3 feet long and up to 3 inches thick. For 12 inch pipe and over, the insulation is furnished in segments cut from 4 inch thick block.

This material is used largely on permanent pipe line installations because of the dust problem which is undesirable in production areas. Although 85% magnesia is not as expensive as other insulating materials, it is not economical where easy removal and reinstallation is necessary because of its lack of durability.

85% magnesia shall not be used on stainless steel - if it gets wet, soluble chlorides may leach out and concentrate on the surface of stainless steel causing stress corrosion cracking.

It also shall not be used on aluminum because of corrosive effects.

85% magnesia must be protected from water and other liquids because of detrimental effect on bonding material and high water absorption property.

2. Calcium Silicate (Calcilite, Kaylo)

Calcium silicate is another molded insulant useful for temperatures between 70°F and 1200°F. It is light weight material of a cellular fine clay base with good mechanical and insulating properties.

Molded blocks are available in sizes 36 inches long by 6 inches wide and thicknesses up to 3 inches. Pipe coverings are available in sections 3 feet long and with nominal thicknesses of 1, 1½, and 2 inches for standard pipe sizes up to 17 inches in

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