have very commendable 'K' factors and under favorable conditions perform very satisfactorily. Though a low 'K' factor is a necessary attribute of a good basic insulation, we cannot conclude that a material having low conductivity is the most suitable or the optimum material for all jobs.

The nature of the process, the process temperature, the ambient conditions, periodic removal and replacement, the type of pipe and equipment to be covered and the area requirements all will have an influence on our decision and must be considered in the selection of the materials to be used.

The insulation to perform satisfactorily and be compatible to all existing conditions and function as desired, must be so composed as to embody numerous and diverse qualities to enable it to contend with the variety of conditions it may be exposed to.

It may be necessary to sacrifice low conductivity and select a material possessing a higher 'K' factor that is more dense and therefore more capable of resisting any operational or mechanical abuse it may be subjected to. An insulation's ability to resist abnormal abuse is a very creditable quality but due to the requirement of a low heat conductive material, that it be cellular and light of weight, it cannot have good built-in protection, so must rely either upon additional defense against damaging abuse or a material having a less acceptable 'K' factor be selected if protection is required.

This principle will hold true for other requisites that are necessary for the proper functioning of materials. It may be that an insulation has all the attributes required to do a specific job except one, and because it is deficient in this one essential quality, further study will be necessary to find one that has a combination of the most required qualities even though some other qualities may be sacrificed.

Because of this, it is necessary and advantageous to have several types of insulations available. Each type of material is composed of a variety of components all mutually or basically related. The specific materials catalogued under each of the various types have a diverse combination of the qualities typical of that type.

The combinations are many and a good knowledge of the materials and their inherent qualities is essential before the proper selection of the optimum material to do a specific job can be made.

After we have familiarized ourselves with the job to be done and have determined what is to be expected of the insulation, the job it must do and under what circumstances it must exist and what protection, if any, it will require, we must then make our decisions as to what basic material, what adhesive or cement and what finish