



**COMPARATIVE STUDY ON AIR FILTER PRODUCTS IN AIR
CONDITIONING INDUSTRY**

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ABSTRACT

Air-conditioning is generally defined as a process to make the environment in an enclosed space as comfortable as possible. This means to filter the air from impurities and then to cool or heat the purified air. When air went through cooling process, the humidity content of the cooled air will decrease. When the humidity content of the air is below comfortable level, the level of humidity needs to be raised and it is done by a spraying mechanism. The spraying mechanism will add water to the cooled air.

In air-conditioning application, the process of purifying the intake air is very important aside from cooling or heating the air. In quite a few areas in industry, the air needs to be purified to the highest degree because even a very small impurity can damage the product. An example of industry requiring a very high degree of air purifying is the manufacturing of computer hard disk. A hard disk has a read/write head which moves around a plate spinning at a very high speed (5400 to 7200 rpm). The head does not actually touch the plate because it will damage the data stored on the surface of the plate and also itself. So, the head just hovers above the spinning plate with the gap between them in micro meter unit. Thus, even extremely small impurities in the intake air of the air conditioning system will damage the manufacturing of the hard disk.

The most common type of air filter is fiber-based filter. Usually, this type of air filter is either in paper or wool form. The impurities in air are trapped in the pores of the paper or in the pores created in between layers of wool. There are also a few air filters where the fiber is made from plastic which have a web of fine spores to entrap the impurities in air. These are the very pioneers of air filter technique.

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