Ingersoll-Rand
Filter 2000

FILTER 2000

Air Solutions Group
Davidson, NC 28036

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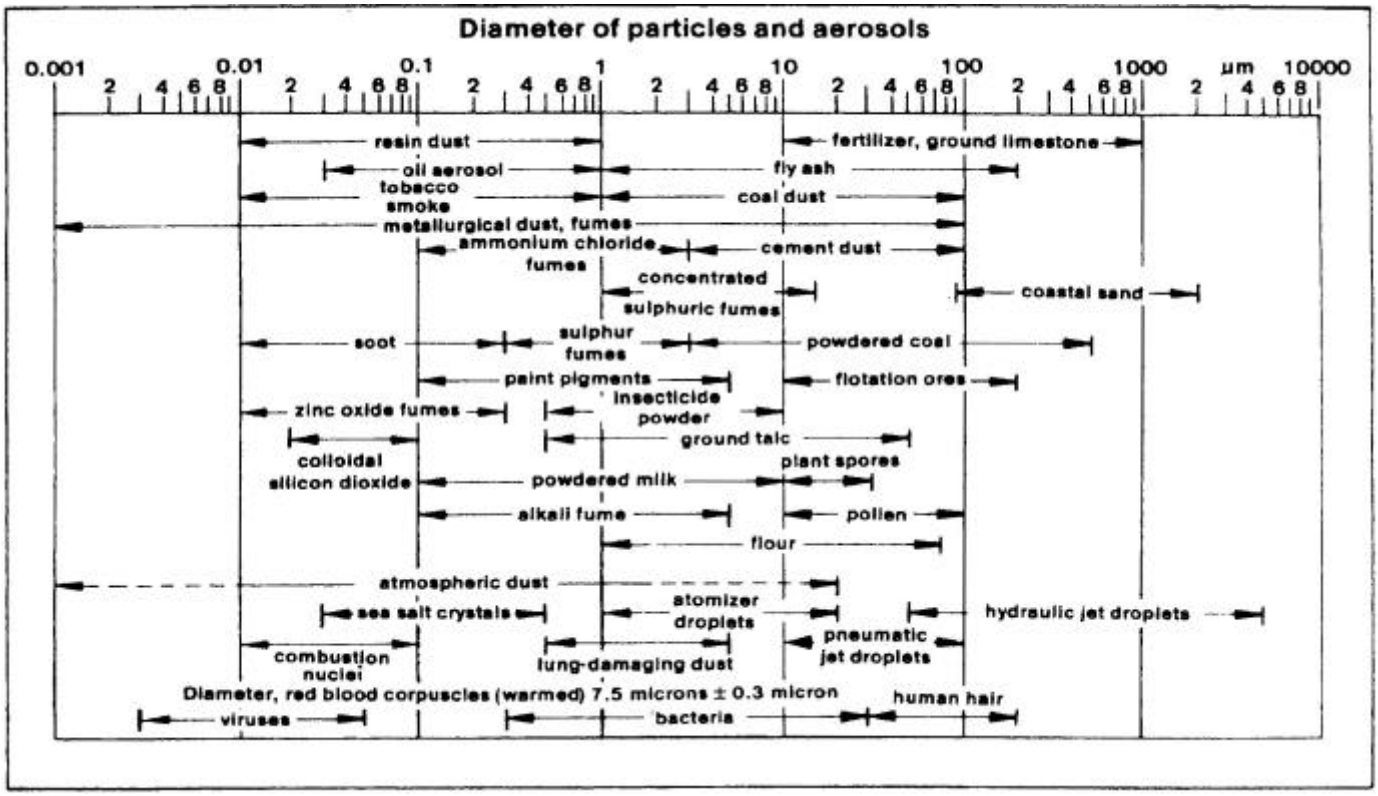
FIRST EDITION

COMPRESSED AIR FILTERS
SERIES HE, GP, AC, DP AND NONLUBE MODULE
GENERAL INFORMATION
FUNDAMENTALS OF AIR FILTRATION

Oil, dust, dirt, rust and water, alone or in combination, these are the enemies that attack compressed air systems. Filtration is the simplest way to remove these common contaminants from compressed air.

Before discussing how filters operate and which types are appropriate for various applications, let's examine the nature of contaminants present in air systems. These include solids, water, and oil in various forms.

Solids - (dust, and dirt) - are contained in the ambient air at the compressor intake. Some indication of the relative size of these contaminants is given in the following chart.



Water is ever present in the ambient air. Compressed air, as it flows through the distribution system, is cooled, causing condensation of water vapor. Condensed moisture combines with oil and solid contaminants forming sludge, which is detrimental to air-operated devices and processes.

A filter removes liquid water and oil from air, as well as solid particles, such as dirt and rust.

Oil is the third major contaminant in compressed air systems. Lubricating oil enters the air stream in liquid, aerosol and vapor forms.

In reciprocating compressors lubricating oil applied to cylinders inevitably enters the air stream at the rate of 20-40 parts per million (PPM).

The faster the speed of the compressor, then higher the concentration of oil.

The 20-40 parts per million may not sound like a lot of oil, however, a 100 SCFM air line (approximately 1" diameter) will transport about 10 lbs. of oil per month at this concentration. The equipment fed by this line will have to digest this oil.