

# NASA TECH BRIEF



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## Technique for Highly Efficient Recovery of Microbiological Contaminants

### The problem:

To devise an efficient technique for collecting and recovering small assay samples of viable microbiological contaminants (1 to 5 micron nominal diameter). The highest possible recovery efficiency was required because the concentration of particles entrained in the air or gas medium to be sampled was less than 50 particles/ft<sup>2</sup>/min. Conventional microbiological recovery methods are sufficiently accurate for large samples because statistical control procedures can be applied to ensure high confidence levels in estimating the microbiological population recovered in the samples.

### The solution:

Of several techniques which were investigated, the simplest and most reliable uses a patented, commercially available water-soluble "paper" as a target for the collection of microbiological contaminants entrained in a gas stream. This paper is nontoxic to a number of microbiological organisms and can be dry-heat-sterilized at 130°C for 5 hours without damage. The organisms collected on the paper are recovered for conventional microbiological assay by dissolving

the paper in sterile distilled water. Tests have shown that essentially 100 percent recovery of microbiological contaminants (e.g., as few as 1 spore of *Bacillus subtilis* var. *niger*) is possible with this technique.

### Notes:

1. This technique should be useful for monitoring and control of small concentrations of particulate contaminants including various types of viable microorganisms.
2. No further documentation is available. Inquiries may be directed to:

Technology Utilization Officer  
Manned Spacecraft Center  
Houston, Texas 77058  
Reference: B69-10273

### Patent status:

No patent action is contemplated by NASA.

Source: W. W. Godwin of  
Martin Marietta Corporation  
under contract to  
Manned Spacecraft Center  
(MSC-13250)

Category 04