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# NASA TECH BRIEF



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## Analytical Technique Characterizes All Trace Contaminants in Water

### The problem:

To develop a method to characterize critically all trace contaminants in both the potable and waste water from the Apollo Command Module.

### The solution:

A properly programmed combination of advanced chemical and physical analytical techniques provides critical characterization of all trace impurities in the water specimen.

### How it's done:

The organic impurities are characterized and measured by pyrolytic gas chromatographic analysis. This technique accommodates specimens drawn directly from the sample without any requirement for pre-treatment. Standards and calibrations are established in accordance with conventional gas chromatographic procedure.

The inorganic contaminants are quantitatively concentrated by techniques specifically developed to prevent further contamination. The concentrates are then measured by combinations of emission spectroscopy, flame spectrometry, spectrophotometry, and turbidometry. This sequence results in complete characterization and quantization of all trace components in the specimen. Standards and calibrations are established by methods that are conventional to each of these analytical techniques.

### Notes:

1. Investigation of water pollution is now receiving considerable attention. One of the principal technical problems encountered in such investigations is the exact identification of the source of pollutants. The methodology described above can be expected to facilitate greatly such identifications. Additionally, it will provide data on which to evaluate catalytic or side reactions that can be expected to accompany any recovery processing under consideration. As this methodology becomes generally applied, stockpiles of standards and calibrations for the more common combinations of trace contaminants will be accumulated. This will reduce both the complexity and the costs of the reported techniques.
2. Inquiries concerning this invention may be directed to:

Technology Utilization Officer  
Manned Spacecraft Center  
Houston, Texas 77058  
Reference: B67-10243

### Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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