

# NASA TECH BRIEF



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## Trace Hydrazines in Aqueous Solutions Accurately Determined by Gas Chromatography

The normal gas chromatographic elution order for propellant hydrazines (with associated impurities) using the column and packing described in NASA Tech Brief 66-10586 finds water appearing between UDMH (unsymmetrical dimethylhydrazine) and MMH (monomethylhydrazine). When a relatively large proportion of water is present, as in a dilute aqueous solution of the analytical sample, the water peak interferes significantly with the UDMH and MMH peaks and obscures some of the impurities.

It has been found that trace amounts of hydrazines in aqueous solutions can be determined by using polyethyleneimine (PEI) in conjunction with the gas chromatographic column. The PEI specifically retains water without altering the separability or elution order of the hydrazine and associated constituents. The degree of water retention is directly related to the quantity of PEI in the column system. A blended liquid phase of PEI and the ethylenediamine compound

specified in Tech Brief 66-10586 may be used in the column, or a PEI column may be used in series with the column of Tech Brief 66-10586.

**Note:**

Inquiries concerning this method may be directed to:

Technology Utilization Officer  
Manned Spacecraft Center  
Houston, Texas 77058  
Reference: B67-10290

**Patent status:**

No patent action is contemplated by NASA.

Source: E. A. Welz, Jr.  
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