ANALYTICAL SERVICES

- Pesticide registration testing including purity and impurity analysis, chemical and physical characteristics, and product properties of pesticide technical grade active ingredient (TGAI). All testing follows Good Laboratory Practice (GLP) specifications in 40 CFR 160.

- Analytical method development to meet client's specific needs and special requirements.

- Analysis for as low as ppt level up to 209 congeners of polybrominated diphenyl ether (PBDE) in different sample matrices.

- Testing and monitoring as low as 0.2 ppt level of N-nitrosodimethylamine (NDMA) and N-nitrodimethylamine (DMN) for drinking water, ground water, and wastewater samples.

- Analysis and monitoring for nonionic surfactants - alkylphenol polyethoxylates (APEO), forms of endocrine-disrupting chemicals (EDC).

- Analysis of polyaromatic hydrocarbons, phthalates, pesticides, herbicides, and other contaminants from air, water and soil samples.

Southwest Research Institute® is an independent, nonprofit, applied engineering and physical sciences research and development organization using multidisciplinary approaches to problem solving. The Institute occupies 1,200 acres in San Antonio, Texas, and provides nearly two million square feet of laboratories, test facilities, workshops, and offices for more than 2,800 employees who perform contract work for industry and government clients.

We welcome your inquiries. For additional information, please contact:

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With more than 40 years of experience in analytical chemistry, Southwest Research Institute® (SwRI®) has developed methods that offer inclusive, sensitive, and affordable determination of trace levels of N-nitrosodimethylamine (NDMA) and N-nitrodimethylamine (DMN) contaminants.

NDMA and DMN have been found to be degradation products of liquid rocket fuel. NDMA has other industrial uses in the production of 1,1-dimethylhydrazine for liquid rocket fuel and as a nematocide, a plasticizer for rubber, a component in polymers and copolymers, a component of batteries, a solvent, an antioxidant, and a lubricant additive.

HEALTH CONCERNS OF NDMA CONTAMINANTS

NDMA can cause cancer in people who are exposed over long periods of time. It was identified as a carcinogen by the State of California in 1986, the U.S. Environmental Protection Agency in 1997, and the National Toxicology Program in 2000. NDMA was reported to be present in a variety of foods, beverages, drugs, and tobacco smoke. Special concern and investigative efforts have been given to the possible contamination of drinking water and ground water near aerospace facilities.

ANALYTICAL METHODOLOGY

Methods used are gas chromatography/mass spectrometry (GC/MS) and high resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS) to test and monitor NDMA/DMN in drinking water, ground water, and wastewater samples as well as for water treatment processes. The method detection limit (MDL) for both NDMA and DMN is 0.2 parts per trillion (ppt). This excellent analytical sensitivity meets or exceeds the NDMA testing requirements of the U.S. Environmental Protection Agency and State of California regulations.

NDMA (N-Nitrosodimethylamine)

\[ O = N-N \begin{array}{c} \text{CH}_3 \\ \text{CH}_3 \end{array} \]

DMN (N-Nitrodimethylamine)

\[ O \overset{\text{N-N}}{\begin{array}{c} \text{CH}_3 \\ \text{CH}_3 \end{array}} \]

Ground water is monitored for NDMA contamination caused by residue degradation of rocket fuel.