

Perchlorate Analysis

Perchlorate is both a naturally occurring and man-made chemical. Most of the perchlorate manufactured in the United States is used as the primary ingredient of solid rocket fuel. Environmental contamination from the manufacture and improper disposal of perchlorate-containing chemicals has generated great concern for the environment and human health.

In the human body, perchlorate interferes with normal iodine uptake into the thyroid gland. Because iodine is an essential component of thyroid hormones, perchlorate disrupts how the thyroid functions. In adults, the thyroid helps to regulate metabolism. In children, the thyroid plays a major role in proper development in addition to metabolism. Impairment of thyroid function in expectant mothers may impact the fetus and newborn and result in effects including changes in behavior, delayed development and decreased learning capability. Changes in thyroid hormone levels may also result in thyroid tumors.

Since perchlorate (ClO_4^-) is an inorganic anion, it is highly soluble in water. Not surprising that perchlorate contamination has been found in groundwater and surface water in 14 states.

DataChem was involved with developing EPA method 6850 and is proficient at providing **LOW LEVEL** Analysis:

- ◆ Selective monitoring by LC/MS provides positive identification of perchlorate
- ◆ Accurate quantitation using an internal standard
- ◆ Analysis can be performed on water, soil and biota
- ◆ Method tested for difficult sample matrices including saline water with high Conductivity and biota
- ◆ Low PQLs below action limits
- ◆ Rapid turnaround times available

Limits in Drinking Water (6850):	Practical Quantitation Limit (LOQ):	0.2 µg/L
Limits in Groundwater (6850):	Practical Quantitation Limit (LOQ):	0.2 µg/L
Limits in Soil (6850):	Practical Quantitation Limit (LOQ):	2 µg/Kg
Limits in Biota (6850):	Practical Quantitation Limit (LOQ):	6 µg/Kg
Sampling Requirements:	Volume:	500 mL (water) 4 oz (soil)
	Container:	500 mL 4 oz amber glass (soil)
	Preservative:	4°C

EPA
6850
LC/MS

Keep out of sunlight as much as possible

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DataChem Laboratories, Inc.

DataChem Laboratories, Inc. was previously the Analytical Chemistry Department of the Utah Bio-medical Test Laboratory (UBTL). UBTL was founded in 1971 as part of the University of Utah Research Institute to perform artificial heart research. When Federal funding for heart research ended in 1974, UBTL established an analytical chemistry laboratory. In 1983 UBTL became a privately held company, and in 1986 incorporated its Analytical Chemistry Department into a new entity—DataChem Laboratories, Inc.

DataChem was one of the first private laboratories in the U. S. to offer industrial hygiene testing utilizing NIOSH and OSHA methods, and has served NIOSH as a contract laboratory continuously since 1974. In the early 1980's, we entered the expanding environmental analytical chemistry arena to provide support for the growing Environmental Protection Agency (EPA), Department of Defense (DOD), and private industry regulatory compliance needs.

DataChem has become one of the largest providers of environmental and industrial hygiene testing services in the country. Today, we provide services to government, corporate, and private clientele. DataChem has clients throughout the United States and enjoys a nationwide reputation for quality and legally defensible data.

Environmental Project Experience

The DataChem Laboratories, Inc. Environmental division provides analytical services for a variety of clientele under various regulatory programs, using both published and laboratory developed methods supporting RCRA and CERCLA preliminary assessments, feasibility studies, environmental investigations, environmental compliance support, remedial investigations, and environmental monitoring programs.

The Environmental Laboratory performs analyses on a wide range of sample matrices including soil, sludge, hazardous and potentially hazardous waste, groundwater, surface water, potable water, and wastewater. In addition, DataChem performs analyses on many atypical sample types.

Industrial Hygiene Project Experience

The DataChem Laboratories, Inc. Industrial Hygiene division provides comprehensive analytical services. An extensive array of both NIOSH and OSHA analytical methods is applied routinely. In addition, methods are available from EPA, ASTM, and AOAC along with improvised, innovative methods that are adapted to situation-specific requirements.

In support of industrial hygiene programs, indoor air quality assessment, odor detection, and other types of air testing, DataChem analyzes air samples collected with cylinders, Tedlar bags, filters, impingers, solid sorbents, passive monitoring badges, SUMMA canisters, and special solutions, and is licensed to perform applicable analyses on samples from potentially radioactive sites.

Mycology Project Experience

The DataChem Laboratories, Inc. Mycology division provides a range of services to accommodate the emerging diverse field of microbial investigations. As public awareness has increased over the years, DataChem has responded by providing a product with meaningful substantiated investigative uses.

As Industrial Hygiene investigators continue to encounter unique sampling environments, DataChem assists their efforts by performing both mycological and bacterial analysis on a variety of sample matrices. Analytical services not only include standard microbial culture techniques and microscopy methods, but incorporate spectrophotometry and GC/MS analytical methodology as well.

Radiochemistry Project Experience

Paragon Analytics, a division of DataChem, has been a leading provider of radiochemistry, mixed waste, and environmental analytical services for nearly 15 years and is licensed by the State of Colorado to receive and handle radioactively contaminated samples. Paragon has supported numerous Department of Energy decommissioning, remediation, and monitoring projects as well as analyzing potentially hazardous and/or radioactive samples from groundwater monitoring, landfill evaluation, and RCRA closures.

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