

The analyses are representative of those requested but the list is not all-inclusive. You should contact the lab at (307) 742-2984 for a price quote and sampling instructions prior to submitting samples.

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Dairy Program

Milk and dairy products are an essential part of American diets throughout most of our lives. Milk is also an excellent medium to support the growth of disease producing organisms if the products are not processed, stored and handled properly. For these reasons there are many requirements imposed by both government regulators and the dairy industry itself, which deal with production through the sale of these products.

Analytical Services performs bacteriological and chemical testing on all types of dairy products to ensure they meet accepted standards of quality from the farm to retail shelves. Achieving the goal of healthful and safe dairy products requires the regulatory analysis of raw milk, product containers and finished products.

Regulatory samples are collected by department inspectors in the Consumer Health Services section or by licensed milk tank truck drivers. Typical tests include any of the following, depending on the product: standard plate count, coliform, *E. Coli*, direct microscopic somatic cell count, antibiotics and inhibitors, added water, fat, ring test screening for Brucellosis, bacterial counts on containers, completeness of pasteurization, vitamin A, vitamin D, non-fat solids, other pathogenic bacteria and pesticide residues. These same analyses are made available to producers and dairy plants on a fee basis to assist them with their quality assurance and to produce a wholesome healthful product.

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Feed and Forage Program

The purpose of the livestock and animal feed program is to guarantee compliance with label claims. Routine analyses include crude protein, crude fat, crude fiber, moisture, ash, salt, calcium, phosphorus, other trace minerals, vitamin A, beta carotene, vitamin E and any of several medications. The analyses performed depend on the labeled guarantee and the intended use of the feed.

The forage analysis program is designed to assist Wyoming ranchers, feeders and hay producers in determining the nutrient value of various hays, silages, and forage products. The most commonly requested analyses (those required to make a feeding recommendation) are moisture, crude protein and acid detergent fiber (used as an estimate of digestibility). Other analytes which can also be determined are crude fiber, neutral detergent fiber, calcium, phosphorus, carotene, trace metal nutrients and toxic constituents such as selenium, cyanide and potassium nitrate. If requested, feeding recommendations are made by the University of Wyoming, College of Agriculture's Animal Science Division.

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Fertilizer Program

Fertilizers are analyzed to ensure the accuracy of label guarantee of both commercial and custom mixed materials. Typically analyses in this program include nitrogen, available phosphoric acid, potash, sulfur, and trace nutrients. The analyses performed depend on the label guarantee or the analyses requested.

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Meat Program

This program has been designed to support the Wyoming Department of Agriculture's Meat Inspection program, which by law has to be equivalent to the Federal program as set forth in the Wholesome Meat Act. Typically, the results of the laboratory's analytical work are used to show a products compliance with its legal standard of identity. Common analytes in this program are moisture, meat protein, non-meat protein, fat, added water, extenders, binders, salt and curing agents.

Specific meat products are routinely checked for pathogenic bacteria, such as *E. Coli*, Salmonella and Listeria Monocytogenes. Other pathogens may be determined if public health concerns arise.

Non-meat ingredients that may be used in meat products are also checked for their compliance to standards. These non-meat ingredients include spices, cures, corn syrup solids, extenders and binders.

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Pesticide Program

Pesticide formulations sold in the state are required to meet certain standards of quality. This program provides the analytical testing of these products, thus assuring that they meet these standards or their labeled guarantee. Formulated products tend not to be of as much concern as tank mixes used by professional pesticide applicators.

Pesticide residues can adversely effect human health, animal health, the marketability of agriculture commodities and the environment. To minimize the impact of this class of industrial chemicals Analytical Services regularly screens water, soil, plant or animal tissue for several classes of pesticide residues. Pesticide classes routinely checked are organochlorine, organonitrogen, organophosphorus, organosulfur, carbamates and herbicides requiring methylation. Many of these products are extremely toxic, and therefore it is important that they

are excluded from the environment and the food chain.

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Petroleum Program

Wyoming Statutes require petroleum distillates (gasoline, diesel fuel, fuel oil, kerosene, etc.) meet ASTM standards. The Federal Trade Commission requires the octane number be posted on all gasoline dispensing devices. These same statutes require the State Chemist to register all automotive antifreeze materials offered for sale in Wyoming.

Automotive antifreeze is periodically checked for compliance with its registration by analyzing for pH, water, reserve alkalinity, and specific gravity. In this laboratory petroleum fuels can be tested for flash point, distillation range, water and sediment, lead content, sulfur content, and oxygenates (MtBE, ethanol, methanol, etc.). Tests for octane number and vapor pressure are sent to other laboratories for analysis.

The quality of natural gas sold in Wyoming is regulated by law. In conjunction with the Wyoming Public Service Commission, samples are taken and analyzed for their heating value (BTU content per cubic foot). Samples are analyzed for their nitrogen, carbon dioxide, methane, ethane, propane, butane, pentane and hexane content by gas chromatography. From this analysis the composition in mole percentage and the heating value in BTU/cu. ft. are calculated.

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Water Programs

The laboratory tests water for a variety of reasons and primarily for compliance to provisions of the U. S. EPA Safe Drinking Water Act and Clean Water Act. Bottled water, dairy plant water and dairy farm water are checked for compliance with Food and Drug Administration laws and regulations, while meat processing plant water must meet criteria of the U. S. Department of Agriculture.

To demonstrate compliance with these various laws and regulations and to protect the public health, Analytical Services analyzes water for a wide variety of bacteria, inorganic chemicals, volatile organics, insecticides, herbicides and many synthetic organic chemicals. For more information on specific analyses, see the sections on laboratory certifications and fees.

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