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Royal Scientific Society

Testing Services Catalogue

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The Royal Scientific Society

The work of The Royal Scientific Society touches the lives of many Jordanians, and impacts the future of Jordan through its research and collaboration.

The Royal Scientific Society has a long heritage. It was Founded and led by HRH Prince El Hassan Bin Talal, in the role of Chairman, and supported by his daughter HRH Princess Sumaya Bint El Hassan, as President. A tradition of royal connection is at the heart of our activity.

The Royal Scientific Society is a large organisation with over 500 staff and multiple departments, initiatives and outposts throughout Jordan.



Automated Chemical Laboratories

Automated Chemical Laboratories

Overview

Automated Chemical Laboratories (ACL) provide leading chemical testing services for both the private and public sectors.

We are approved by many countries for chemical testing a wide scope of elements, such as food, pesticides' formulation and residues, paints, oils, toys, water, waste water, soil, detergents, cosmetics, medical and industrial gases.

The tests are performed using advanced instruments and techniques, such as GC, Headspace GC MS/MS, LC MS/MS, UPLC, ion chromatography IC, HPLC, ICP, atomic absorption, FTIR.

ACL includes two specialised laboratories with qualified professionals performing daily tests.

Chromatography Laboratory

The laboratory is equipped with various chromatography technologies that are used to develop and validate test methods to answer the different needs of market sectors.

Spectroscopy Laboratory

The laboratory is equipped with advanced elements analysis technologies that are used to develop and validate test methods which answer the different needs of market sectors.

Chromatography Laboratory

The Chromatography laboratory performs a wide range of testing for samples including pesticides, foods, plastic, medical gases, toys and petroleum products in compliance with international standards, local and international regulations.

We constantly update the instruments and techniques which are used globally, such as LC- MS-MS, GC-MS-MS, UHPLC and different types of GC, in addition to Ionic chromatography. This lets us achieve high levels of satisfaction for public and private sector clients.

A highly experienced laboratory team conducting continuous research and development lets us provide new analysis and validation methods for unconventional products and compounds.

Agricultural Pesticides, Public Health & Veterinary

Testing Services

- Agricultural oil sprays for winter and summer
- Pesticides' active ingredients and contents
- Physical properties of pesticides
- Impurities in pesticides
- Solvent types in pesticides

Oil (Olive & Vegetable)

Testing Services

- Fatty acid profile
- Stigmastadaine contents
- Insoluble impurities in hexane
- Sterols
- Spectrophotometric investigation of ultraviolet at wavelength of (232 and 270nm)
- Unsaponifiable matter

Food

Testing Services

- Antibiotics residues in honey
- Hormones in meat and dairy products
- Pharmaceutical additives in honey
- Mycotoxins compounds in cereals and legumes
- Quantitative analysis of several fats and water soluble vitamins (e.g. vitamin C, vitamin A and B-complexes)
- Additives including preservatives, antioxidants, and glycerin contents
- Artificial colours (e.g. E110, E123, and E133)
- Artificial sweeteners (e.g. saccharin and aspartame)
- Investigation of vegetable oil in cheese and dairy products
- Sugars content (fructose, glucose, sucrose, maltose and lactose)
- Determination of methanol and higher alcohols contents in beverages

Water & Environment

Testing Services

- Soluble ions such as: nitrate, sulphate, bromide, and chloride
- Tests for volatile organic compounds, total trihalomethanes, chlorinated pesticides, herbicides' residues and polyaromatic hydrocarbons
- Determination of Polychlorinated Biphenyl (PCB) compounds in water and soil

Medical & Industrial Gases:

- **Oxygen**
- **Nitrous oxide**
- **Nitrogen**
- **Carbon dioxide**
- **Air**

Testing Services

- Testing of purity and impurities of medical gases

Pharmaceuticals & Raw Material Samples

Testing Services

- Residual solvents
- Testing for related substances

Plastic & Toys

Testing Services

- Phthalate and organic tin compounds
- Quantitative analysis of biphenyl-A compound in baby feeding bottles
- Migration testing for food contact materials
- Tendency of degradation of plastic shopping bags
- Identifying polymers used in manufactured products such as driving licences, ID cards and water pipes

Petroleum Products & Paints

Testing Services

- Oxygenated compounds and volatile organic compounds in petrol and paint
- Polymer type for paints
- Polyaromatic hydrocarbons in diesel
- Determination of PCB compounds in engine oils

Detergents & Cosmetics

Testing Services

- Quantitative analysis for 1,4-Dioxane and formaldehyde in shampoos, cosmetics and soap
- Fatty acid profile for soap made from vegetable oils
- Assay of active ingredients in detergents like benzalkonium chloride

Spectroscopy Laboratory

The Spectroscopy laboratory uses the latest instruments to test for mineral elements in a wide range of items, such as foods, plastic, soils, toys, petroleum products and pharmaceutical products.

Plastic, Toys & Baby Bottles

Testing Services

- Testing of mechanical and physical properties of toys
- Migration of elements in toys
- Determination of elements in ceramic pans, glassware and plastics
- Determination of elements in plastic granules

Petroleum Products & Paints

Testing Services

- Determination of elements in petroleum products such as petrol and diesel
- Determination of elements in used oils and paints
- Determination of PCB compounds in engine oils

Automated Chemical Laboratories

Spectroscopy Laboratory

Fertilisers

Testing Services

- Determination of elements in fertilisers and phosphate rocks

Detergents & Cosmetics

Testing Services

- Determination of elements in detergents
- Determination of elements in cosmetics

Water & Environment

Testing Services

- Determination of elements in water: drinking, bottled, mineral, industrial, and grey water
- Determination of elements in environmental samples such as soil, sludge and air filters

Food, Pharmaceuticals & Raw Material Samples

Testing Services

- Determination of elements



Industrial Chemical Laboratories

Our Industrial Chemical Laboratories provide advanced technical testing services for both private and public sectors on a wide range of products, including textile and paper, raw materials, petroleum and lubricant oil, paints and lacquers, and radiation applications.

The Industrial Chemical Laboratories are five specialised laboratories with a distinguished and qualified staff working to a quality system which meets the requirements of international standards.

Raw Materials

The laboratory offers a wide range of tests for cosmetics, all types of detergents, fertilisers, feeds, cement and gypsum phosphate rock samples.

Textile & Paper

The laboratory provides comprehensive testing for a range of samples including: paper, hygienic paper, baby nappies, artificial grass, polypropylene sacks, carpet and rugs, toys, shoes and leather, cotton and medical gauze.

Petroleum & Oil

The laboratory performs a range of tests for engine oil, hydraulic oil, automatic transmission fluid, gear oil, brake fluid, antifreeze, grease, fuel oil, compressor oil, ethanol, acetone and toluene, petroleum products.

Radiation Application

The Radiation Application laboratory provides services in two fields:

Chemical analysis using X-ray radiation through XRF to test chemical composition of any type of sample and XRD to clarify the internal structure of materials.

Radiation measurements (existence of Gamma Ray Emitters and Gross Alpha Beta activity in any type of material) and radiation dosimetry measurements.

Paints & Lacquers

The laboratory offers a wide range of tests for emulsion paints, oil-based paints, decorative paints, adhesives, automotive paints, wallpaper paste, paint raw materials (e.g. TiO₂ and talc), road-marking paints (thermoplastic and oil based).

Raw Materials Laboratory

The laboratory offers comprehensive wet chemistry tests for:

- Cosmetics and detergents (anionic, cationic, total fatty matter, NaCL, free oil, active matter, moisture)
- Fertiliser samples (chloride, sulphate, insoluble matter)
- Cement and gypsum samples (IR, sulphate, chloride)
- Phosphate rock samples (silica, P₂O₅, moisture, sulphate, calcium oxide loss on ignition)
- Salts (moisture, SO₃, CO₃, iodate, insoluble matter, purity)

Fertilisers, Animal Feeds & Phosphate Rocks

Testing Services

- P₂O₅
- Sulphate
- Chloride
- Silicate
- Insoluble matter in water
- Moisture
- Fluoride
- Calcium oxide

Detergents, Cosmetics, Cement, Gypsum

Testing Services

- NaCl
- Total dissolved solid
- Total active matter
- pH
- Anionic active matter
- Cationic active matter
- Free oil
- Thermal stability
- Water content
- Total fatty matter
- Essential oil
- Free caustic alkali
- Insoluble matter in ethanol
- Sodium hypochlorite
- Active oxygen
- Hardness of water
- Hydrochloric acid
- Surfactant matter
- Turbidity
- Insoluble matter in water

Textile & Paper Laboratory

The Textile & Paper Laboratory is the only one of its kind in Jordan. This laboratory offers a wide range of tests for textile, paper, paper board, hygienic paper, baby nappies and adult incontinence pants, women's sanitary pads, artificial grass, polypropylene sacks, carpet and rugs, toys, shoes and leather, medical cotton and gauze, cotton buds, matches, yarns, waterproof membrane.

Textiles & Yarns

Testing Services

- Identifying fibre types and their percentages
- Tensile strength and elongation
- Thread count
- Weaving structure
- Weight per unit area
- Colour fastness to daylight, perspiration, rubbing and washing
- Dimensional change by washing

Paper & Paper Board

Testing Services

- Tensile strength and elongation
- Weight per unit area
- Bursting
- Brightness
- Opacity

Other materials:

- Hygienic paper
- Baby nappies and adults incontinence pants
- Sanitary pads
- Artificial grass
- Polypropylene sacks
- Carpets and rugs
- Toys
- Shoes and leather
- Medical cotton and gauze
- Cotton bud
- Matches
- Waterproof membrane

Testing Services

- Closure strength
- pH
- Absorption time and rate
- Pile height
- Flammability rate of toys
- Moisture
- Ash
- Thermal stability for match
- Thickness
- Ignition performance
- Fluorescence
- Water-soluble substances
- Ether-soluble substances
- Surface density of pile
- Percentage of terry threads

Petroleum & Oil Laboratory

The laboratory offers a wide range of tests for lubricating oils (engine, automatic transmission fluid, gear, compressor, turbine, transformer, hydraulic, used oil), brake fluid, antifreeze, grease, fuel oil, waterproof membrane, asphalt, shoe polish, solvents (ethanol, acetone and toluene), petroleum products (petrol, diesel, kerosene) using the latest international standards and in compliance with local and international regulations.

Petroleum & Oil

These include:

- **Lubricating oil (engine, automatic transmission fluid, gear, compressor, turbine, used oil, hydraulic, air craft, transformer)**
- **Brake fluid**
- **Antifreeze**
- **Grease**
- **Fuel oil**
- **Solvents (ethanol, acetone and toluene)**
- **Petroleum products (petrol, diesel, kerosene)**
- **Shoe polish**
- **Waterproof membrane**
- **Asphalt**

Testing Services

- Kinematic viscosity
- Viscosity index
- Flash point
- Pour point
- Base number
- Acid number
- Copper corrosion
- Foaming
- Density
- pH
- Boiling point
- Water content
- Ash and sulphated ash
- Sulphur content
- Calorific value
- Distillation
- Water separability
- Apparent viscosity

Radiation Application Laboratory

The Radiation application laboratory provides services in two fields:

Firstly, chemical analysis using X-ray radiation through XRF and XRD instruments. XRF is used to analyse the chemical composition of different type of samples, such as geological, cement, gypsum, or metallic alloys. XRD is used to clarify the internal structure of materials in the form of powdered samples.

Secondly, radiation measurement services include gamma radiation radionuclides, which exist in any type of material (Soil, water, air filters); gross alpha beta tests of water samples; and radiation dosimetry measurements for radiation-related workers and workplaces in Jordan.

Radiation Application

These include:

- **Geological samples**
- **Cement**
- **Gypsum**
- **Metallic alloys**
- **Any sample in powdered form**
- **Water**
- **Soil**
- **Food**
- **Air filters**
- **Radiation workers and their workplaces**

Testing Services

- Chemical composition
(from Be to U)
- Asbestos
- Pharmaceutical phases
- Industrial radiation
contamination tests
- Activity of natural
radionuclide test
- Gross alpha beta in
water samples
- Annual dosimetry of radiation
workers and workplaces
- Radiation survey meter

Paints & Lacquers Laboratory

Paints & Lacquers Lab is the unique lab in Jordan, this lab offers a wide range of tests for Emulsion paints for internal and external uses, Oil based paints, Decorative paints, Adhesives, Automotive paints, Wall paste, Paints Raw materials)TiO₂, Talc powder and pigments) Traffic Road marking paints, using the latest international standards and in compliance with local and international regulations.

Paints & Lacquers

These include:

- Oil-based paints
- Decorative paints
- Adhesives
- Automotive paints
- Wallpaper paste
- Paint raw materials
(e.g. TiO₂, talc powder and pigments)
- Road marking paints

Testing Services

- Wet scrub resistance
- Hiding power
- Viscosity
- Bend test
- Non-volatile matter
- Binder content
- Flash point
- Adhesion test
- Gloss
- Drying time
- Glass beads
- Brightness and opacity
- Pigments content



Environment, Water & Food Laboratories

The Environment, Water & Food Laboratories are accredited to provide physical, chemical and microbiological testing services on a wide range of products, including food, vegetables, fruits, water, cosmetics and cigarettes, to ensure their compliance with national and international standards.

Environment, Water & Food Laboratories are accredited by local and international organizations such as: Lloyds (ISO 9001), Jordan Accreditation System (JAS), and British Accreditation Authority (UKAS).

Environment, Water & Food Laboratories comprise four specialised laboratories, with distinguished and qualified staff whose quality system meets international standards.

Food Quality

The Food Quality Laboratory deals with a wide range of food items testing, such as milk and dairy products, oil and fat, meat products, sugars, canned products, beverages and drinks, cornflakes and potato chips, olives and pickles, vinegar, crude oil, feed, pasta, and instant noodles, using the latest international standards and in compliance with local and international regulations.

Cigarettes

The Cigarettes Laboratory deals with a wide range of chemical and physical tests for cigarettes and tobacco, using the latest international standards and in compliance with local and international regulations. It is the only laboratory in Jordan and the Middle East that monitors the quality of cigarettes and tobacco products.

Pesticides Residues

The Pesticides Residues Laboratory tests for around 400 pesticides extracted from different food groups. The detected pesticides are evaluated according to CODEX & EU regulations.

Water

The Water Laboratory deals with a wide range of chemical and physical tests for water, waste water, sea water, soil, plant, and sludge, using the latest international standards and in compliance with local and international regulations.

Microbiology

The nationally and internationally accredited Microbiology Laboratory offers a wide range of microbial tests relevant to many industries, including food, water and waste water, cosmetics and disinfectants, using the latest international standards and in compliance with local and international regulations.

Food Quality Laboratory

The Food Quality Laboratory was established in the 1970s. It has JAS and UKAS national and international accreditation, and tests for all food and feed products. It is considered as a reference in its field in Jordan and the Middle East region.

With cutting-edge instruments and procedures, the laboratory gives results with highest accuracy and precision.

The laboratory conducts all tests using the latest international standards, and in compliance with local and international regulation. The laboratory also participates frequently in proficiency testing (FAPAS) for all accredited tests.

Food

Testing Services

A. Dairy products:

- Sensory test
- Moisture content
- Fat content
- Protein content
- Carbohydrates content
- Calories
- Salt content
- Acidity content

B. Oils and Fat

- Peroxide value
- Iodine value
- Saponification value
- Refractive index
- Relative density
- Acidity as oleic acid
- Moisture and volatile matter

C. Meat products

- Salt content
- Fat content
- Protein content
- Carbohydrate content
- Calories
- Salt content
- Starch content
- Sodium nitrite content

D. Sugar-based products

- Sugar content
- Moisture content
- Ash content
- Total soluble solids content
- Fruit content

E. Canned products

- Drained weight
- Net weight
- Acidity content

Food (continued)

Testing Services

F. Beverages and drinks

- Total soluble solids content
- Acidity content
- Sugar content

G. Corn and potato crisps

- Moisture content
- Fat content
- Salt content
- Ash content
- Acid insoluble ash content

H. Table olives and pickles

- Drained weight
- Net weight
- pH
- Acidity content
- Salt content

I. Vinegar

- Acidity content
- Impurities

J. Feed

- Moisture content
- Fat content
- Ash content
- Protein content
- Crude fibre content

K. Pasta and instant noodles

- Moisture content
- Salt content
- Ash content
- Protein content

Cigarettes Laboratory

The Cigarettes Laboratory was established in 1998, and has an international UKAS accreditation. It is the only laboratory in Jordan and the Middle East that monitors the quality of cigarettes and tobacco products.

The Cigarette Laboratory deals with a wide range of chemical and physical tests for cigarettes and tobacco, using the latest international standards and in compliance with local and international regulations.

Every year the laboratory works with over 50 countries in inter-comparisons tests (proficiency testing), and it is a member of the Asia Collaborative Study (ACS) and Top Lab Net (WHO).

Chemical and Physical Testing Services Related to Cigarettes & Tobacco

Testing Services

- Carbon monoxide
- Nicotine
- Tar
- Moisture in tobacco
- Draw resistance of cigarettes
- Ventilation of cigarettes
- Fine tobacco content that passes through a 425 μm sieve based on dry weight
- Density of tobacco mixture
- Ash content of tobacco based on dry weight
- Nitrogen content of tobacco based on dry weight
- Acid-insoluble ash content of tobacco based on dry weight
- Nicotine content of tobacco and maassel based on dry weight
- Circumference of cigarettes
- Diameter of cigarettes
- Pesticides residues
- Variation in the weight of tobacco in cigarettes
- Visual inspection
- Weight per unit area of cigarette wrapping paper
- Length of tobacco column
- Width of tobacco shreds
- The percentage of tobacco lost from the bud of cigarettes in a single pack
- Nitrate content of tobacco

Pesticides Residues Laboratory

The Pesticide Residues Laboratory performs tests for a wide scope of pesticides groups, such as insecticides, fungicides, herbicides, pesticides and acaricides.

These can be extracted from different food groups, including fruits, vegetables, cereals, or honey. The extracted pesticides are detected in the laboratory using the High Performance Liquid Chromatograph Mass Spectrometer (LC/MS-MS) technique.

The laboratory is accredited by the United Kingdom Accreditation Services (UKAS).

Pesticides Residues

The following pesticide groups are detected in different types of food originating from plant and animal sources:

Testing Services

- Pesticide
- Herbicides
- Fungicides
- Growth regulators

Water Laboratory

The Water Laboratory tests all water types (drinking, ground, surface and waste water), soil and sludge tests. It is considered a reference in its field, in Jordan and across the Middle East.

With cutting-edge instruments and procedures, the Water Laboratory gives results with the highest accuracy and precision, and guides customers to properly collect, store and transport samples.

The laboratory also provides tailor-made testing parameters to customers, according to Jordanian and international regulation.

The laboratory participates frequently in proficiency testing for all accredited tests.

Water Laboratory

The following pesticide groups are detected in different types of food originating from plant and animal sources:

Testing Services

A. Water and seawater:

- pH
- Chloride
- Calcium
- Magnesium
- Color
- Turbidity
- Total dissolved solids
- Electrical conductivity

B. Waste water:

- Chemical oxygen demands
- Biochemical oxygen demands
- Total nitrogen
- Total suspended solids
- Total organic carbon

C. Soil, plant and sludge:

- Organic matter
- Fixed and volatile solids
- Soil texture
- Total nitrogen

Microbiology Laboratory

The Microbiology Laboratory is nationally and international accredited, offering a wide range of microbial tests relevant to many industries. This includes tests of food, water and waste water, cosmetics, disinfectant and other environmental samples based on the latest international standards and in compliance with local or international regulations.

The laboratory offers consultation on food safety and water quality for producers, stockholders and international organisations based on microbiological analysis.

The laboratory is a reference in analysing water samples for Legionella bacteria for hotels and hospitals, to meet compliance with the regulations of the Ministry of Health and the Ministry of Environment.

The Microbiology Laboratory has had a major role in resolving many water crises in Jordan thanks to its staff and experience, receiving an award from Prince El Hassan Bin Talal and Princess Sumaya Bint El Hassan for its contribution.

Food Products

Testing Services

- Spoilage microorganisms
(total and faecal coliform,
E. coli, aerobic and anaerobic
plate count, Enterobacteriaceae,
S. aureus, B. cereus,
C. perfringens, Listeria,
yeast and moulds)
- Pathogenic bacteria;
Salmonella and E. coli
O157:H7
- Swelling test for cans

Waste & Waste Water

Testing Services

- Salmonella
- Legionella
- Identifying and enumerating microorganisms (total and faecal coliform, E. coli, aerobic and anaerobic plate count P. aeruginosa, fungi, algae, larvae and eggs)
- Suitability of non-metallic material for contact with water

Cosmetic Products

Testing Services

- Candida
- E. coli
- S. aureus
- P. aeruginosa
- The enumeration of spoilage microorganisms (bacteria and fungi)
- Total and faecal coliform

Disinfectants

Testing Services

- Evaluation of bactericidal activity of chemical disinfectants

Other environmental samples such as sludge, soil & plants

Testing Services

- Salmonella
- Identifying and enumerating microorganisms (total and faecal coliform, E. coli, aerobic and anaerobic plate count P. aeruginosa, fungi, algae, larvae and eggs)



Mechanical Laboratories

Mechanical Laboratories

Overview

The Mechanical Laboratories provide mechanical and physical testing of metallic and plastic materials and products for industrial, private and public sectors.

The laboratories provide testing services for different types of thermal and gas appliances, and perform specialised, non-destructive testing services in facilities inspection, including qualifying welders and welding procedures according to the international standards.

The laboratories have national and international accreditation in different scopes of mechanical tests.

Metallography

The Metallography Laboratory provides mechanical and physical testing services of different metallic samples in accordance with national and international standards.

Our specialised metallographic tests evaluate the convenience of parts and objects during operation in different industrial plants, refineries etc.

Plastic & Rubber

The Plastic & Rubber Laboratory provides a wide range of testing services for the plastic industry, and is specialised in measuring and evaluating the physical, thermal and mechanical properties of plastic materials.

The laboratory has a wide range of tests and analysis, from analysing raw materials, through to the final product. Due to these unique capabilities, the laboratory is a principal service in many private and public industrial and construction projects.

Non-Destructive & Welding

The Non-Destructive & Welding laboratory conducts non-destructive tests (NDT) and consultations for the industrial facilities and provides qualification services for different welding procedures.

The staff are highly qualified and certified in all levels of major NDT techniques, leading to the laboratory's presence in all inspection facilities, refinery and pipeline projects.

Thermal

The Thermal Laboratory provides testing services for industrial facilities and different types of thermal and gas appliances and systems, such as heaters, domestic cookers, hot water boilers, and space heaters. All tests are according to national and international standards.

Mechanical Workshop

The Mechanical Workshop prepares metallic and plastic test specimens for using different shaping machines.

Metallography Laboratory

The Metallography Laboratory provides physical and mechanical testing of metallic products such as reinforced steel bars, welded and seamless steel pipes, ductile iron pipes, steel wires and ropes, steel sheets and plates, gas cylinders and valves, water mixers and taps, vehicle brakes and shock absorbers, aluminum profiles and foils.

All tests are performed according to national and international standards. The Metallography Laboratory is accredited by JAS (Jordan accreditation system) and is internationally accredited by UKAS.

Metal & Destructive

Testing Services

- Rebar
- Screws
- Ductile pipes
- Welded and non-welded pipes
- Valves
- Sheet metal
- Household gas cylinders
- Fire extinguishers
- Metal wires
- Twisted wires
- Cables
- Aluminum profiles
- Windows and doors
- Metal cans
- Roadblocks and bridge sections
- Mixers of drinking water
- Faucets
- Radiator heaters
- Water heaters
- Cooking pots
- Razor blades
- Metal containers
- Copper plates

Plastic & Rubber Laboratory

The Plastic & Rubber Laboratory conducts a wide range of physical, thermal and mechanical tests on polymeric materials and products, such as pipe fittings, plastic water tanks, electric cables, rubber rings, feeding bottles, safety tools, bags and sheets and plastic containers.

The tests are performed according to national and international standards. Additionally, the laboratory is nationally accredited by JAS (Jordan accreditation system) and internationally accredited by UKAS.

Plastic & Rubber

Testing Services

- Water polyethylene pipes
- Polyvinyl chloride pipes (PVC)
- PP pipes
- PEX pipes
- CPVC pipes
- PVC electrical pipes
- Gloves (safety, medical, general use)
- Plastic pipe fittings (mechanical, electrofusion)
- Sponge and mattresses
- Plastic bags (shopping, freezing)
- Rubbish bags
- Rubber rings for cement pipes
- Foam numbers and insulated board
- Vehicle licence plate holders
- Baby bottles
- ID cards
- Air and fire hoses
- Water rubber hoses

Non-Destructive & Welding Laboratory

The Non-Destructive Testing (NDT) & Welding laboratory provides specialised services in facility inspection and welding consultations using several techniques, such as industrial radiography, ultrasonic testing, liquid penetrant testing, magnetic particle, and visual testing.

The laboratory also provides both welder and welding procedure qualification services. The staff hold Level II and Level III certifications according to ASNT TC-1A and EN 473 standards.

Mechanical Laboratories

Non-Destructive & Welding Laboratory

Non-Destructive

Testing Services

- Welded material
- Weldments
- Cast materials
- Pressurised vessels
- Storage tanks

Thermal Laboratory

The Thermal Laboratory provides testing services for industrial facilities. It tests various thermal and gas appliances such as heaters, domestic cookers, hot water boilers, and space heaters, according to national and international standards.

The tests evaluate thermal inputs/outputs and heating efficiency. People in different sectors can use these results to monitor and maintain their appliances.

Thermal

Testing Services

- Domestic cookers
- Boilers
- Radiators
- Solar collectors
- Kerosene heaters
- Gas heaters
- Gas regulators
- Instant gas water heaters

Mechanical Workshops

The mechanical workshops prepare samples for testing with precise dimensions and shapes and according to the international standards using the different shaping and CNC machines.



Construction Laboratories

Construction Laboratories

Overview

The Construction Laboratories perform field and laboratory tests on different construction materials.

The Construction Laboratories also carry out quality tests for private and public sectors, including governmental projects such as highways and different types of buildings such as schools, hospitals and medical centres.

Additionally, the Construction Laboratories survey local markets, such as cement factories, to ensure quality control in cooperation with authorised parties. The construction laboratories receive national accreditation from JAS.

Cement

The laboratory performs physical tests on black and white cement material according to international standards (ASTM and BS EN). The laboratory also conducts tests on micro silica, silica fume and fly ash.

Soil & Asphalt

The laboratory performs numerous field and laboratory tests on soil materials used for road works, such as asphalt mixtures, granite tiles and marble tiles.

Ceramic & Water Efficiency

The laboratory conducts physical tests on ceramic tiles, water efficiency fittings, plumbing fixtures, clay tiles, wood, road markers, glass and bulletproof glass.

Concrete, Construction Components & Building Chemicals

The laboratory carries numerous field and laboratory tests on concrete, culverts and concrete pipes, interlocked tiles, concrete blocks, powder gypsum, gypsum boards, buildings loading test and insulation materials.

Cement Laboratory

The Cement Laboratory provides technical services for the private and public sector in the cement industry. The laboratory tests for quality control to ensure conformity of products according the international standard. The laboratory performs tests on different types of cement , silica fume, micro silica and fly ash.

Construction Laboratories

Cement Laboratory

Cement

Testing Services

- Cement
- Portland cement
- White cement
- Micro silica
- Silica fume
- Fly ash

Soil & Asphalt Laboratory

The Soil & Asphalt Laboratory conducts field and laboratory tests on raw materials in various projects with the Ministry of public works and housing. The laboratory also conducts quality control on quarried stone, marble and granite, and tests infrastructure material, asphalt mixtures and aggregate.

Soil & Asphalt

Testing Services

- Soil
- Aggregate
- Dimension stone
- Asphalt mixtures
- Asphalt tiles
- Marble tiles
- Granite tiles
- Natural building stone
- Artificial building stone

Ceramic & Water Efficiency Laboratory

The Ceramic & Water Efficiency Laboratory performs physical tests on ceramic tiles, water efficiency fittings, plumbing fixtures, clay tiles, wood, road markers, glass, bulletproof glass and provides technical services for private and public sector organisations.

Construction Laboratories

Ceramics & Water Efficiency Laboratory

Ceramics & Water Efficiency

Testing Services

- Ceramic tiles
- Sanitary fixtures
- Glass
- Road markers
- Wood
- Regulators for sanitary taps
- WC pans and suites
- Filling and flushing valves

Concrete, Construction Components & Building Chemicals Laboratory

The Concrete, Construction Components & Building Chemicals Laboratory performs tests on concrete, concrete pipes, interlocked tiles, concrete blocks, powdered gypsum, gypsum boards and insulation materials. The laboratory also provides buildings loading tests and technical services for private and public sectors and in various projects with the Ministry of Public Works and Housing.

Concrete, Construction Components & Building Chemicals

Testing Services

- Gypsum
- Fresh concrete
- Hardened concrete
- Terrazzo tile
- Interlocks
- Concrete pipes
- Kerbstone
- Bricks
- Gypsum board
- Thermal insulation materials
- Tile grout
- Ceramic tile adhesive
- Chemical admixtures for concrete
- Air-entraining admixtures for concrete
- Chemical admixtures for use in producing flowing concrete
- Concrete repair materials



Electrical Laboratories

The Electrical Laboratories provide safety testing services to local factories and companies in Jordan, testing electrical products according to Jordanian Standards (JS) and providing technical studies to improve the quality of electrical products.

The Electrical Laboratories are also approved in neighbouring Arab countries for the testing of a wide range of electrical appliances and products, according to international standards and regional requirements such as IEC and BS.

Services provided include testing of household and similar electrical appliances for general use, information technology equipment, dynamic audio and video appliances, luminaires and accessories, and the testing of electrical components such as cables.

Electrical Products

Testing Services

- Household electrical appliances
- Portable household appliances: vacuum cleaners, electrical irons, kitchen appliances
- Stationary household appliances, i.e. appliances that are either fixed to a support or weigh more than 18kg such as washing machines and microwave ovens
- Cooling appliances including all appliances incorporating a compressor and cooling fluid, such as refrigerators and air-conditioners
- Audio, video and similar electronic devices such as TVs, receivers and DVD players
- Information technology equipment
- Dry & lead acid batteries
- Low-voltage insulated cables
- Enclosures, specifically the degree of protection provided by enclosures against the ingress of dirt or against the ingress of water
- Luminaires, lamps, lamp-holders and lighting chains
- Ballasts and transformers
- Plugs, socket outlets, switches



Biosafety & Biosecurity Laboratories

Biosafety & Biosecurity

Overview

The Biosafety & Biosecurity Laboratory provides testing services to genetically detect different pathogens (viruses, bacteria, etc.) in water, sludge, food, or environmental and clinical samples, in addition to testing animal and plant pathogens.

The laboratory also carries tests to detect the presence of Genetically Modified Organisms (GMOs) in food and feed samples, which may identify food fraud.

Virology & Molecular Biology

Application of quantitative and qualitative analysis to address health issues related to infectious agents and biohazards in general.

Virology & Molecular Biology Laboratory

The Virology & Molecular Biology Laboratory provides testing services to genetically detect different pathogens (viruses, bacteria, etc.) in water, sludge, food, and environmental and clinical samples, in addition to testing animal and plant pathogens.

The laboratory also carries tests to detect Genetically Modified Organisms (GMOs) in food and feed samples, in addition to specialised tests for the identification of food fraud.

Virology & Molecular Biology

Testing Services

- Genetic detection of Salmonella species in food
- Genetic detection of Listeria Monocytogenes in food
- Genetic detection of Pathogenic Escherichia coli H7:O157 in food
- Genetic detection of Legionella pneumophila in water
- Genetic detection of enteroviruses in sludge
- Detection of Nipah virus in food
- Fraud Identification in meat products
- Detection of GMOs in food and feed
- Detection of antibiotic-resistant genes (ARGs) in sludge and water



Air Studies Division: Air Quality Measurements Laboratory

The Air Quality Measurements Laboratory measures air pollutants in the air (ambient air, stationary sources, work environment and vehicles emissions).

This division is nationally accredited by JAS and the majority of air quality measurements are conducted according to the requirements of ISO 17025/2017.

Air Quality

Testing Services

- Stack emission measurements such as SO₂, NO₂, NO, NO_x, CO, HCs, halogen/halides, oxygen, ethanol, total particulates, heavy metals and their compounds, according to JS 1189/2006. The measurements are conducted from different sources such as boilers, scrubbers, incinerators, and vents
- Ambient air quality measurements such as SO₂, NO₂, NO, NO_x, NH₃, H₂S, TSP, PM₁₀, PM_{2.5} and heavy metals and their compounds, according to JS 1140/2006
- Air quality measurements inside work environments such as NO₂, SO₂, CO, CO₂, particulates TSP, PM₁₀, PM_{2.5}, PM₁

Environmental Monitoring & Research Central Unit Division:

- **Online Surface Water Quality Measurements**
- **The only division in the MENA region that is internationally accredited by UKAS**

Testing Services

- Operate and calibrate real-time monitoring stations
- Measurements of surface water pollutants such as pH, EC, Temperature, Turbidity, DO, COD, NH3 and NO3



Energy Laboratories

Energy Laboratories

Overview

The Energy Laboratories perform different tests in order to verify the performance specifications of household appliances, such as air conditioning units, lamps, washing machines, refrigerators, solar water heating systems as well as photovoltaic systems.

The laboratories carry out these tests for both the private and public sectors, such as The Jordan Standards and Metrology Organization (JSMO), local markets and local projects.

The energy laboratories received national accreditation certificates according to the requirements of the International Organization for Standardization (ISO) 17025 in addition to ISO 9001.

Energy Labelling

Consists of specialised air-conditioner, refrigerator, freezer and washing machine laboratories, different parameters are measured in the Energy Labelling Laboratory to find the energy efficiency in accordance to both European and Jordanian standards.

Lighting Testing

The laboratory, which consists of an integrated sphere and all measuring devices, is capable of testing and verifying the performance specifications and photometric characteristics of light bulbs of different types.

Photovoltaics

The photovoltaics laboratory conducts several tests of solar thermal systems and their components of all types, to ensure they comply with international standards in terms of the efficiency of the solar system and its ability to conserve thermal energy.

Solar Water Heater

Consists of a sun simulator for photovoltaic modules, with LED as light source that conforms to international norms, allowing the characterization of the IV curve of photovoltaic modules. The assembled photovoltaic module is tested by simulating the exposure to sun light.

Energy Labelling Laboratory

The Energy Labelling Laboratory has the capabilities and experience to carry out energy efficiency testing for household electrical products such as air conditioners, refrigerators and washing machines.

These laboratories have a clear impact on raising the quality of manufactured and imported household electrical appliances, and giving citizens the chance to choose energy-saving appliances through the Energy Efficiency label. These laboratories were established to meet the requirements of the local and regional markets, where for example JSMO issued technical regulations for home appliances, which requires conducting energy efficiency tests for these devices.

Lamps

Testing Services

- Double and single-capped fluorescent
- Tungsten halogen
- Tungsten filament
- Self-ballasted LED (LED bulbs and tubes)
- Self-ballasted fluorescent (CFL)

Air Conditioners

- Split units
- Window units
- Wall-mounted units
- Cassette units
- Free-standing units
- Ceiling units
- Annual electricity consumption for cooling
- Annual electricity consumption for heating
- SEER
- SCOP

Testing Services

- Annual electricity consumption for cooling
- Annual electricity consumption for heating
- SEER
- SCOP

Refrigerators

- Refrigerator with one or more fresh-food storage compartments
- Refrigerator-cellar and cellar storage appliances
- Refrigerator-chiller and refrigerator
- Refrigerator-freezer
- Upright freezer
- Chest freezer

Testing Services

- Energy Efficiency Index (EEI)
- Annual Energy consumption (kWh/year)
- Refrigerator Storage Volume (Litre)
- Freezer Storage Volume (Litre)

Washing Machines

Testing Services

- Energy Efficiency class / Index (EEI)
- Annual Energy consumption (kWh/annum)
- Annual water consumption (L/annum)
- Spin- drying efficiency class

Lighting Testing Laboratory

The Lighting Testing Laboratory is accredited according to IEC and CIE standards by JAS. The laboratory is capable of testing and verifying the performance specifications and photometric characteristics of different types of bulbs.

Lighting

- Double and single capped fluorescent
- Tungsten halogen
- Tungsten filament
- Self- ballasted LED (LED bulbs and tubes)
- Self- ballasted fluorescent (CFL)

Testing Services

- Luminous flux
- Luminous efficacy
- Energy efficiency class
- Colour Rendering Index (CRI)
- Correlated colour temperature (CCT)
- Chromaticity (x,y)
- Power parameters (voltage, current, power and power factor)

Photovoltaics Laboratory

This laboratory provides measurement and consultancy services relating to the rated performance, quality, durability and compliance with international standards of commercial PV modules through the indoor testing facility. The lab is suitable for testing both standard crystalline modules and thin film, and back contact solar cell modules.

The photovoltaic simulator is used to emulate the dynamic electrical behavior of a PV solar array for micro grids, energy storage and inverter test application. They offer low output capacitance and high closed loop bandwidth to keep up with the maximum power point tracking (MPPT) algorithms used in today's grid-tied inverters.

Photovoltaics

Testing Services

- Performance (Flash test) using the sun-simulator. The output results are the I-V curve, P_{max} , I_{sc} , V_{oc} , I_{mp} , V_{mp} , and efficiency of the PV module.
- Electroluminescence (EL-Test) for the photovoltaic modules (Cracks test).
- Photovoltaic on-grid inverters efficiency

Solar Thermal Testing lab

Solar Thermal Testing lab conducts several tests for solar thermal systems and their components of all types (flat plate and evacuated tubes) to ensure that they comply with international standards in terms of the efficiency of the solar system and its ability to conserve thermal energy, as well as physical tests for solar heating systems to ensure their performance and durability. The outdoor laboratory can test for both glazed and unglazed types of solar collectors and air collectors as well.

Solar Water Heaters

Testing Services

- Collector efficiency
- Annual solar heater performance
- Collector Mechanical load
- Collector Impact test
- Solar heater thermal shocks
- Physical ageing testing



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