**Chemical analysis price table/Water, Environment and Arid Regions Research Centre (WEARRC):**

1. **Drinking and waste water analysis:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Notes | Responsible person | Price (JD) | **Method and Instrument** | **Analysis** |  |
| **Physical Property** | | | | | |
|  | Eng. Raya Alomoush  e.mail: raya1moush@yahoo.com | 10 |  | Colour | 1 |
|  | 5 |  | Taste | 2 |
|  | 10 |  | Oder | 3 |
|  | 5 | Turbidity meter | Turbidity | 4 |
|  | 2 |  | Temperature of Water Source | 5 |
| **Chemical Property** | | | | | |
|  |  | 10 ( Each)  35  (2-5 Element) | -Inductively Coupled Plasma | Heavy metals\*  (Iron, Manganese, Nickel, Zinc, Cadmium, Cobalt, Lead, Chromium, Copper, Silver, Aluminium, Barium, Beryllium, Lithium, Molybdenum, Stannous, Vanadium, Boron) | 6 |
|  | 10 ( Each) | -Atomic Absorption Spectrometer | Heavy metals\*  (Iron, Manganese, Nickel, Zinc, Cadmium, Cobalt, Lead, Chromium, Copper, Silver, Aluminium, Barium, , Molybdenum, Magnesium , Sodium, potassium, strontium) | 7 |
|  | 5(Each)  20 (whole) | - Flame Emission Photometer | Sodium , Potassium , Lithium, calcium, Barium | 8 |
|  | 5  5 | -EDTA Titration | -Calcium  - TH | 9 |
|  | 10  10 | - Photometer | -Calcium  - TH | 10 |
|  | - 10 (Each)  - 10 (Each)  - 35 (7 anion) | - Ion Chromatograph | -Bromide,Fluoride, Chloride  -Nitrite, Nitrate, Phosphate, Sulfate | 11 |
|  | 5 | - UV-spectrophotometer | Nitrate | 12 |
|  | 10 | - Stannous Chloride method | Phosphate | 13 |
|  | 5 | - Argentometric method | Chloride | 14 |
|  | 5 | - Photometer | Free Residual Chlorine Cl2 (FRC) | 15 |
|  | 10 | - Turbidimetric method | Sulfate | 16 |
|  | 8 | - Titration method | Alkalinity as CaCO3 | 17 |
|  | 5 | - Titration Method | Carbonate | 18 |
|  | 5 | - Titration Method | Bicarbonate | 19 |
|  | 10 | - Dried at 103-105 º | Total suspended Solids (TSS) | 20 |
|  | 2 | -Instrumental measurement | Total Dissolved Solid (TDS) | 21 |
|  | 10 | - Dried at 180º | Total Dissolved Solid (TDS) | 22 |
|  | 15 | - Closed Reflux, Titrimetric | Chemical Oxygen Demand | 23 |
|  | 15 | - 5-Day BOD test | Biochemical Oxygen Demand | 24 |
|  | 2 | - Conductivity meter | Electrical Conductivity | 25 |
|  | 2 | - PH-meter | PH | 26 |
|  | 10 | - Photometer | Nitrate | 27 |
|  | 15 | - Photometer | Total nitrogen | 28 |
|  | 20 | - Photometer | Phenol | 29 |
|  | 20 | - Photometer | Total organic carbon TOC | 30 |
|  | 10 | - Photometer | Ammonium NH4+ | 31 |
|  | 5 | - Ion selective electrode | Ammonium NH4+ | 32 |
|  | 30 | Enzyme Substrate Test (Colilert-IDEXX) | Total Coliforms and Escherichia coli | 33 |
|  | 15 | - MTF method | Total Coliform Count | 34 |
|  | 15 | MTF method | Escherichia coli | 35 |
|  | 15 | MTF method | Fecal Coliforms (Total Thermotolerant Coliform Count-TTCC) | 36 |
|  | 20 | Bacterial Enzyme Detection Technology "Pseudolert" From IDEXX | Pseudomonas aeruginosa | 37 |
|  | 15 | MTF method | Pseudomonas aeruginosa | 38 |
|  | 15 | Membrane Filtration | Fungi | 39 |
|  | 15 | Membrane Filtration | Free Living Nematodes | 40 |
|  | 15 | Sedimentation Technique | Algae | 41 |
|  | 25 | Package of test | Total cost for monthly analysis for drinking water station  **( Total coliform E.coli, Pseudomonas, Fungi, NO3**) | 42 |
|  | 50 | Solid Phase Extraction/ Gas Chromatography/Mass Spectrometer | OrganoChlorinated Pesticides  (OCPs)-16 compounds\*\* | 43 |
|  | 75 | Solid Phase Extraction / Gas Chromatography/Mass Spectrometer | Poly AromaticHydrocarbons (PAHs)-16 EPA compounds\*\* | 44 |
|  | 75 | Solid Phase Extraction / Gas Chromatography/Mass Spectrometer | Poly ChrorinatedBiphynels (PCBs)-14 congeners\*\* | 45 |
|  | 75 | Solid Phase Extraction / Gas Chromatography/Mass Spectrometer | ploychlorinateddibenzo-p-dioxins (PCDDs) and polychlorinateddibenzofurans (PCDFs)-17 congeners\*\* | 46 |

**\* 15 JD should be added if sample need acid digestion**

**\*\* 50 JD should be added if sampleneed extraction and cleaning**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Description** | **No of samples collected** | **Destination** | **Price (JD/Trip/day) vehicle** | **Price (JD/Trip/day) personnel** |
| **price** | **price** |
| 47 | Sampling by lab personnel & vehicle | ≤3 | Within Mafraq city | 20 | 10 |
| ≥3 | 20 | 20 |
| ≤3 | Outside Mafraq city | 40 | 20 |
| ≥3 | 40 | 40 |

1. **Rocks, Minerals and soil analyses:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Notes** | Responsible person | Price (JD) | **Method and Instrument** | **Analysis** |  |
|  | Eng. ManalAlessa  Email:  eng\_manal\_alissa13@yahoo.com | 10  10  30 | - XRF spectrometer  1.Sample preparation (fusion)  2.Sample preparation (Milling & crushing)  3. XRF analysis | Elemental Composition | 48 |
| 10  30 | - XRD Spectrometer  1. Sample preparation (Milling & crushing)  2. XRD analysis | Metal Composition | 49 |
|  | 10  30  3  25 | - Scanning Electron Microscope   1. Sample preparation (Coating) 2. Image (include 5 image)   for extra image   1. Chemical analysis (EDAX) | Scanning Electron Microscope Analysis | 50 |
| 10  25  50/hour | Electron Microprobe Analyzer   1. (Coating) 2. Thin section 3. Analysis per hour | Electron Microprobe Analyzer  (EMPA) | 51 |

**3. Organic materials analyses:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Notes** | Responsible person | Price (JD) | **Method and Instrument** | **Analysis** |  |
|  | Dr. MohanadMasad  Email:  mohanad@aabu.edu.jo | 25  50 | **-** GC-MS:  - without extraction  -with extraction | Quantitative & Qualitative Analysis of Organic Compounds by**:**GC/MS | 52 |
| 25 | - GC-MS | Quantitative & Qualitative Analysis of Organic Compounds by:  MS (DI) | 53 |
| 15 | - Elemental Analyzer | Carbon, Hydrogen, Nitrogen, Sulfur: | 54 |
| 75 | Solid Phase Extraction / Gas Chromatography/Mass Spectrometer | ploychlorinateddibenzo-p-dioxins (PCDDs) and polychlorinateddibenzofurans (PCDFs) \*\* | 55 |
| 75 | Solid Phase Extraction / Gas Chromatography/Mass Spectrometer | Poly ChrorinatedBiphynels  (PCBs) \*\* | 56 |
| 10  15  25  30    30 | - NMR Spectrometer   1. H­­1 2. H­­1 + normal C13 3. H­­1 +normal C13 +DEPT C13 4. 2 D experiment 5. cooling | NMR Analysis | 57 |

**\*\* 50 JD should be added if sampleneed extraction and cleaning**