# Federal Cabinet Resolution No. (39) of 2021
# Concerning the Executive Regulation of Federal Law No. (12) of 2018 Concerning Integrated Waste Management

**The Cabinet:**

- Having reviewed the Constitution;
- Federal Law No. (1) of 1972 Concerning the Jurisdictions of Ministries and the Powers of Ministers, as amended;
- Federal Law No. (12) of 2018 Concerning Integrated Waste Management;
- Based on the proposal of the Minister of Climate Change and Environment and the approval of the Cabinet,

**Has resolved:**

## Article (1)
## Definitions

Definitions provided in the Federal Law No. (12) of 2018 mentioned shall apply to this Resolution, otherwise, the following words and phrases shall have the meanings assigned to each of them, unless the context requires otherwise:

| | | |
|---|---|---|
| **Non-Hazardous Animal Waste** | : | Waste from animal tissue, fluid or secretion resulting from animal husbandry activities or manufacturing practices, including dead animals, excrement of non-infected animals with an epidemic disease, and slaughterhouse waste |
| **Hazardous Animal Waste** | : | Waste from animal tissue, fluids or secretions resulting from animal husbandry activities or manufacturing practices, including dead animals and excrement of sick or infectious animals |
| **E-Waste:** | : | Goods or damaged electrical and electronic equipment and devices that are or are intended to be disposed of, or any part of their components, by the Consumer |

| | | |
|---|---|---|
| **Battery Waste** | : | Expired or non-expired batteries that are disposed or are intended to be disposed of, or any part of their components, by the Consumer. |
| **Leachate** | : | A liquid that is filtered from the Landfill or the accumulated waste, including suspended or dissolved substances. |
| **Landfill Restoration** | : | A process in which the Landfill is technically treated and their lands reclaimed in a safe and secure manner that makes it a healthy Landfill or a usable place |
| **Tertiary Treatment** | : | The stage of advanced wastewater treatment, with the aim of sterilising the water and removing any solid or stuck parts in it, in order to increase the treated water purity for the purposes of restricted use in accordance with the standards approved in this Resolution |
| **Restricted Use** | : | Use of treated wastewater in accordance with the standards specified in this Resolution, while taking binding precautionary measures to prevent public exposure to that water |
| **Unrestricted Use** | : | Use of treated wastewater or treated sludge for purposes other than irrigation, without being harmful to human exposure, such as industrial or construction uses |
| **Returned Products** | : | Products with a design or manufacturing defect, inadequacy, deformation, or damage as a result of their non-compliance or insufficient compliance with the approved standards, warranty or specifications declared by the Supplier |
| **Environmental Impact Assessment (EIA)** | : | Study and analysis of the environmental feasibility of activities whose establishment or practice may affect the safety of the environment |
| **Waste Disposal** | : | Final process that takes place on waste without extraction or recycle of materials, for the purpose of final disposal, such as landfilling, deep injection, or any other method approved by the Ministry or the Competent Authority |

| | | |
|---|---|---|
| **Waste Treatment** | : | Removing pollutants, changing the character and composition of waste and reducing its potential harm to the environment by using chemical, physical, biological or any other process |
| **Treatment Unit** | : | A fixed or mobile installation in which waste is treated to remove pollutants, change the character and composition of waste and reducing its potential harm to the environment, public health and living organisms, using one of the approved treatment methods such as: recycling, converting to energy or fuel, or incineration without energy recovery, or Physiochemical treatment, or composting. |
| **Waste Sorting Unit** | : | A fixed or mobile installation in which waste is, manually or automatically, separated to recover recyclable materials for reuse, recycling or treatment |
| **Transport Document** | : | A document that includes data on the waste to be transported, in terms of its type, quantity, date of transfer, data of the installation, carrier, transport vehicle, its route and final destination, and the site of treatment or final disposal |
| **Consumer** | : | The natural or legal person who uses electrical or electronic devices or batteries of any kind |
| **By-products** | : | Materials resulting from industrial processes that can be recycled in the operations and manufacturing processes of the same installation or in other installation |
| **Landfill Cell** | : | A pit designed to contain waste, completely and safely, by using insulating materials to lining and covering it to separate waste from each other or from adjacent Landfill Cells. |

## Article (2)

## Waste Producer and Supplier Responsibility

1. The waste Producer shall properly dispose of the waste generated and bear the financial costs involved.

2. The Supplier shall:
    a. Accept the returned products and bear the financial costs resulting from their proper disposal in coordination with the Competent Authority or the Concerned Entity, as the case may;
    b. Collect and accept electronic waste and battery waste from Consumer free of charge, by providing Recycling bins in their sales centre s and treating or properly disposing of them in coordination with the Concerned Entities;
    c. Submit a monthly report to the Competent Authority clarifying the amount of electronic waste and battery waste collected and the method of treatment or disposal; and
    d. Bear all financial costs resulting from the treatment or proper disposal of electronic waste and battery waste in coordination with the Competent Authority or the Concerned Entity, as the case may be.
3. The Competent Authority may add any requirements for the proper treatment or disposal of electronic waste and waste batteries or any other requirements.

## Article (3)

## Municipal Solid Waste Containers

1. The Competent Authority shall provide two bins or bags for separating solid municipal waste in the following colours:
    a. Green: It is used for recyclable waste, including (paper, cardboard, metal, glass, and plastic waste) and others determined by the Competent Authority; and
    b. Black colour: General waste that is not usable or recyclable.
2. The Competent Authority shall provide the containers within a maximum period of (10) ten years.
3. The Competent Authority may provide an additional brown container or bag for sorting food waste and organic waste.
4. The Competent Authority may provide an additional container or bag in red for sorting hazardous municipal solid waste.

5. The Competent Authority, in coordination with the Ministry, may provide additional sorting bins or bags for other types of municipal solid waste, specifying their colours or placing an explanatory mark on them indicating the type of waste sorted.

## Article (4)

## Sewage Treatment Standards

1. The Competent Authority, or whoever it authorises, shall establish and operate sewage treatment installations in accordance with the following approved treatment standards:
   a. The use of Tertiary Treatment technology as a minimum; and
   b. The concentration of pollutants in the treated wastewater shall not exceed the maximum levels of pollutants contained in Annex No. (1) attached to this Resolution. The concentration of pollutants in the sludge resulting from sewage treatment shall not exceed the maximum levels stated in Annex No. (2) attached to this Resolution.
2. The Competent Authority, in coordination with the Ministry, may develop higher technical standards for sewage waste treatment.
3. The Competent Authority, or whoever it authorises, shall regularise the existing stations with dual treatment technology, and upgrade the treatment method taken in them in accordance with the provisions of Clause (1) of this Article, within a period not exceeding (5) years from the date of implementation of the Resolution.
4. The Ministry may amend the appendices attached to this Resolution in accordance with the latest developments concerning treatment Standards.

## Article (5)

## Hazardous Waste Management

The Competent Authority undertakes the management of hazardous waste by ensuring that the establishments that handle the hazardous waste comply with the following:

1. Separate generated hazardous waste from non-hazardous waste as determined by the Competent Authority;
2. Determine the types of hazardous waste generated.

3. Determining the types of hazardous waste that can be recycled in the same installation or in other installations;
4. Treat and dispose hazardous waste in accordance with the requirements of the Competent Authority;
5. Develop programmes to reduce the quantities of hazardous waste generated under the supervision of the Competent Authority in accordance with the results of the EIA study;
6. Install appropriate treatment units for effluents whose characteristics do not comply with sanitation standards in the installation;
7. Provide all data related to hazardous waste generated and treated pursuant to the requirements of the Competent Authority;
8. Not to receive hazardous waste generated by other installations without the approval of the Competent Authority at the installations that have treatment units;
9. Examine the hazardous waste treated by an accredited laboratory, and submit a report thereon to the Competent Authority.

## Article (6)

## Controls and Conditions for Waste Transport in the State Emirates

Concerned Entities that manage waste management installations and under their supervision allowed to transfer waste from one emirate to another pursuant to the following controls and conditions:

1. Obtain the approvals of the competent authorities;
2. Obligation to transfer the types of waste received by waste management installations only;
3. The transport shall be carried out by a carrier licensed by the Competent Authority in the Emirate exporting the waste to carry out the activity of transporting waste, and with vehicles authorised for the type of transported waste, and equipped with a tracking system;
4. The capacity of the transport vehicles shall be suitable for the quantities and type of waste to be transported;
5. Transfer of waste at a time determined by waste management installations;

6. In the event that an unacceptable shipment of waste arrives at the waste management installations, the Concerned Entity that manages the installations shall immediately notify the Competent Authority, to take the necessary action towards returning the waste;
7. Provide a temporary storage area for waste in emergency waste management installations;
8. Provide the Competent Authority with a complete waste hand-over certificate;
9. Document data on the quality and quantity of the waste being transported, its source and the waste management installation in which the waste is received, with special records, and a commitment to hand it over to the Competent Authority on a regular basis; and
10. Any other conditions or requirements approved by the Ministry or the Competent Authority.

## Article (7)

## By-Products Recycle

By-products resulting from industrial processes shall not be deemed as waste if they are usable without being exposed to any additional process after their generation, and they are determined by the Competent Authority in order to achieve the principle of circular economy.

## Article (8)

## Waste Landfills Regulatory Requirements

1. The Competent Authority shall classify the Landfill Cells in Landfills into Landfill Cells for non-hazardous waste and Landfill Cells for hazardous waste;
2. The Competent Authority or the Concerned Entity, as the case may be, shall take the necessary measures to sort and treat waste, with the aim of raising the rate of waste treatment and transferring the remaining waste from the sorting and treatment process to the appropriate Landfill;

3. The Competent Authority shall inform the Ministry when any Landfill is constructed or rehabilitated in the Emirate; and
4. The Competent Authority, before issuing a license to construct or rehabilitate a Landfill, shall comply with the following:
    a. Approval of the EIA Study for the construction of the new Landfill in accordance with the requirements of the installations EIA System; and
    b. Approval of the EIA study for the existing Landfill pursuant to the requirements of the EIA system for installations, provided that the EIA study includes developing perceptions concerning (rehabilitating the existing Landfill or closing the Landfill with the provision of a closure plan approved by the Competent Authority) or any future uses of the site.
5. The Competent Authority or the Concerned Entity, as the case may be, shall restore the existing Landfill in accordance with the technical requirements mentioned in Article (9), Clause Second, and Paragraph (2) of this Resolution.
6. The Competent Authority or the Concerned Entity, as the case may be, shall comply with the requirements of environmental control and management of the new and existing Landfill.

## Article (9)

## Waste Landfills Technical Requirements

**First: Waste transferred to Landfill:**

1. The following residual waste from the sorting or treatment processes is Landfilled in a non-hazardous Landfill:
    a. Construction and demolition waste;
    b. municipal solid waste;
    c. Agricultural waste;
    d. Non-hazardous industrial waste;
    e. Non-hazardous dry sludge resulting from wastewater treatment; and
    f. Non-hazardous animal waste

2. The following residual waste from the sorting or treatment processes is Landfilled in hazardous Landfill:
    a. hazardous industrial waste;
    b. E-waste;
    c. Medical waste;
    d. Hazardous animal waste;
    e. Hazardous dry sludge.
3. Bury the following waste shall be prohibited in all types of Landfills:
    a. Recyclable waste, such as used vehicle tires;
    b. Explosive or flammable waste, such as battery waste;
    c. Untreated medical waste;
    d. Non-dry sludge

**Second: Technical Requirements for Sanitary Landfill:**

1. The site designated for the construction of a new sanitary waste landfill shall meet the following:
    a. It shall be away from residential and recreational areas, waterway, urban agricultural sites, hospitals, airports, and industrial areas, for a distance of no less than (5) five kilometres, provided that the Competent Authority shall determine the buffer distances (the distance between the landfill wall to the nearest area inhabited) pursuant to an EIA study report that outlines the nature of the area, the technologies to be used, and the potential environmental impacts;
    b. It shall be at least (500) five hundred meters away from the groundwater basins;
    c. It shall be away from coastal waters or natural and archaeological reserves, and shall not harm any natural resources for a distance of no less than (2) two kilometres;
    d. The weather conditions of the area, including the movement, speed and directions of the winds and the flow of rainwater shall be known.
2. The following technical requirements shall be adhered to in the existing or new sanitary Landfill:
    a. Fence the Landfill to prevent indiscriminate disposal, entry of individuals and loose animals, and take the necessary measures to control birds with a system of strict control over it (surveillance cameras, guard gate, warning boards, identification

boards for the Landfill site, types of waste received, working times, and a radiation detector);

b. Create a belt (buffer zone) around the Landfill to ensure that the spread of volatile materials from the site is reduced;
c. Pave the road to the site, provide adequate lighting, and construct internal roads at the landfill for transporting waste vehicles after obtaining the necessary approvals from the relevant Competent Authority;
d. Determine area near the entrance to the Landfill to check on the loads to ensure that there is conformity with what was stated in the accompanying transport document, with the installation of an electronic scale to record the weight and quantities of waste and linking it with an electronic system to form an integrated network in order to obtain an integrated database of waste;
e. Establish a waste sorting unit with the aim of separating recyclable materials, to reduce the amount of buried waste, provided that the location of the unit, whether inside or outside the Landfill, is determined in the EIA study;
f. Establish a compression unit, compress waste residues and convert them into cubes, provided that the unit location is determined in the EIA study, or waste compression is carried out in the Landfill Cells on a daily basis during the operational operations of the Landfill to provide spaces in the Landfill area, with the exception of construction and service Landfills;
g. Establish the mechanism and plans for draining rainwater and change the direction of the torrents descending from the areas surrounding the Landfill, and having them approved by the Competent Authority;
h. Establish a leachate collection network for drainage, treatment and sampling, with the exception of construction and demolition waste landfills;
i. Set up a network to collect and manage gaseous emissions and benefit from them in generating electric power whenever possible, in coordination with the Competent Authority, with the exception of construction and demolition waste landfills;
j. Establish monitoring wells to monitor the quality of groundwater, ensure that no polluting materials leak into the groundwater, and establish and update emergency plans on a permanent basis to deal with the leakage;

k. Establish air quality monitoring system;
l. Determine the Landfill capacity and the Landfill size of area through the daily coverage of waste and its future expansion;
m. Preparing Standards for accepting the waste allowed to be disposed of in the Landfill pursuant to the types mentioned and specified in this Resolution, and ensuring separation, when landfilled whenever possible;
n. Commit to emergency requirements and crisis management in the design, construction and operation phase; and
o. Any other requirements determined by the Competent Authority.

3. The treatment unit inside the existing and new Landfill requires the following:
   a. Providing the means to control air emissions resulting from the treatment process;
   b. Providing alternative and appropriate procedures for waste treatment in the event of a malfunction; and
   c. Provide the requirements for conducting the biological, chemical and physical tests necessary to maintain the efficiency of the treatment process
4. Establishing a new Landfill in the following locations shall be prohibited:
   a. Valleys, reefs and torrents;
   b. Above groundwater basins close to the surface of the earth, or whose height is less than sea level;
   c. Historic areas and nature reserves;
   d. Areas with geological structures (main faults) or seismically active areas;
   e. Critical and sensitive natural habitats;
   f. Any other areas determined by the Competent Authority

**Third: The design of the Landfill Cells and the base isolation system in Landfills:**

1. The area of the Landfill Cells shall be determined based on the topographical and hydro geological assessment of the land.
2. The Landfill Cells consist of the following:
   a. Insulating materials for lining the Landfill pit, provided that it is of the type (HDPE) and with a thickness of not less than (2) two millimetres; and
   b. The natural geological barrier and it is determined based on the geological and hydro geological conditions of the Landfill area to prevent any possible leakage. If natural

geological barrier is unavailable, a double layer system can be made for the base of the Landfill Cells as follows:

1. The first layer consists of natural products (a layer of clay or the use of betonies with slaked lime);
2. The second layer consists of synthetic products (HDPE);
3. Double layer system, at the base of the hazardous waste Landfill Cells

**Fourth: Requirements for environmental monitoring and management of the existing and new Landfill:**

1. The Competent Authority or the Concerned Entity, as the case may be, for the environmental management of the Landfill, shall comply with the following:
   a. Preparing a record containing all the data related to the Landfill, and updating it periodically, and it shall include the following:
      1. The type and quantity of waste used;
      2. The results of the examination and analyse of leachate;
      3. Plans for contingency, evacuation and business continuity;
      4. Studying risks and improvement plans in case of complaints in the area; and
      5. Technical and vocational training programmes for Landfill workers, with all proof documents.
         a. Providing a trained, equipped and qualified staff commensurate with the needs and operation of the Landfill, provided that one of them is a health, safety and environment officer, and taking all necessary measures to ensure their health and safety.
         b. Develop guiding regulations inside the Landfill for workers and the movement of machinery.
         c. Visual inspection and examination through the radioactive detector of the received waste, to ensure that the transport document matches the waste and that there are no radioactive materials in the waste to be buried in the Landfill.
         d. Develop an integrated environmental management plan, for example: monitoring the air environment, odour-generating elements, and sound mechanisms for dealing with waste in landfills.

e. Make air quality measurements based on the monitoring plan approved in the EIA study, provided that they are in more than one location inside the Landfill.
f. Follow integrated pest management practices in the Landfill.
g. Take the necessary measures to provide purification installations for waste vehicles before they leave the Landfill, whenever possible.

b. Any other requirements determined by the Competent Authority.

2. The Competent Authority or the Concerned Entity, as the case may be, for monitoring groundwater, shall comply with the following:
   a. Determining the sampling sites that represent the quality of groundwater near the Landfill site, and determining the periodicity of sampling based on the monitoring plan approved in the EIA Study; and
   b. Conduct periodic analyses and measurements in laboratories accredited by the Competent Authority to ensure that waste does not affect the quality of groundwater in the area surrounding the Landfill.

**Fifth: The Landfill Closure:**

The Competent Authority or the Concerned Entity, as the case may be, shall close the existing Landfill based on the EIA study and in accordance with the closure plan approved by the Competent Authority, while ensuring that waste is not detected and rainwater leaks into the buried waste.

**Sixth: The stage following the Landfill Closure:**

The Competent Authority or the Concerned Entity, as the case may be, shall implement the landfill post-closing plan approved by the Competent Authority, and shall comply with the following:

1. Stop burying any kind of waste in the Landfill;
2. Verify the type and quantity of gases generated in the Landfill, and work to withdraw and remove them in a sustainable manner, and reduce the transfer of these gases to the surrounding air, or use them in electrical power generation whenever possible;
3. Sustainable collection and treatment of leachate;
4. Take all appropriate measures to limit or prevent the leakage of odours emitted from the site to the neighbouring areas;

5. Green belt work to curb the spread of odours and air pollutants;
6. Clean the surfaces of the sites from all kinds of randomly landfilled waste;
7. Cover the surfaces of the sites after cleaning and levelling them; and
8. Landfill levelling to prevent random disposal

**Seventh: Rehabilitation of the Landfill:**

1. The Competent Authority or the Concerned Entity, as the case may be, shall restore the unsanitary Landfill that does not meet the requirements, within a period not exceeding (8) eight years as a maximum; and
2. In the event that the Landfill is not restored within the period specified in the above Paragraph, the Landfill shall be closed by the Ministry in coordination with the Competent Authority. The Competent Authority, or the Concerned Entity, as the case may be, shall bear all the costs of closure and restoration of the lands.

## Article (10)

## Administrative Penalties

Without prejudice to any more severe penalty stipulated in any other legislation, the Competent Authority may impose the following administrative penalties on violating installations:

1. Temporary closure of the installation for a period not exceeding (6) six months, and suspending its license for the same period, and it has the right to issue Resolutions that allow the installation to resume its work before the end of the administrative closure period in case the subject matter of the violation is removed; and
2. Permanent closure of the installation, and withdraw its license in case of failure to remove the causes of the violation after the closure period ends.

## Article (11)

## Grievance Procedures

1. Resolutions issued pursuant to the provisions of Article (10) of this Resolution may be appealed, provided that the following are adhered to:

a. Submit the grievance to the Competent Authority that issued the Resolution to impose the administrative penalty, in accordance with the procedures and within the periods specified by a Resolution of the Competent Authority; and
b. The necessary documents explaining the grievance reason attached.

2. The Competent Authority shall issue the Resolution it deems appropriate concerning the grievance within the period it specifies, and the Resolution issued in this regard shall be final.

## Article (12)

## Repeals

Any provision that violates or contradicts the provisions of this Resolution shall be repealed.

## Article (13)

## Publication and Enforcement of Resolution

This Resolution shall be published in the Official Gazette and shall be enforced as of the day following the date of its publication.

**Mohamed bin Rashid Al Maktoum**

**Prime Minister**

**Issued by Us:**

**On: Ramadan 09,1442 H**

**Corresponding to: April 21, 2021**

## Annex No. (1) Concerning Treated Wastewater Standards
## Annexed to Cabinet Resolution No. (39) of 2021
## Concerning the Executive Regulations of Federal Law No. (12) of 2018
## Concerning Integrated Waste Management

**Table (1-1): Technical Parameters of Wastewater**

| P2 | P1 | Standard | |
|---|---|---|---|
| Restricted recycle | Unrestricted recycle | | |
| Prescribed Concentration | Prescribed Concentration | Unit | Parameter |
| 6 to 8.5 | 6 to 8.5 | - | pH |
| 10 | 10 | Mg/l | BOD5 (ATU) |
| 20 | 10 | Mg/l | Total Suspended Solids |
| 10 | 5 | NTU | Turbidity |
| 0.5 to 1 | 0.5 to 1 | mg/l | Residual Chlorine (total available) |
| > 1 | > 1 | mg/l | Dissolved Oxygen |
| General Requirements for Treated wastewater | Treated wastewater may be used pursuant to the specifications contained in this Annex to irrigate plant varieties that are used in cosmetic agriculture, windbreak forests, industrial uses or other uses determined by the Competent Authority, and it is prohibited to use it in irrigating crops of vegetables and fruits that are consumed by humans, or for the purposes of drinking, kitchen, bathing or swimming, provided that the Competent Authority conducts continuous inspection and permanent inspection of those crops | | |
| | - Treated wastewater may be used for purposes other than irrigation, with notification to the Ministry of that.<br>- Treated water may be disposed of from wastewater in the lands, in accordance with the land uses, soil quality, and nearby groundwater basins, with notification to the Ministry of that, and in the event that it is | | |

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| | discharged to the Maritime Authority, the marine environment protection standards contained in Cabinet Resolution No. (37) shall be followed. ) for the year 2001 concerning the regulations for the Executive Regulations of Federal Law No. (24) for the year 1999 concerning the protection and development of the environment, or any higher standards issued by the Competent Authority.<br>- installations shall develop plans to recycle treated water to ensure the preservation of the various elements of the environment. |

**Table (1-2): Standards for Microbiological Pollutants**

| P2 | | P1 | | Standard | |
|---|---|---|---|---|---|
| Restricted recycle | | Unrestricted recycle | | | |
| Prescribed Concentration | Geometric Mean | Prescribed Concentration | Geometric Mean | Unit | Parameter |
| 800 | 200 | 23 | 14 | CFU or MPN/100ml | Faecal Coliform or E. Coli |
| 104 | 35 | 24 | 11 | CFU or MPN/100ml | Intestinal Enterococci |
| 0 | N/A | 0 | N/A | Number/l | Helminth Ova |
| N/A | N/A | 100 | N/A | CFU or MPN/ml | Legionella (in circulating water) |

**Table (1-3): Tracer Technical Characteristics**

| Parameter | Unit | Prescribed Concentration |
|---|---|---|
| Aluminium (Al) | mg/l | 5.0 |
| Arsenic (As) | mg/l | 0.1 |
| Beryllium (Be) | mg/l | 0.1 |
| Cadmium (CD) | mg/l | 0.01 |
| Chromium (Cr) | mg/l | 0.1 |
| Cobalt (Co) | mg/l | 0.05 |
| Copper (Cu) | mg/l | 0.2 |
| Fluorides (F) | mg/l | 1.0 |
| Iron (Fe) | mg/l | 5.0 |
| Lead (Pb) | mg/l | 5.0 |
| Lithium (Li) | mg/l | 2.5 |
| Manganese (Mn) | mg/l | 0.2 |
| Mercury (Hg) | mg/l | 0.001 |
| Molybdenum (Mo) | mg/l | 0.01 |
| Nickel (Ni) | mg/l | 0.2 |
| Selenium (Se) | mg/l | 0.02 |
| Vanadium (V) | mg/l | 0.1 |
| Zinc (Zn) | mg/l | 2.0 |

**Table (1-4): Salinity Standards**

| Parameter | Unit | Prescribed Concentration |
|---|---|---|
| Electrical conductivity | (dS/m @ 25°C) | 3.0 |
| Total dissolved solids (TDS) | mg/l | 2,000 |

| | | |
|---|---|---|
| Sodium Adsorption Ratio (SAR) | mg/l | 2.9 |
| Sodium (Na+) | mg/l | 9 |
| Chloride (Cl-) | mg/l | 10 |
| Boron (B) | mg/l | 3 |
| Bicarbonate (HCO3-) | mg/l | 8.5 |

## Annex (2) Standards for Sludge Generated by the Treatment Process

## Annexed to Cabinet Resolution No. (39) of 2021

## Concerning the Executive Regulations of Federal Law No. (12) of 2018

## Concerning Integrated Waste Management

**Table (2-1): Standards for Microbiological Pollutants**

| B2 | B1 | Standard | |
|---|---|---|---|
| Restricted recycle | Unrestricted recycle | | |
| Prescribed Concentration | Prescribed Concentration | Unit | Parameter |
| < 100,000 | < 1,000 | CFU/g dm | E. Coli |
| Not applicable | < 1 | CFU/2g dm | Salmonella |
| < 10 | < 1 | No./50g dm | Helminth Ova |

**Table (2-2): Tracer Technical Characteristics**

| B2 | B1 | Standard | |
|---|---|---|---|
| Restricted recycle | Unrestricted recycle | | |
| Prescribed Concentration | Prescribed Concentration | Unit | Parameter |
| 75 | 20 | mg/kg | Arsenic (As) |
| 20 | 1 | mg/kg | Cadmium (CD) |
| 1,000 | 400 | mg/kg | Chromium (Cr) |

| | | | |
|---|---|---|---|
| Copper (Cu) | mg/kg | 150 | 1,000 |
| Lead (Pb) | mg/kg | 300 | 750 |
| Mercury (Hg) | mg/kg | 1 | 10 |
| Molybdenum (Mo) | mg/kg | 20 | 75 |
| Nickel (Ni) | mg/kg | 60 | 300 |
| Selenium (Se) | mg/kg | 3 | 50 |
| Zinc (Zn) | mg/kg | 300 | 2500 |

Table (3-2): Sludge Stabilisation Standards

| **Option** | **Measure** | **Requirement** |
|---|---|---|
| **Treatment System to reduce volatile solids** | % VS Reduction across process | > 38 |
| **Treatment System to dry raw sludge** | % dm in final product | > 95 |
| **Treatment System to dry stabilized sludge** | % dm in final product | > 75 |
| **Treatment System to maintain pH** | pH in final product | > 11.5 for 24 |
| - The treated sludge may be used pursuant to the specifications mentioned above to improve the soil used for plant varieties that are used in cosmetic agriculture, windbreak forests, industrial uses or other uses determined by the Competent Authority, with the exception of crops and vegetables that are consumed by humans, provided that the Competent Authority conducts continuous inspection And permanent inspection of that plantings<br>It is forbidden to dispose of sludge in marine structures or water bodies. | | **General requirements for treated sludge** |