TECHNICAL DATA SHEET

2 TANKS EFFLUENT TREATMENT PLANT Ref. 3800/EU

Double-skinned tank

Electrical distribution cabinet

All effluents, from the technical room of the burial chamber, from the benches, from the drains, and in principle from all points where liquid discharges are likely to be contaminated, will be treated. These discharges are loaded with organic matter and simple chemicals, which are discharged directly into the tank by gravity.
The effluent at the outlet arrives gravelly in the storage tank of 2 m^3 for receiving and homogenizing waste water. When the volume of 1 m^3 of effluent is reached in this tank, the effluent is transferred to the treatment tank in order to undergo the neutralization treatment. The purpose of this treatment tank is to treat effluents before they are discharged into the wastewater system.
When the volume of 1 m^3 of effluent is reached in this tank, the treatment cycle starts with the injection of soda to obtain a pH of 12.2 in the effluent in order to destroy all microorganisms and this for a duration of 2 hours.
After the 2 hours of treatment at pH 12.2, sulfuric acid is injected to neutralize the soda to obtain a pH between 6.5 and 7.5 in the effluent before its discharge to the wastewater network.
This tank will be equipped with 2 lifting pumps and a stirrer to enable the tank to be stirred.
The pumps will be associated with 2 level pears and will operate on a defined volume:
- Level 1 pear: low level : pump safety
- Pear level 2 : high level : authorization to start the transfer pump
- Pear level 3: very high level: safety bulb triggers alarm and starts the emergency pump.

No transfer from the receiving tank to the treatment tank will take place as long as the neutralization cycle in the treatment tank is in progress. Once the effluent has been discharged, the neutralisation cycle is ready for the next treatment cycle.

- **INCLUDED**:

1) **Storage and homogenizing tank**: in PRVF (polyester reinforced with glass fibre with orthophthalic resins covered with a specific inner layer for resistance to chemicals), double skin with a volume of 2000 litres equipped with: 1 manhole with cover, 1 effluent inlet opening, 1 effluent outlet opening, 1 ventilation opening fitted with a carbon filter or to be connected to the ventilation system
3 level controllers, 1 stirrer, 2 aerial lifting pumps, 1 stainless steel support for pumps and stirrer.

2) **Treatment tank**: same raw material PRVF, double skin with a volume of 1000 litres equipped with: 1 manhole with cover, 1 effluent inlet opening, 1 effluent outlet opening, 1 ventilation opening fitted with a carbon filter or to be connected to the ventilation system, 3 level controllers, 1 stirrer, 2 aerial lifting pumps, 1 stainless steel support for pumps and stirrer, 2 connections for soda and acid injection, 1 connection for pH sensor.

3) **And the neutralization unit and acid-base pH regulator**: 1 soda dosing pump, 1 acid dosing pump, 1 pH controller, 1 pH probe, 1 electrical control cabinet for all equipment, 2 acid drums, 2 soda drums, 2 retention tanks and 1 electrical control cabinet, PVC PRESSURE piping and cable tray and electrical cable.

- **Principle:**

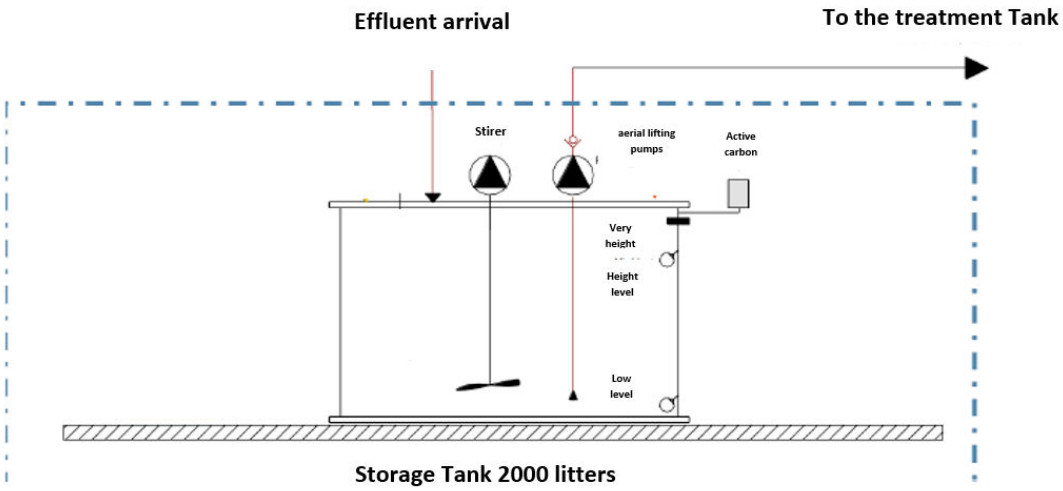
This involves the supply and installation of a treatment unit to treat and neutralize discharge water from the mortuary service.
Specific regulations for body preservation facilities:
Order of 13 August 1996,
Article 29.2 of the Standard Departmental Health Regulations,
Decree No. 97-1048 of 6 November 1997 (Article R44-1),
Decree No. 94-469 of 3 June 1994, Articles L.372-1-1 and L.372-3 (OJ of 8 June 1994),
DGS/DH Circular N° 2001-138 of 14 March 2001>> Inactivation of ATNCs,
Circular of the DGS/DH N° 2004 - 382 of 30 July 2004.

The process implemented will be chemical under the principle of the action of sodium hydroxide NaOH. All effluents,

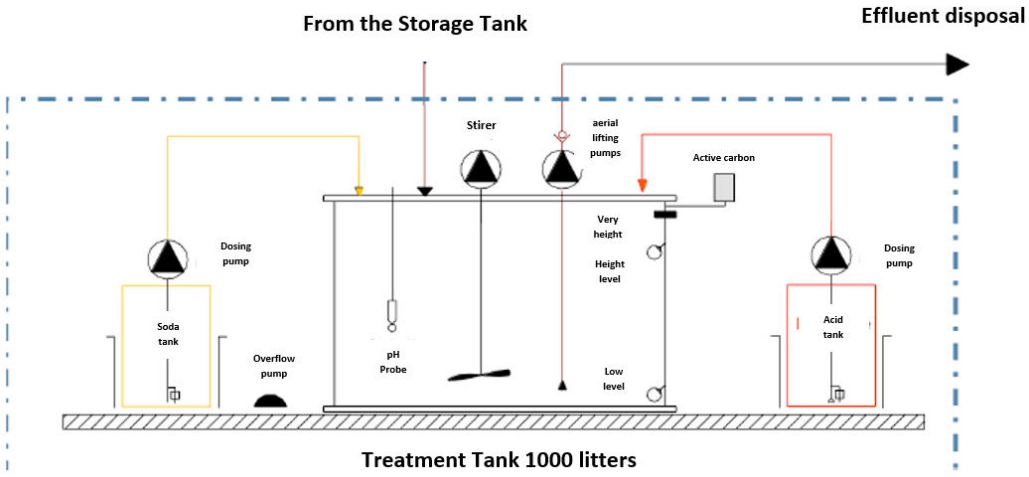
coming from the autopsy room and in principle from all points where liquid discharges are likely to be contaminated, particularly by ATNC, must be treated. These discharges are loaded with organic matter. The inactivation of CNTDs in accordance with DGS/DH directive No. 138 will be carried out in a treatment unit. The process implemented will be chemical under the principle of the action of sodium hydroxide (NAOH). In order to ensure the neutralization of the effluents and particularly the inactivation of the ATNC, in accordance with the legislation, the contact time will be at least 1 hour at pH 12.2, then neutralization of the chemically active effluent with acid in order to bring the pH to a value between 6.5 and 7.5 to allow its discharge into the urban network.

All effluent from the autopsy room will be treated during the day in the treatment unit in order to undergo the neutralization treatment.

- **Process:**



The main treatment steps are defined, from upstream to downstream, as follows for the effluent treatment tank:



- **The main treatment steps are defined, from upstream to downstream, as follows for the effluent treatment tank:**

1/ Effluent supply to the neutralization tank:

The effluent flows gravitationally into the 1.0 m3 treatment tank. The purpose of this neutralization tank is to collect the effluents and homogenize them in order to neutralize them at pH 12.2 during a defined cycle of at least 2 hours with injection of soda and then neutralization with acid to reach a pH between 6.5 and 7.5 before discharge to the network. This tank will be equipped with 2 lifting pumps and a stirrer to enable the tank to be stirred.

The pumps will be associated with 2 level pears and will operate on a defined volume:

- o Level 1 pear:
  - Low level: pump safety
- o Level 2 pear:
  - High level: authorization to start the pumps according to the time of the day programming
- o Pear level 3: High level alarm
  - Very high level: safety bulb triggering alarm and treatment cycle.

2/ pH regulator:

The pH meter will display the pH value continuously. The correction of the pH will be done according to the value defined by injecting soda or acid.

The corrective solutions will be:

- o Sodium hydroxide lye at a concentration of 30% NaOH
- o Sulphuric acid has a concentration of 46%.

The acid and soda solutions will be packed in 20 kg cans installed on specific 70 l retentions.

3/ Electrical cabinet:

The electrical cabinet will be equipped with:

- o on/off switches for each motor,
- o Run and fault indicators for each motor
- o Safety circuit breaker
- o Indicator light and buzzer and dry contact report synthesis fault (pump evacuation),
- o Agitator, dosing pump).

The electrical cabinet is essentially composed of contactors and relays to simplify maintenance.

- **Characteristics of the equipment:**

1°) Storage tank: waste water storage and homogenizing tank

Fonction	Aerial tank in double-skinned PRVF - H: 1.40 m diameter: 1.44 m – 2000 litters
Equipment	Lid with 415 mm manhole for passage and material lift PVC connection Pressure: Inlet and effluent discharge to the network

2°) Treatment tank: waste water treatment and neutralization tank

Fonction	Aerial tank in double-skinned PRVF - H: 1.03 m diameter: 1.38 m – 1000 litters
Equipment	Lid with 415 mm manhole for passage and material lift PVC connection Pressure: Inlet and effluent discharge to the network

3°) Discharge pumps and stirrers :

Fonction	Pump for discharging effluent to the network and agitator for stirring it
Equipment	2 Lifting pumps 220 V or 380 Sorting 1 stirrer 2 level pears 1 stirrer PVC bonding Pressure: For discharge

4°) pH correction unit and temperature indicator:

Fonction	Automatic pH control system

5°) <u>Soda and acid injection pump</u>:

Technical	Injection according to pH threshold
Characteristics	Soda and acid injection unit consisting of: - an acid injection pump: 5 l/h at 8 bars 220v or 380v - of a soda injection pump: 5 l/h at bars 380v - 2 splash guards - of 1 can of 46% sulfuric acid - of 1 can of 30% soda lye - 2 holding tanks for soda and acid cans Transfer connection by PE and PVDF pipe

6°) <u>Electrical cabinet</u>:

Technical	Control of the installation (mounting on the wall of the technical room)
	- on/off switches for each motor, - Run and fault lights for each motor - Automatic management system - Fault level indicator: low level of acid and base - Safety circuit breaker - Indicator light and buzzer - dry contact report synthesis fault (discharge pump, agitator, dosing pump) and lack of product (base and acid)

<u>PLUG AND PLAY EFFLUENT TREATMENT PLANT</u>: