EDIA Empresa de Desenvolvimento e Infra-estruturas do Alqueva, S.A.

Water Quality Report for Irrigation
EFMA Primary Network

Lab results Responsible Laboratory: ALS Life Sciences Portugal, S.A.	(Bulletin nº 234850/2024)		Water Quality for Irrigation (annex XVI, DL n.º 236/98)
Parameters	Units	Results	Conformity
Alkalinity	mg/L CaCO3	153	
Ammonium	mg/L NH4	0,063	
Nitrogen Kjeldahl	mg/L N	0,68	
Total Nitrogen	mg/L N	0,71	
Bicarbonates	mg/L CO3H-	187	(a)
Boron	mg/L B	0,0344	
Calcium	mg/L Ca	44	
Chloride	mg/L Cl	79	
Total Hardness	mg/L CaCO3	203	
Dissolved Iron	mg/L Fe	<L.Q. 0,010	
Phosphates	mg/L P2O5	0,07	
Total Phosphorus	mg/L P	0,03	
Magnesium	mg/L Mg	22,5	
Manganese	mg/L Mn	0,014	
Nitrates	mg/L NO3	<L.Q. 2	
Nitrites	mg/L NO2	<L.Q. 0,01	
Potassium	mg/L K	6,9	
Ratio of Sodium Absorption (SAR)		1,38	
Ratio of Sodium Absorption adjusted (SARaj)		1,496	
Sodium	mg/L Na	45,2	
Total Dissolved Solids (TDS)	mg/L	345	
Total Suspended Solids (TSS)	mg/L	3,6	
Sulphates	mg/L CO4	44,5	
Total Coliforms	UFC/100 mL	1200	
Fecal Coliforms	UFC/100 mL	120	

Note: With the exception of the SARaj parameter, test to determine the remaining parameters are included in the range of laboratory accreditation.

Field Results (Determined with a multiparameter probe)			Water Quality for Irrigation (annex XVI, DL n.º 236/98)
Parameters	Units	Results	Conformity
Temperature	ºC	25,1	
pH	Escala Sorensen	8,70	
Conductivity	µS/cm	638	

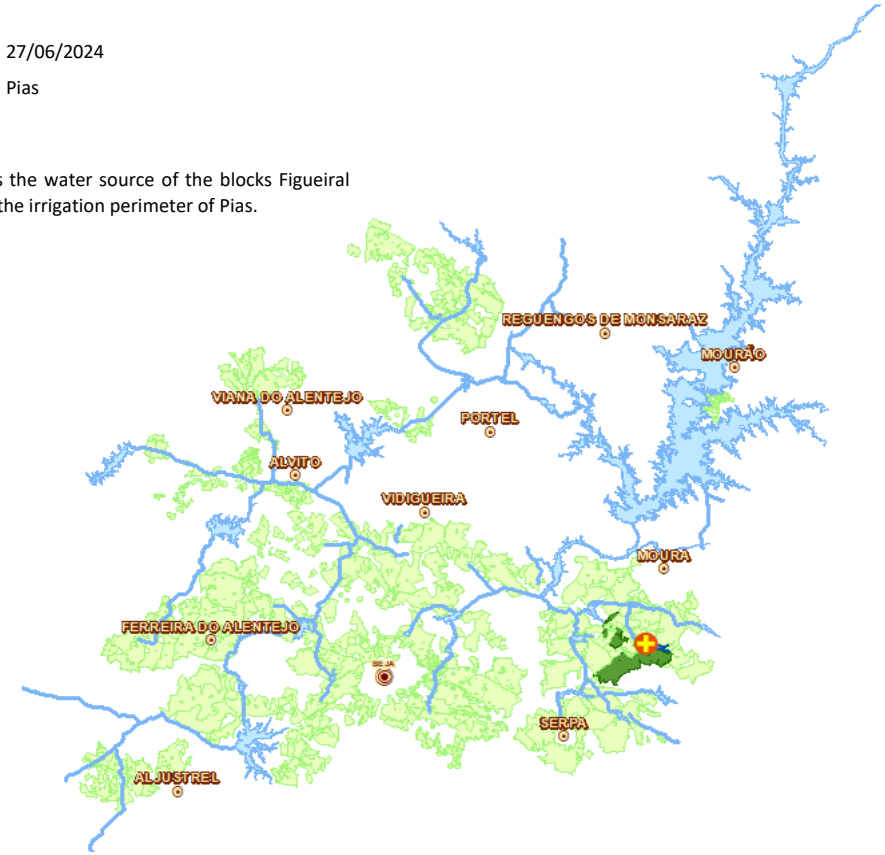
- Lower than the VMR (Maximum Value Recommended).
- Higher than VMR and below the VMA (Maximum Permitted Value).
- Higher than VMR. For this parameter is not defined one VMA.
- Higher than the VMA.

(a) The maximum value recommended in the Integrated Production Standards, for most crops, is 90 mg / L.

Sampling Data: 27/06/2024

Sampling Place: Pias

Benefited areas:
The reservoir of Pias constitutes the water source of the blocks Figueiral Alto and Pias Alto, integrated in the irrigation perimeter of Pias.



Comments:
The pH result exceeds the Recommended Maximum Value range for water quality for irrigation (VMR: [6.5-8.4]). This may be due to an increase in the biological activity of algae. High pH values can affect the plant's ability to absorb nutrients and promote the precipitation of iron, calcium, magnesium and phosphate ions, which may promote the clogging of drip irrigation systems.
Chlorides exceed the VMR for irrigation (70 mg / L) and may originate from natural land drainage or agricultural runoff. At high concentrations they may be toxic to plants and cause deflocculation of soil clays, degrading their structure.
The fecal coliform result exceeds the Maximum Recommended Value for irrigation water (VMR: 100 NMP/100mL). A Maximum Admissible Value (VMA) has not been defined for this parameter. The fecal coliform results tend to be lower than the legal limit for irrigation water, with the result in the other two campaigns carried out in 2024 being much lower (January 2024: 3 CFU/100 mL and March 2024: 0 CFU/100 mL). The main problem associated with the presence of fecal coliforms in irrigation water is related to the irrigation of crops for direct consumption.
The bicarbonate values exceed the maximum value recommended in the Integrated Production Standards. High concentrations of bicarbonates can affect crop yields, making it difficult to absorb some mineral nutrients.
The results of the remaining elements are within the range of expected values for this typology of water bodies.
In the document "*Water Quality - Complementary Information*", EDIA recommends some general measures to reduce the concentration of salts in the water bodies.