

**CHEMICAL COMPOSITION OF WASTEWATERS IN ALEXANDRIA AND GIZA, EGYPT:**

Constituent	Alexandria		Giza	
	Unit	Concentration	Unit	Concentration
EC	dS/z	3.10	dS/z	1./
pH		7.80		/.1
SAR		9.30		2.8
N a <sub>2</sub> *	me/l	24.60	mg/l	205
Ca <sub>2</sub> *	me/l	1.50	mg/l	128
Mg	me/l	3.TO	mg/l	96
g*	me/l	1.80	mg/l	35
Cl-	me/l	62.00	mg/l	320
so 2-	me/l	35.00	mg/l	138
COC	me/l	1.10		
HCO,-	me/l	6.60		
NH/	f1g@l	2.50		
NOT	mg/l	10.10		
P	mg/l	8.50		
Mn	mg/l	0.TO	mg/l	0.
Cu	mg/l	1.10	mg/l	0.4
Zn	mg/l	0.80	mg/l	1.4

**Source. Abdel—Ghaffar ef a/. (1988)**

**Table 1.** Limits for certain parameters in WWTP discharge standards in China.

Standards	Grade	BOD <sub>5</sub> (mg·L <sup>-1</sup> )	COD <sub>Cr</sub> (mg·L <sup>-1</sup> )	SS (mg·L <sup>-1</sup> )	NH <sub>3</sub> -N (mg·L <sup>-1</sup> )	TN (mg·L <sup>-1</sup> )	TP (mg·L <sup>-1</sup> )
Integrated wastewater discharge standard (GB 8978-1988)	—	30	120	30	—	—	—
Integrated wastewater discharge standard (GB 8978-1996)	Grade 1 <sup>1</sup>	20	60	20	15	—	—
	Grade 2 <sup>1</sup>	30	120	30	25	—	—
Discharge standard of pollutants for municipal wastewater treatment plant (GB 18918-2002)	Grade 1-A <sup>2</sup>	10	50	10	5(8) <sup>3</sup>	15	0.5
	Grade 1-B <sup>2</sup>	20	60	20	8(15) <sup>3</sup>	20	1
	Grade 2 <sup>2</sup>	30	100	30	25(30) <sup>3</sup>	—	3

<sup>1</sup> According to GB 8978-1996, Grade 1 standards were for WWTPs discharging wastewater into surface water classified as Grade III according to “Environmental Quality Standards for Surface Water” (GB 3838-2002) [26]. Grade 2 standards were for WWTPs discharging wastewater into surface water classified as Grade IV–V according to GB 3838-2002; <sup>2</sup> According to GB 18918-2002, Grade 1-A standards were for water discharged by WWTPs for reuse. Grade 1-B standards were for WWTPs discharging wastewater into surface water classified as Grade III according to GB 3838-2002. Grade 2 standards were for WWTPs discharging wastewater into surface water classified as Grade IV–V according to GB 3838-2002; <sup>3</sup> Limits in parentheses are for wastewater temperature  $\leq 12$  °C, and those outside parentheses are for  $>12$  °C.

*COD parameter was measured using COD Vials (COD 25– 1500 mg/L, Merck, Germany).*

*Aluminum ions ( $Al^{+3}$ ) were determined using Al Vials (Aluminum Test 0.020–1.20 mg/L, Merck, Germany).*

*Iron concentration ( $Fe^{+2}$ ) was determined using Iron Vials (Iron Test 0.005–5.00 mg/L, Merck, Germany).*

*Cadmium ions ( $Cd^{+2}$ ) were determined using Cadmium Vials (Cadmium Test 0.005–5.00 mg/L, Merck, Germany).*

*Nitrogen content was determined using Nitrate Vials (Nitrate Cell test in seawater 0.10–3.00 mg/L  $NO_3-N$  or 0.4–13.3 mg/L  $NO_3^-$ , Merck, Germany).*

*Phosphorous content was determined using Phosphate Vials (Phosphate Cell Test 0.5–25.0 mg/L  $PO_4-P$  or 1.5–76.7 mg/L  $PO_4^{3-}$ , Merck, Germany).*

<b>Parameter</b>	<b>No of samples</b>	<b>Median value</b>	<b>Max value</b>
Alkalinity - total g CaCO <sub>3</sub> /m <sup>3</sup>	13	50.00	62.000
Aluminium - total g/m <sup>3</sup>	15	0.045	0.179
Arsenic - total g/m <sup>3</sup>	2	<0.002	<0.002
Boron - total g/m <sup>3</sup>	2	<0.05	<0.05
Cadmium - total g/m <sup>3</sup>	2	<0.001	<0.001
Calcium Hardness g CaCO <sub>3</sub> /m <sup>3</sup>	2	15.850	16.500
Chloride g/m <sup>3</sup>	2	<0.001	<0.001
Chromium - total g/m <sup>3</sup>	2	18.750	20.300
Conductivity at 25°C mS/m	2	<0.013	<0.013
Copper - total g/m <sup>3</sup>	13	<0.005	<0.005

