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Electrocoagulation Pretreatment for Total Phosphorus and Boron Removal in Waste lubricating oil regeneration wastewater: Efficiency and Mechanism

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Table S1 Characteristics of WLORW in used lubricant oil recycling facilities

Parameters	Unit	Value
Odors	-	Stink
Chemical oxygen demand (COD)	g/L	80.6
Oil	g/L	1.8
Biochemical oxygen demand (BOD ₅)	g/L	10.4
pH	-	7.7
Conductivity	μs/cm	1084
Total phosphorus (TP)	mg/L	12.9
Born (B)	mg/L	17.5
Suspended solids (SS)	mg/L	84.1
Ammonia nitrogen (NH ₄ ⁺ -N)	mg/L	15.8

Table S2 Comparison of TP and B removal and energy consumption in orthogonal experiments

Serial number	Current density (mA/cm ²)	Initial pH	Processing time (min)	Electrode spacing (cm)	Removal (%)		Energy consumption (kW)	
					TP	B	TP	B
1	10	3	10	1	0.940	0.398	0.094	0.164
2	10	5	20	2	0.954	0.420	0.195	0.325
3	10	7	30	3	0.963	0.471	0.311	0.468
4	10	9	40	4	0.948	0.437	0.467	0.742
5	15	3	20	3	0.978	0.480	0.355	0.534
6	15	5	10	4	0.985	0.478	0.207	0.316
7	15	7	40	1	0.988	0.581	0.422	0.529
8	15	9	30	2	0.991	0.490	0.473	0.706
9	20	3	30	4	0.993	0.525	0.980	1.368
10	20	5	40	3	0.992	0.530	1.141	1.577
11	20	7	10	2	0.988	0.535	0.201	0.273
12	20	9	20	1	0.986	0.510	0.302	0.432
13	25	3	40	2	0.983	0.540	1.125	1.513
14	25	5	30	1	0.985	0.545	0.656	0.876
15	25	7	20	4	0.984	0.488	0.954	1.421
16	25	9	10	3	0.976	0.476	0.448	0.678

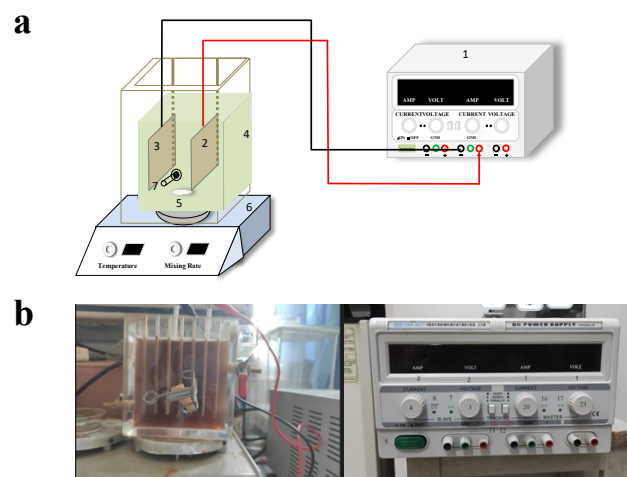


Fig. S1 Schematic diagram and photograph of the electrocoagulation reactor: (a) schematic diagram; (b) photograph of the experimental setup.