

Designing of Fabric Reinforced Polymer in the Assessment of Sorption Capacity of Mussel Shell Powder for Divalent Ion: GIS Mapping and Statistical Studies

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Table 1. Effect of Temperature

Adsorbent	Percentage Removal				
	293K	303 K	313 K	323 K	333 K
TMSP	67.30	95.10	95.30	95.90	96.00

Table 2: Descriptive Analyses

Descriptive	Parameters (Amount adsorbed in mg/g)			
	Particle Size	Dosage	Initial Con.	pH
Mean	37.72	56.8	52.43	81.24
SD	30.79	17.29	21.69	10.99
Maximum	83.76	83.76	83.64	98.10
Minimum	19.32	38.65	33.45	67.30
Degrees of Freedom	3	4	4	3
Sum of Squares	1289.3	13.788	758.61	1812.1
Mean Square	644.66	4.596	252.87	906.07
Variance	948.38	299	470.26	120.84
Range	64.44	45.11	50.19	30.8
Skewness	1.96	1.02	1.51	0.65
Kurtosis	3.86	1.05	2.8	2.15

Table 3: Pearson correlation parameters

	Particle size	Dosage	pH
Pearson correlation	-0.739	0.994**	0.094
Sig. (2 tailed)	0.261	0.001	0.906
N	4	5	4

**Correlation is significant at the 0.01 level (2-tailed)

Table 4: Isothermal Constants

Langmuir Isotherm			Freundlich Isotherm			Tempkin Isotherm			DKR Isotherm		
qm (mg/g)	B (L/g)	R ²	KF (mg/g)	1/n	R ²	A _T (L/g)	b _T	R ²	qs (mg/g)	E (kJ/mo)	R ²
22.987	25.329	0.9919	10.593	0.476	0.9765	6.982	5.966	0.9883	101.1	10.23	0.983

Table 5 Thermodynamic Constants

Temp. K	TMSP		
	-ΔG X 10⁻³ kJ/mol	ΔH kJ/mol	ΔS J/mol K
293	5.55	5.39	21.28
303	6.01		
313	8.78		

323	9.09		
333	11.98		

Table 6 Electroplating Industries in Coimbatore

S.No.	Name of the Industry	Area of location	Mode of pollution	Metal ions Present
1	Metro metal Finishers	Ellaithottam, Peelamedu	Water/Soil	Cr, Zn, Cu
2	Sangameshwari metal coating	Ellaithottam, Peelamedu	Water/Soil	Cr, Zn, Cu
3	General electroplating	Nava India	Water/Soil	Cr, Zn, Cu, Ni
4	Murugadas electroplating	Patel Road, Gandhipuram	Water/Soil	Cr, Zn, Cu, Cd
5	Silvercrown Electroplating	Mayilampatti Gandhipuram	Water/Soil	Cr, Zn, Cu
6	SIDCO	Ganapathy	Water/Soil	Cr, Zn, Cu
7	CODEA (22 electroplating units)	Kurumbapalayam (SS Kulam)	Water/Soil	Cr, Zn, Cu, Ni

Table 7: Physical data of effluent Samples

S.No	Electroplating Unit	Zn ²⁺	Conductivity	pH
1	I	25.87	21.76	2.3

2	II	3.398	32.98	1.98
3	III	2.817	29.82	2.98
4	IV	23.298	87.87	5.35
5	V	5.876	90.79	0.57
6	VI	4.383	24.4	1.82
7	VII	40.08	-0.693	3.45