



Chemical Engineering Department
Chemical Technology Lab. I (10626478)
Raw Data Sheet

Instructor Name	Dr. Majd Shhadi
Academic Year	First Semester 2023/2024
Semester	Fall 2023

Experiment M5: Precipitation Hardening (Age Hardening)

Table M5.1: Precipitation Hardening (Age Hardening) Experiment's Data

Age time (min)	d_1 (μm)	d_2 (μm)
original	110	111.5
0	69	70
10	28	31.5
15	26	26.4
20	20	21.5
25	34	31.5
30	110	113.5

Group: All	Instructor Signature:
Date: 29/11/2023	



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Experiment M6: Corrosion Test

Table M6.1: The effect of the acid solution on different metals Experiment's Data

Type of metals	Steel	Aluminum	Stainless Steel	Galvanized Steel	Brass
Symbol	A1	A2	A3	A4	A5
Density, ρ (gm/cm ³)	7.8	2.702	8.043	7.35	8.75
Exposure time, t (hr)	0.5	0.5	0.5	0.5	0.5
Corrosive media	H ₂ SO ₄	H ₂ SO ₄	H ₂ SO ₄	H ₂ SO ₄	H ₂ SO ₄
Corrosive concentration (%)	10	10	10	10	10
Length (mm)	50.08	51.97	60.83	52.77	50.47
Width (mm)	28.21	26.56	24.64	26.24	28.24
Thickness (mm)	1.82	0.78	0.90	1.46	0.85
Surface area (cm ²)					
Initial weight (gm)	19.125	2.774	8.760	12.918	9.836
Final weight (gm)	19.109	2.772	8.751	12.654	9.835
Weight losses (gm)					
CPR (mm/year)					

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Experiment M6: Corrosion Test

Table M6.2: The effect of corrosive medium on steel corrosion rate Experiment's Data

Type of metals	Steel	Steel	Steel	Steel
Symbol	B1	B2	B3	B4
Density, ρ (gm/cm ³)	7.8	7.8	7.8	7.8
Exposure time, t (hr)	0.5	0.5	0.5	0.5
Corrosive media	H ₂ SO ₄	HNO ₃	HCl	NaOH
Corrosive concentration (%)	10	10	10	10
Length (mm)	50.08	49.83	46.8	49.58
Width (mm)	28.21	24.5	24.55	26.9
Thickness (mm)	1.82	2.32	2.08	1.99
Surface area (cm ²)				
Initial weight (gm)	19.125	17.101	15.978	19.957
Final weight (gm)	19.109	16.065	15.974	17.958
Weight losses (gm)				
CPR (mm/year)				

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Experiment M6: Corrosion Test

Table M6.3: The effect of acid concentration on steel corrosion rate Experiment's Data

Type of metals	Steel	Steel	Steel	Steel	Steel	Steel
Symbol	C1	C2	C3	C4	C5	C6
Density, ρ (gm/cm ³)	7.8	7.8	7.8	7.8	7.8	7.8
Exposure time, t (hr)	0.5	0.5	0.5	0.5	0.5	0.5
Corrosive media	H ₂ SO ₄	H ₂ SO ₄	H ₂ SO ₄	H ₂ SO ₄	H ₂ SO ₄	H ₂ SO ₄
Corrosive concentration (%)	10	20	30	40	50	97
Length (mm)	50.08	50.64	46.17	49.98	49.26	46.63
Width (mm)	28.21	26.72	24.19	25.44	25.92	25.72
Thickness (mm)	1.82	1.99	1.87	1.58	1.92	1.91
Surface area (cm ²)						
Initial weight (gm)	19.125	18.014	15.066	13.82	17.927	13.351
Final weight (gm)	19.109	18.001	15.052	13.746	17.904	13.345
Weight losses (gm)						
CPR (mm/year)						

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