LAMPIRAN 1 (PERHITUNGAN)

1.1 Analisa Daya Serap Iod

Data Standarisasi Thio

Volume Thio (mL)		Massa K2Cr2O7 (mg/g)	Faktor Pengenceran
24.7	24,7	500	4
24.7			

Perhitungan standaarisasi thio (untuk perlakuan duplo, cara perhitungan sama)

$$N_{Thio} = \frac{Massa\ Kalium\ Dikromat}{fp\ x\ V_{Thio}\ x\ 49} \text{ ……(1.1)}$$

$$N_{Thio} = \frac{500\ mg}{4\ x\ 24{,}7\ ml\ x\ 49}$$

= 0,1033 N

Data Standarisasi Iod

Volume thio (mL)		Volume iod (mL)	N Thio	Faktor Pengenceran
24,7	24,7	25	0.1033	5
24,7				

Perhitungan Standarisasi iod

Perhitungan Standarisasi Iod (untuk perlakuan duplo, cara perhitungan sama)

$$V_{iod}\ x\ N_{iod} = V_{thio}\ x\ N_{thio} \text{ ……..(1.2)}$$

$$N_{iod} = \frac{V_{thio}\ x\ N_{thio}}{V_{iod}} \text{ ……(1.3)}$$

$$\mathrm{N_{iod}} = \frac{(24{,}7\ \mathrm{ml\ x\ 0{,}1033\ N})}{25\ \mathrm{ml}}$$

= 0,1021 N

Data analisa daya serap iod tanpa aktivasi

Suhu	Massa Sampel (gram)	Vthio (mL)	Faktor Pengencer	BE iod (mg/mek)	Daya Serap Iod (mg/g)	Rata-rata Daya Serap Iod (mg/g)
400	0.1500	2.4	3	126.9	666.4280	666.4280
		2.4	3	126.9	666.4280	
500	0.1500	2.9	3	126.9	535.3403	535.3403
		2.9	3	126.9	535.3403	
600	0.1500	4	3	126.9	246.9474	246.9474
		4	3	126.9	246.9474	
700	0.1500	4.2	3	126.9	194.5123	168.2600
		4.4	3	126.9	142.0077	

Data analisa daya serap iod variasi suhu dan konsentrasi HCL (Aktivasi Fisika)

Suhu	Konsentrasi aktivator HCL	Massa Sampel (gram)	Vthio (mL)	Faktor Pengencer	BE iod (mg/mek)	Daya Serap Iod (mg/g)	Rata-rata Daya Serap Iod (mg/g)
400	0.5	0.15001	2	3	126.9	771.2868	771.2868
		0.15001	2	3	126.9	771.2868	
	1	0.1500	1.9	3	126.9	797.4626	797.4626
		0.1500	1.9	3	126.9	797.4626	
	1.5	0.1511	2.3	3	126.9	687.5779	674.6024
		0.1511	2.4	3	126.9	661.6269	
500	0.5	0.1509	2.6	3	126.9	610.2805	597.2878
		0.1509	2.7	3	126.9	584.2950	
	1	0.1707	2.4	3	126.9	663.3830	650.3099
		0.1707	2.5	3	126.9	637.2367	
	1.5	0.1500	2.7	3	126.9	509.1228	509.1228
		0.1500	2,8	3	126.9	509.1228	
	0.5	0.1707	3	3	126.9	509.1228	509.1228
		0.1707	3	3	126.9	509.1228	

600	1	0.1504	2.7	3	126.9	587.7754	573.9199
		0.1504	2.8	3	126.9	560.0644	
	1.5	0.1508	3.1	3	126.9	480.3434	493.3827
		0.1508	3	3	126.9	506.4219	
700	0.5	0.1504	3.6	3	126.9	350.8819	363.9558
		0.1504	3.5	3	126.9	377.0297	
	1	0.1511	3.3	3	126.9	427.3364	414.3231
		0.1511	3.4	3	126.9	401.3097	
	1.5	0.1508	3.6	3	126.9	323.8727	336.9119
		0.1508	3.7	3	126.9	349.9512	

Perhitungan analisa daya serp iod

$$\text{Daya Serap } I_2 = \left(\frac{(10 \times \text{N iod}) - (\text{V thio} \times \text{N thio}) \times 126{,}9 \times fp}{\text{W}}\right) \ldots\ldots\ldots\ldots (1.4)$$

Analisa tanpa aktivasi

$$\text{Daya Serap } I_2 = \left(\frac{(10 \times 0{,}1021) - (4 \times 0{,}1033) \times 126{,}9 \times 3}{0{,}1501 \text{ gram}}\right)$$

= 246,9474 mg/g

1.2 Analisa Kadar Abu

Data analisa kadar abu tanpa aktivasi

Suhu	M1	M2	M3	M4	%M
400	36.5114	37.5619	36.6039	36.5642	3.9680
500	35.4134	36.4134	35.5038	35.4236	8.02
600	39.6368	40.6368	39.7292	39.6454	8.38
700	37.8897	38.8901	37.9628	37.8627	10.0059

Data analisa kadar abu variasi suhu dan konsentrasi HCL

Suhu	Konsentrasi HCL (M)	M1	M2	M3	M4	%M
400	0.5	37.1642	38.1656	37.1960	37.1702	2.5764
	1	34.9584	35.9594	34.9842	34.9626	2.1578
	1.5	33.4087	34.4104	33.4304	33.4039	2.6455
500	0.5	38.9700	39.9711	39.0060	38.9734	3.2564
	1	33.5500	34.5511	33.5822	33.5516	3.0566
	1.5	41.2552	42.2562	41.2862	41.2535	3.2667
600	0.5	35.0020	36.0038	35.0367	34.9977	3.8929
	1	37.4718	36.4710	36.5003	36.4678	3.2474
	1.5	38.7032	39.7035	38.7448	38.7069	3.7888
700	0.5	36.1246	37.1252	36.1750	36.1288	4.61723
	1	38.1226	39.1234	38.1731	38.1274	4.5663
	1.5	34.8904	35.8911	34.9428	34.8948	4.7966

Perhitungan analisa kadar abu

$$\text{Kadar abu (\%)} = \left(\frac{(m_3 - m_4)}{(m_2 - m_1)}\right) \text{x}100\% \quad \text{.....(1.5)}$$

Analisa tanpa aktivasi

$$\text{Kadar abu (\%)} = \left(\frac{(\ 36{,}6039\ \text{gram} - 36{,}5642\ \text{gram})}{(37{,}5619\ \text{gram} - 36{,}561\ 4\ \text{gram})}\right) \text{x}100\%$$

= 3,9680 %

1.3 Analisa Kadar Air

Data analisa kadar abu tanpa aktivasi

Suhu	M1	M2	M3	%M
400	100.2100	101.2107	101.1626	4.8066
500	88.3025	89.3026	89.2075	9.5090

600	98.4912	99.4912	99.3820	10.9110
700	86.5566	87.5569	87.4130	14.3856

Data analisa kadar air variasi suhu dan konsentrasi HCL

Suhu	Konsentrasi HCL (M)	M1	M2	M3	%M
400	0.5	73.5916	74.5926	74.5769	1.5684
	1	101.8255	102.8268	102.8118	1.4981
	1.5	97.8835	98.8841	98.8725	1.1593
500	0.5	88.3447	89.3447	89.3336	1.11
	1	88.3744	89.3762	89.3654	1.0781
	1.5	99.4690	100.4698	100.4595	1.0292
600	0.5	65.8669	66.8695	66.8582	1.1271
	1	102.2512	103.2524	103.2442	0.8190
	1.5	98.5133	99.5134	99.5063	0.7099
700	0.5	95.7733	96.7742	96.7719	0.2298
	1	84.6966	85.6968	85.6954	0.1399
	1.5	87.9493	88.9427	88.9421	0.0604

Perhitungan analisa kadar air

$$\text{Kadar air (\%)} = \left(\frac{(M2-M3)}{(M2-M1)}\right) x100\% \text{ .....(1.6)}$$

Analisa aktivasi tanpa aktivasi

$$\text{Kadar air (\%)} = \left(\frac{(101{,}2107 \text{ gram} - 101{,}1626 \text{ gram})}{(101{,}2107 \text{ gram} - 100{,}2100 \text{ gram})}\right) x100\%$$

= 4,8066 %

1.4 Analisa *Volatile Metter*

Data analisa kadar *volatile metter* tanpa aktivasi

Suhu	M1	M2	M3	Mad	%VM
400	39.6469	40.6473	40.2093	4.8066	38.9759
500	36.5652	37.5654	37.2141	9.5090	25.6139
600	35.4248	36.4248	36.1313	10.9110	18.439
700	37.8631	38.8636	38.5459	14.3856	17.3685

Data analisa kadar *volatile metter* tanpa aktivasi

Suhu	Konsentrasi HCL (M)	M1	M2	M3	%M	%VM
400	05.	38.9742	39.9744	39.8577	1.5684	10.1610
	1	33.5521	34.5526	34.4386	1.4981	9.8962
	1.5	41.2585	42.2594	42.1584	1.1593	8.9316
500	0.5	38.1709	38.1717	38.0502	1.11	11.03028
	1	34.9636	35.9644	35.8290	1.0781	12.4511
	1.5	33.4047	34.4070	34.3048	1.0292	9.1673
600	0.5	34.9978	35.9980	35.8455	1.1271	14.1198
	1	36.4786	37.4804	37.3602	0.8190	11.1794
	1.5	38.7094	39.7108	39.6007	0.7099	10.2847
700	0.5	36.1303	37.1313	37.0026	0.2298	12.6273
	1	38.1277	39.1289	39.0173	0.1399	11.0067
	1.5	34.8986	35.8991	35.7413	0.0604	15.7117

Perhitungan analisa *volatile matter*

$$VM = \left(\left(\frac{\{m_2 - m_3}{\{m_2 - m_1\}} \right) \text{ x } 100\% \right) - M_{ad} \quad \text{……..…..(1.7)}$$

Analisa aktivasi tanpa aktivasi

$$Volatile \text{ Matter} = \left(\frac{(\ 40{,}6473 \text{ gram} - 39{,}6469 \text{ gram})}{(\ 40{,}6473 \text{ gram} - 40{,}2093 \text{ gram})} \right) \text{x}100\%) - 4{,}8066\ \%$$

$$= 38{,}9759\ \%$$