



## REFERENCES

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## APPENDICES

### I1 Preparation 15% Ni/ $\gamma$ Al<sub>2</sub>O<sub>3</sub> Calculation

$$\text{To weigh } \gamma \text{ Al}_2\text{O}_3 = 10 \text{ gm.}$$

$$\text{To weigh Ni(NO}_3)_2 \cdot 6\text{H}_2\text{O} = \frac{290.79}{58.6934} * \frac{15}{100} * 10 = 7.432 \text{ gm.}$$

$$\text{Amount H}_2\text{O/ } \gamma \text{ Al}_2\text{O}_3 = 0.2 \frac{\text{ml}}{\text{gm.}}$$

$$\therefore \text{use H}_2\text{O dissolve Ni(NO}_3)_2 \cdot 6\text{H}_2\text{O} = 0.2 * 10 = 2 \text{ ml}$$

## I2 Table of Results

Volume of Sample = 0.0001 L  
 loop  
 R = 0.082 (L)(atm)/(gmole)(K)  
 Temperature@STP = 298 K

Sample Name.	Temperature(K)	Catalyst's Weigh(g)	Peak Sample Area	CO <sub>2</sub> Area	Sample Volume@299K(L)	Sample Volume@298K(L)	Amount of Coke(gmole)	Amount of Coke(g)	%(w/w) of Coke in Cat'	% Diff	AVG	%Diff from AVG
H1_01	299.000	0.0108	60531119.000	2147688.000	0.00282	0.00281	0.00011	0.0014	12.773	2.7731	12.6006	1.3651
H1_02	299.000	0.0093	47209109.000	2000658.000	0.00236	0.00235	0.00010	0.0012	12.418	1.5492		1.4459
H1_03	299.000	0.0103	53666106.000	2022163.000	0.00265	0.00265	0.00011	0.0013	12.611			0.0809
H2_01	299.000	0.0099	63949732.000	2129750.000	0.00300	0.00299	0.00012	0.0015	14.845	2.6898	14.6450	1.3632
H2_02	299.000	0.0099	58474716.000	2001242.000	0.00292	0.00291	0.00012	0.0014	14.445			
H3_01	299.000	0.0095	47976053.000	1919855.000	0.00250	0.00249	0.00010	0.0012	12.874	7.7925	12.3728	4.0542
H3_02	299.000	0.0090	42243761.000	1935180.000	0.00218	0.00218	0.00009	0.0011	11.871			
H4_01	299.000	0.0100	33554771.000	1918548.000	0.00175	0.00174	0.00007	0.0009	8.560	3.0921	8.4277	1.5703
H4_02	299.000	0.0098	31322430.000	1885770.000	0.00166	0.00166	0.00007	0.0008	8.295			
H5_01	299.000	0.0100	50828176.000	1876299.000	0.00271	0.00270	0.00011	0.0013	13.259	8.6263	13.8305	4.1348
H5_02	299.000	0.0112	66828320.000	2027707.000	0.00330	0.00328	0.00013	0.0016	14.402			
H6_01	299.000	0.0103	51638777.000	2022017.000	0.00255	0.00255	0.00010	0.0012	12.135	5.2416	11.8172	2.6913

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H6_02	299.000	0.0100	45318853.000	1928889.000	0.00235	0.00234	0.00010	0.0011	11.499			
H7_01	299.000	0.0097	55091494.000	2006957.000	0.00275	0.00274	0.00011	0.0013	13.851	1.4751	13.7485	0.7430
H7_02	299.000	0.0092	50069155.000	1951918.000	0.00257	0.00256	0.00010	0.0013	13.646			
H8_01	299.000	0.0108	46019696.000	1886894.000	0.00244	0.00243	0.00010	0.0012	11.053	5.4408	11.3534	2.6483
H8_02	299.000	0.0100	44616991.000	1873783.000	0.00238	0.00237	0.00010	0.0012	11.654			
H9_01	299.000	0.0099	105964319.000	1929124.000	0.00549	0.00547	0.00022	0.0027	27.156	0.1961	27.1823	0.0980
H9_02	299.000	0.0107	112751427.000	1895497.000	0.00595	0.00593	0.00024	0.0029	27.209			
I1_01	299.000	0.0099	80439424.000	1896516.000	0.00424	0.00423	0.00017	0.0021	20.969	4.5702	20.4896	2.3386
I1_02	299.000	0.0107	83209724.500	1902082.000	0.00437	0.00436	0.00018	0.0021	20.010			
I2_01	299.000	0.0114	35423843.000	1908207.000	0.00186	0.00185	0.00008	0.0009	7.970	8.6542	7.6252	4.5228
I2_02	299.000	0.0088	24839866.000	1897635.000	0.00131	0.00130	0.00005	0.0006	7.280			
I3_01	299.000	0.0111	69069183.000	1898883.000	0.00364	0.00363	0.00015	0.0018	16.038	1.1266	16.1287	0.5602
I3_02	299.000	0.0108	68137406.000	1903852.000	0.00358	0.00357	0.00015	0.0018	16.219			
I4_01	299.000	0.0104	54334560.000	1888217.000	0.00288	0.00287	0.00012	0.0014	13.542	4.3865	13.8391	2.1462
I4_02	299.000	0.0099	53947431.000	1886689.000	0.00286	0.00285	0.00012	0.0014	14.136			
I5_01	299.000	0.0117	29930711.000	1893175.000	0.00158	0.00158	0.00006	0.0008	6.614	1.2639	6.6554	0.6280
I5_02	299.000	0.0118	31159183.000	1929786.000	0.00161	0.00161	0.00007	0.0008	6.697			
I6_01	299.000	0.0102	87092791.000	1921555.000	0.00453	0.00452	0.00018	0.0022	21.748	0.4036	21.7044	0.2022
I6_02	299.000	0.0099	84178094.000	1921282.000	0.00438	0.00437	0.00018	0.0021	21.661			
I7_01	299.000	0.0107	76467020.000	1906086.000	0.00401	0.00400	0.00016	0.0020	18.350	2.7423	18.6019	1.3526

I7_02	299.000	0.0104	73674917.000	1839032.000	0.00401	0.00399	0.00016	0.0020	18.854			
I8_01	299.000	0.0090	18125689.000	1896038.000	0.00096	0.00095	0.00004	0.0005	5.199	11.0686	5.4865	4.9828
I8_02	299.000	0.0110	24881052.000	1917254.000	0.00130	0.00129	0.00005	0.0006	5.774			
I9_01	299.000	0.0087	48857654.000	1886494.000	0.00259	0.00258	0.00011	0.0013	14.570	0.6319	14.5238	0.3180
I9_02	299.000	0.0092	57780488.000	2123189.000	0.00272	0.00271	0.00011	0.0013	14.478			

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