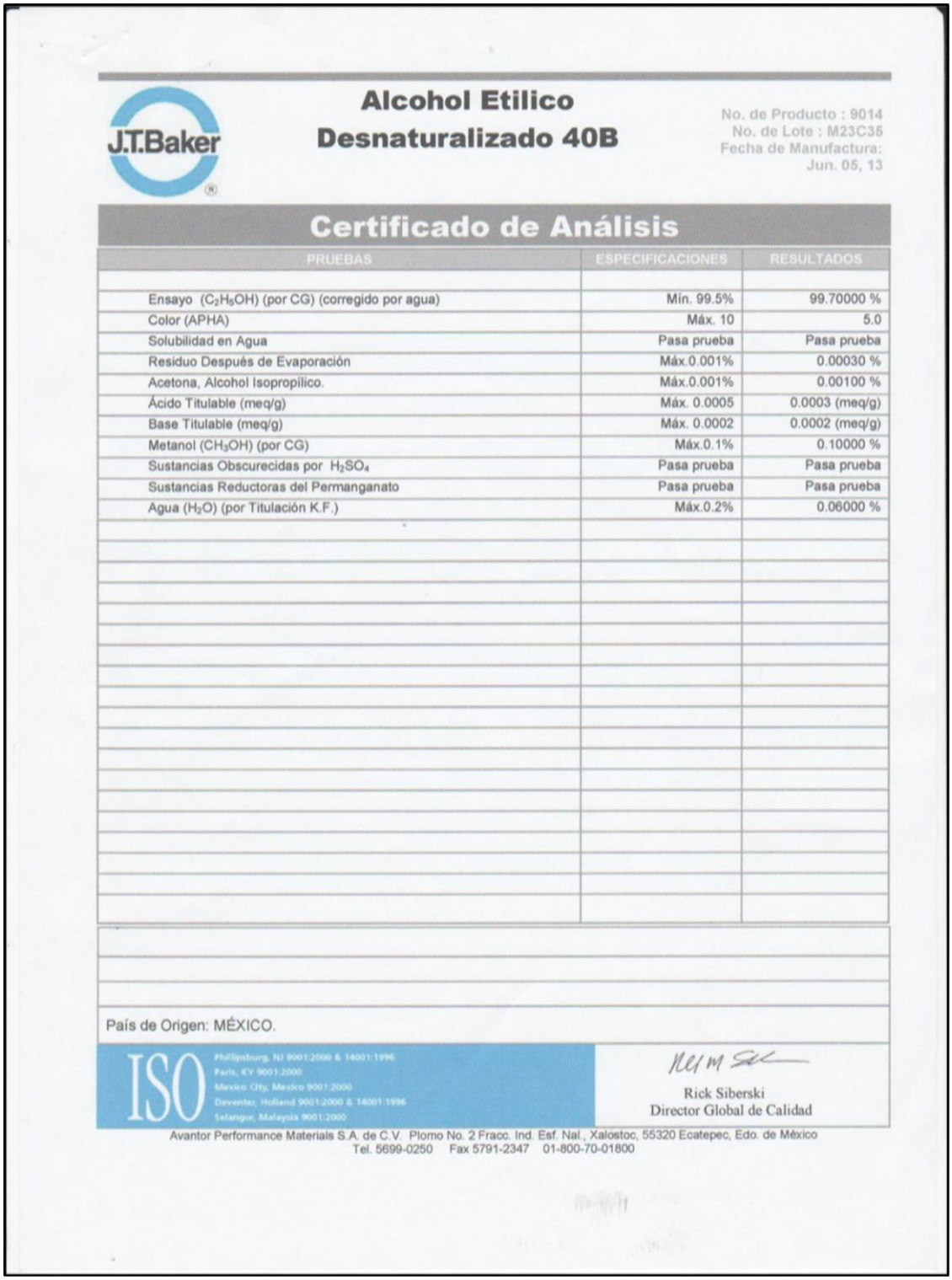
ANEXO 1

Gasolinas 90

Ensayos	Método de ensayo	Especificación	
		Mín.	Máx.
Color comercial		Violeta	
Presión de vapor Reid, psi	ASTM-D-323		12
Destilación, °C	ASTM-D-86		
10% recuperado			70
50% recuperado			140
90% recuperado			200
Punto final			221
Residuo, %v			2
Estabilidad oxidación, minutos	ASTM-D-525	240	
Goma existente, mg/100 mL	ASTM-D-381		5
Azufre Total, % Masa	ASTM-D-4294		0,2
Corrosión Lámina de Cu.	ASTM-D-130		1
Número de Octano Research	ASTM-D-2699	90	
Plomo, g/L	ASTM-D-3237		0,013

ANEXO 2



J.T.Baker

Alcohol Etilico Desnaturalizado 40B

No. de Producto : 9014
No. de Lote : M23C35
Fecha de Manufactura:
Jun. 05, 13

Certificado de Análisis

PRUEBAS	ESPECIFICACIONES	RESULTADOS
Ensayo (C_2H_5OH) (por CG) (corregido por agua)	Mín. 99.5%	99.70000 %
Color (APHA)	Máx. 10	5.0
Solubilidad en Agua	Pasa prueba	Pasa prueba
Residuo Después de Evaporación	Máx.0.001%	0.00030 %
Acetona, Alcohol Isopropílico.	Máx.0.001%	0.00100 %
Ácido Titulable (meq/g)	Máx. 0.0005	0.0003 (meq/g)
Base Titulable (meq/g)	Máx. 0.0002	0.0002 (meq/g)
Metanol (CH_3OH) (por CG)	Máx.0.1%	0.10000 %
Sustancias Obscurecidas por H_2SO_4	Pasa prueba	Pasa prueba
Sustancias Reductoras del Permanganato	Pasa prueba	Pasa prueba
Agua (H_2O) (por Titulación K.F.)	Máx.0.2%	0.06000 %

País de Origen: MÉXICO.

ISO Phillipsburg, NJ 9001:2000 & 14001:1996
Paris, KY 9001:2000
Mexico City, Mexico 9001:2000
Deventer, Holland 9001:2000 & 14001:1996
Selangor, Malaysia 9001:2000

Rick Siberski
Director Global de Calidad

Avantor Performance Materials S.A. de C.V. Plomo No. 2 Fracc. Ind. Esf. Nal., Xalostoc, 55320 Ecatepec, Edo. de México
Tel. 5699-0250 Fax 5791-2347 01-800-70-01800

ANEXO 3.1

E7.8

Punto	régimen de giro [rpm]	Desviación estándar [rpm]	Torque [N.m]	Desviación estándar [N.m]	Condiciones Ambientes						Temperaturas						Presiones				Emisiones								Flujo de combustible		
					Temperatura [°C]	Desviación estándar [°C]	Presión [milibar]	Incertidumbre	Humedad relativa [%]	Desviación estándar [%]	Aceite [°C]	Desviación estándar [°C]	Entrada Refrigerante [°C]	Desviación estándar [°C]	Salida de Refrigerante [°C]	Desviación estándar [°C]	Admisión [kPa]	Desviación estándar [kPa]	Diferencial [inH20]	Desviación estándar [inH2O]	Factor Lambda [-]	CO [%]	Incertidumbre	CO2 [%]	Incertidumbre	HC [ppm]	Incertidumbre	O2 [%]	Peso [kg]	Desviación estándar [kg]	Tiempo [s]
1	4485	±2	45.0	±1	26.0	±0.0	1015	±0	69.0	±0.0	105.6	±1.7	81.2	±0.8	89.1	±1.3	86.224	±0.067	0.308	±0.001	0.867	4.78	±0.01	11.6	±0.06	309.5	±6.84	0.27	0.138	±0.004	60
2	4494	±10	33.5	±0	26.0	±0.0	1015	±0	66.0	±0.0	100.6	±0.8	77.6	±1.5	83.9	±0.5	76.314	±0.006	0.236	±0.000	0.832	6.03	±0.01	10.7	±0.06	402.5	±6.84	0.32	0.123	±0.011	60
3	4513	±5	22.5	±0	26.0	±0.0	1015	±0	65.0	±0.0	104.3	±0.2	78.3	±0.6	84.7	±0.3	67.835	±0.017	0.188	±0.001	0.838	5.83	±0.01	10.9	±0.06	387.0	±6.84	0.31	0.100	±0.007	60
4	4489	±1	11.0	±0	27.0	±0.0	1015	±0	64.0	±0.0	103.1	±0.9	78.1	±0.9	83.5	±0.7	59.975	±0.018	0.147	±0.001	0.855	5.19	±0.01	11.3	±0.06	402.0	±6.84	0.30	0.170	±0.000	60
5	3513	±3	61.0	±1	25.0	±0.0	1015	±0	67.0	±0.0	107.1	±1.2	77.3	±0.6	86.4	±1.2	88.479	±0.024	0.273	±0.001	0.879	4.26	±0.01	12.1	±0.06	314.5	±6.84	0.21	0.120	±0.004	60
6	3505	±1	46.0	±0	26.0	±0.0	1015	±0	66.5	±0.7	92.7	±1.5	70.0	±0.2	77.3	±0.3	77.368	±0.078	0.205	±0.002	0.872	4.56	±0.01	11.7	±0.06	378.0	±6.84	0.32	0.105	±0.000	60
7	3510	±2	30.5	±0	27.0	±0.0	1015	±0	66.0	±0.0	94.0	±0.3	69.2	±0.1	75.8	±0.2	65.160	±0.009	0.157	±0.000	0.863	5.00	±0.01	11.4	±0.06	402.5	±6.84	0.39	0.095	±0.000	60
8	3497	±3	15.0	±0	26.0	±0.0	1015	±0	66.0	±0.0	91.5	±0.4	66.9	±0.1	73.3	±0.2	54.502	±0.007	0.120	±0.002	0.912	3.25	±0.01	12.3	±0.06	384.5	±6.84	0.46	0.070	±0.000	60
9	2509	±7	75.0	±1	25.0	±0.0	1015	±0	67.0	±0.0	99.6	±1.9	71.9	±0.2	82.2	±1.1	92.560	±0.042	0.200	±0.001	0.908	3.25	±0.01	12.5	±0.06	369.5	±6.84	0.33	0.095	±0.007	60
10	2499	±4	56.5	±0	26.0	±0.0	1015	±0	66.0	±0.0	87.9	±0.6	65.0	±0.2	73.6	±0.3	77.468	±0.013	0.155	±0.002	0.865	4.68	±0.01	11.6	±0.06	426.0	±6.84	0.24	0.085	±0.000	60
11	2503	±4	37.5	±0	26.0	±0.0	1015	±0	66.0	±0.0	85.4	±0.3	69.9	±0.8	76.5	±1.2	65.076	±0.071	0.115	±0.002	0.887	3.89	±0.01	12.1	±0.06	418.5	±6.84	0.29	0.063	±0.004	60
12	2510	±0	18.5	±0	25.0	±0.0	1015	±0	66.0	±0.0	84.0	±0.1	69.6	±0.1	76.1	±0.0	53.340	±0.255	0.094	±0.002	0.908	3.30	±0.01	12.2	±0.06	399.5	±6.84	0.39	0.055	±0.004	60

ANEXO 3.2

E10

Punto	régimen de giro [rpm]	Desviación estándar [rpm]	Torque [N.m]	Desviación estándar [N.m]	Condiciones Ambientes						Temperaturas						Presiones				Emisiones								Flujo de combustible		
					Temperatura [°C]	Desviación estándar [°C]	Presión [milibar]	Incertidumbre	Humedad relativa [%]	Desviación estándar [%]	Aceite [°C]	Desviación estándar [°C]	Entrada Refrigerante [°C]	Desviación estándar [°C]	Salida de Refrigerante [°C]	Desviación estándar [°C]	Admisión [kPa]	Desviación estándar [kPa]	Diferencial [inH2O]	Desviación estándar [inH2O]	Factor Lambda [-]	CO [ppm]	Incertidumbre	CO2 [%]	Incertidumbre	HC [ppm]	Incertidumbre	O2 [%]	Peso [kg]	Desviación estándar [kg]	Tiempo [s]
1	4499	±13	42.3	±0.4	24.0	±0.0	1015	±0	77.0	±0.0	108.0	±1.6	82.2	±0.1	90.5	±1.1	86.531	±0.002	0.302	±0.003	0.846	5.47	±0.01	11.0	±0.06	379	±6.84	0.27	0.140	±0.007	60
2	4507	±16	32.0	±0.0	26.0	±0.0	1015	±0	67.0	±0.0	104.2	±0.9	80.3	±0.3	87.2	±0.3	76.503	±0.032	0.232	±0.003	0.828	6.21	±0.01	10.8	±0.06	422	±6.84	0.28	0.123	±0.004	60
3	4495	±8	21.0	±0.0	25.0	±0.0	1015	±0	67.0	±0.0	94.6	±1.6	71.8	±1.4	77.9	±1.0	67.151	±0.141	0.174	±0.001	0.837	6.01	±0.01	11.0	±0.06	416	±6.84	0.28	0.108	±0.004	60
4	4508	±3	10.5	±0.0	25.0	±0.0	1015	±0	67.0	±0.0	99.7	±0.0	72.8	±0.1	78.7	±0.1	60.429	±0.012	0.147	±0.000	0.831	5.90	±0.01	10.6	±0.06	420	±6.84	0.28	0.090	±0.007	60
5	3512	±9	59.5	±0.0	24.0	±0.0	1015	±0	74.0	±0.0	104.1	±1.7	79.2	±0.5	87.4	±0.8	88.597	±0.058	0.277	±0.001	0.881	4.16	±0.01	11.8	±0.06	337	±6.84	0.29	0.125	±0.014	60
6	3511	±1	44.5	±0.0	25.0	±0.0	1015	±0	69.0	±0.0	89.9	±0.7	71.5	±0.2	78.6	±0.3	76.569	±0.027	0.193	±0.002	0.883	4.19	±0.01	12.0	±0.06	352	±6.84	0.31	0.110	±0.007	60
7	3497	±13	29.5	±0.0	26.0	±0.0	1015	±0	67.0	±0.0	91.0	±0.2	69.6	±0.0	76.3	±0.0	64.670	±0.105	0.154	±0.000	0.882	4.30	±0.01	11.9	±0.06	352	±6.84	0.35	0.092	±0.004	60
8	3505	±11	14.5	±0.0	25.0	±0.0	1015	±0	67.0	±0.0	90.2	±0.1	68.7	±0.4	75.5	±0.1	54.040	±0.263	0.117	±0.001	0.925	2.88	±0.01	12.8	±0.06	324	±6.84	0.43	0.070	±0.007	60
9	2516	±2	73.5	±0.7	24.0	±0.0	1015	±0	71.0	±0.0	97.0	±0.9	73.0	±1.5	83.1	±1.0	92.718	±0.008	0.203	±0.003	0.907	3.27	±0.01	12.5	±0.06	379	±6.84	0.31	0.103	±0.004	60
10	2500	±0	55.0	±0.0	25.0	±0.0	1015	±0	70.0	±0.0	87.7	±0.8	68.2	±0.8	76.6	±0.2	77.070	±0.130	0.151	±0.001	0.882	4.30	±0.01	12.0	±0.06	417	±6.84	0.24	0.085	±0.007	60
11	2509	±11	36.5	±0.0	24.0	±0.0	1015	±0	70.0	±0.0	80.6	±0.7	67.4	±5.5	74.4	±4.1	64.740	±0.170	0.112	±0.000	0.902	3.42	±0.01	12.4	±0.06	381	±6.84	0.31	0.078	±0.004	60
12	2499	±0	18.0	±0.0	25.0	±0.0	1015	±0	69.0	±0.0	80.6	±0.8	66.5	±3.9	74.6	±3.9	52.433	±0.192	0.083	±0.003	0.935	2.37	±0.01	12.9	±0.06	368	±6.84	0.41	0.050	±0.007	60

ANEXO 3.3

E12,5

Punto	régimen de giro [rpm]	Desviación estándar [rpm]	Torque [N.m]	Desviación estándar [N.m]	Condiciones Ambientes						Temperaturas						Presiones				Emisiones								Flujo de combustible		
					Temperatura [°C]	Desviación estándar [°C]	Presión [milibar]	Incertidumbre	Humedad relativa [%]	Desviación estándar [%]	Aceite [°C]	Desviación estándar [°C]	Entrada Refrigerante [°C]	Desviación estándar [°C]	Salida de Refrigerante [°C]	Desviación estándar [°C]	Admisión [kPa]	Desviación estándar [kPa]	Diferencial [inH20]	Desviación estándar [inH2O]	Factor Lambda [-]	CO [ppm]	Incertidumbre	CO2 [%]	Incertidumbre	HC [ppm]	Incertidumbre	O2 [%]	Peso [kg]	Desviación estándar [kg]	Tiempo [s]
1	4501	±10	42.0	±0.0	22.0	±0.0	1015	±0	82.0	±0.0	103.6	±2.1	79.4	±0.5	86.8	±0.8	86.088	±0.029	0.285	±0.002	0.895	3.81	±0.01	12.3	±0.06	355	±6.84	0.30	0.138	±0.004	60
2	4498	±9	31.8	±0.4	24.0	±0.0	1015	±0	74.0	±0.0	98.6	±1.4	74.7	±0.3	81.4	±0.7	76.158	±0.276	0.222	±0.002	0.842	5.68	±0.01	10.9	±0.06	414	±6.84	0.36	0.115	±0.014	60
3	4497	±15	21.8	±0.4	24.0	±0.0	1015	±0	74.0	±0.0	100.8	±0.2	74.9	±0.6	81.2	±0.4	67.930	±0.224	0.173	±0.001	0.813	6.90	±0.01	10.3	±0.06	413	±6.84	0.36	0.097	±0.011	60
4	4503	±3	10.8	±0.4	25.0	±0.0	1015	±0	73.0	±0.0	99.3	±0.4	73.2	±0.4	79.2	±0.4	60.440	±0.048	0.143	±0.004	0.829	6.17	±0.01	10.6	±0.06	406	±6.84	0.34	0.088	±0.004	60
5	3512	±8	59.5	±0.7	23.0	±0.0	1015	±0	80.0	±0.0	102.0	±0.8	75.5	±0.6	83.6	±1.0	88.580	±0.072	0.260	±0.004	0.850	5.20	±0.01	11.2	±0.06	412	±6.84	0.26	0.123	±0.004	60
6	3485	±2	44.8	±0.4	24.0	±0.0	1015	±0	75.0	±0.0	89.9	±1.2	69.6	±0.5	76.6	±0.1	76.688	±0.104	0.188	±0.002	0.861	5.04	±0.01	11.2	±0.06	370	±6.84	0.38	0.108	±0.011	60
7	3506	±1	29.8	±0.4	24.0	±0.0	1015	±0	75.0	±0.0	90.6	±0.3	68.7	±0.0	75.3	±0.2	65.647	±0.029	0.146	±0.002	0.844	5.69	±0.01	10.8	±0.06	380	±6.84	0.39	0.092	±0.004	60
8	3508	±15	14.8	±0.4	25.0	±0.0	1015	±0	74.0	±0.0	87.7	±0.3	65.9	±0.7	72.2	±0.1	54.900	±0.112	0.110	±0.004	0.941	2.39	±0.01	12.8	±0.06	324	±6.84	0.53	0.065	±0.007	60
9	2512	±6	74.3	±0.4	24.0	±0.0	1015	±0	79.0	±0.0	94.8	±1.2	70.2	±0.3	79.8	±0.5	92.493	±0.021	0.190	±0.002	0.917	3.04	±0.01	12.7	±0.06	346	±6.84	0.37	0.105	±0.000	60
10	2507	±3	56.0	±0.0	24.0	±0.0	1015	±0	76.0	±0.0	87.1	±1.2	65.1	±0.9	74.1	±0.7	78.458	±0.050	0.146	±0.003	0.863	4.85	±0.01	11.7	±0.06	422	±6.84	0.29	0.080	±0.000	60
11	2505	±4	37.0	±0.0	24.0	±0.0	1015	±0	76.0	±0.0	82.9	±0.6	67.5	±4.6	73.1	±2.7	66.124	±0.733	0.113	±0.002	0.867	4.72	±0.01	11.5	±0.06	398	±6.84	0.32	0.075	±0.007	60
12	2495	±7	18.5	±0.0	24.0	±0.0	1015	±0	75.0	±0.0	83.4	±0.6	66.4	±2.6	73.9	±3.4	53.438	±0.201	0.082	±0.001	0.931	2.64	±0.01	12.8	±0.06	373	±6.84	0.47	0.058	±0.004	60

ANEXO 3.4

E15

Punto	régimen de giro [rpm]	Desviación estándar [rpm]	Torque [N.m]	Desviación estándar [N.m]	Condiciones Ambientes						Temperaturas						Presiones				Emisiones								Flujo de combustible		
					Temperatura [°C]	Desviación estándar [°C]	Presión [milibar]	Incertidumbre	Humedad relativa [%]	Desviación estándar [%]	Aceite [°C]	Desviación estándar [°C]	Entrada Refrigerante [°C]	Desviación estándar [°C]	Salida de Refrigerante [°C]	Desviación estándar [°C]	Admisión [kPa]	Desviación estándar [kPa]	Diferencial [inH2O]	Desviación estándar [inH2O]	Factor Lambda [-]	CO [ppm]	Incertidumbre	CO2 [%]	Incertidumbre	HC [ppm]	Incertidumbre	O2 [%]	Peso [kg]	Desviación estándar [kg]	Tiempo [s]
1	4486	±10	44.0	±0.7	22.0	±0.0	1015	±0	80.0	±0.0	99.4	±4.7	79.3	±3.5	86.9	±4.0	88.145	±0.292	0.305	±0.001	0.949	2.06	±0.01	13.3	±0.06	324	±6.84	0.46	0.133	±0.004	60
2	4496	±4	32.5	±0.0	26.0	±0.0	1015	±0	66.0	±0.0	102.8	±2.0	80.0	±2.0	86.4	±1.4	74.497	±0.427	0.224	±0.000	0.912	3.14	±0.01	12.5	±0.06	339	±6.84	0.32	0.107	±0.004	60
3	4495	±1	21.5	±0.0	26.0	±0.0	1015	±0	64.0	±0.0	105.4	±0.1	79.5	±0.0	86.5	±0.1	66.351	±0.034	0.175	±0.000	0.920	2.91	±0.01	12.7	±0.06	332	±6.84	0.35	0.095	±0.007	60
4	4501	±8	10.5	±0.0	27.0	±0.0	1015	±0	64.0	±0.0	103.8	±0.3	77.1	±0.5	83.3	±0.4	58.764	±0.057	0.141	±0.000	0.932	2.48	±0.01	12.9	±0.06	312	±6.84	0.39	0.070	±0.007	60
5	3510	±15	61.3	±0.4	23.5	±0.7	1015	±0	74.0	±0.0	106.0	±0.2	81.9	±0.1	90.2	±0.3	90.185	±0.032	0.282	±0.009	0.958	1.87	±0.01	13.4	±0.06	286	±6.84	0.50	0.125	±0.007	60
6	3507	±4	46.0	±0.0	25.0	±0.0	1015	±0	67.0	±0.0	88.7	±1.1	70.6	±0.8	77.9	±0.9	76.510	±0.115	0.187	±0.000	0.975	1.21	±0.01	13.6	±0.06	284	±6.84	0.47	0.107	±0.004	60
7	3507	±3	30.5	±0.0	25.0	±0.0	1015	±0	67.0	±0.0	91.8	±0.2	70.9	±0.1	77.9	±0.0	64.569	±0.010	0.141	±0.002	0.957	1.74	±0.01	13.2	±0.06	307	±6.84	0.44	0.095	±0.007	60
8	3492	±3	15.0	±0.0	25.0	±0.0	1015	±0	67.0	±0.0	89.3	±0.3	68.2	±0.2	74.4	±0.1	54.438	±0.014	0.105	±0.002	0.954	1.90	±0.01	13.3	±0.06	319	±6.84	0.48	0.070	±0.007	60
9	2511	±10	75.5	±0.7	25.0	±0.0	1015	±0	69.0	±0.0	97.4	±1.3	73.6	±0.5	83.1	±0.8	93.170	±0.035	0.205	±0.001	0.962	1.91	±0.01	13.3	±0.06	292	±6.84	0.64	0.103	±0.004	60
10	2515	±3	56.5	±0.0	25.0	±0.0	1015	±0	67.0	±0.0	91.5	±1.2	68.9	±0.6	77.9	±1.0	77.210	±0.021	0.149	±0.001	0.964	1.53	±0.01	13.7	±0.06	278	±6.84	0.43	0.087	±0.004	60
11	2490	±2	38.0	±0.0	25.0	±0.0	1015	±0	67.0	±0.0	84.2	±0.5	64.6	±0.8	72.3	±0.2	64.462	±0.051	0.107	±0.002	0.959	1.67	±0.01	13.5	±0.06	285	±6.84	0.44	0.070	±0.007	60
12	2508	±7	19.0	±0.0	25.0	±0.0	1015	±0	67.0	±0.0	82.0	±0.6	70.8	±1.3	76.7	±2.0	52.501	±0.106	0.077	±0.000	0.950	1.95	±0.01	13.3	±0.06	332	±6.84	0.43	0.063	±0.004	60

ANEXO 3.5

E17,5

Punto	régimen de giro [rpm]	Desviación estándar [rpm]	Torque [N.m]	Desviación estándar [N.m]	Condiciones Ambientes						Temperaturas						Presiones				Emisiones								Flujo de combustible		
					Temperatura [°C]	Desviación estándar [°C]	Presión [milibar]	Incertidumbre	Humedad relativa [%]	Desviación estándar [%]	Aceite [°C]	Desviación estándar [°C]	Entrada Refrigerante [°C]	Desviación estándar [°C]	Salida de Refrigerante [°C]	Desviación estándar [°C]	Admisión [kPa]	Desviación estándar [kPa]	Diferencial [inH2O]	Desviación estándar [inH2O]	Factor Lambda [-]	CO [ppm]	Incertidumbre	CO2 [%]	Incertidumbre	HC [ppm]	Incertidumbre	O2 [%]	Peso [kg]	Desviación estándar [kg]	Tiempo [s]
1	4497.9	±4	44.5	±0.0	26.0	±0.0	1015	±0	63.0	±0.0	103.1	±1.9	81.7	±1.3	89.3	±1.3	84.954	±0.035	0.285	±0.002	0.960	1.60	±0.01	13.4	±0.06	303	±6.84	0.43	0.135	±0.000	60
2	4498.7	±5	33.5	±0.0	27.0	±0.0	1015	±0	60.0	±0.0	103.0	±1.2	78.7	±0.6	86.0	±0.6	75.298	±0.078	0.227	±0.003	0.925	2.66	±0.01	12.6	±0.06	373	±6.84	0.38	0.118	±0.011	60
3	4510.2	±0	22.0	±0.0	27.0	±0.0	1015	±0	60.0	±0.0	105.6	±0.5	81.0	±0.2	86.5	±0.1	67.123	±0.003	0.179	±0.004	0.936	2.33	±0.01	12.9	±0.06	324	±6.84	0.38	0.103	±0.004	60
4	4496.8	±10	11.0	±0.0	27.0	±0.0	1015	±0	60.0	±0.0	105.3	±0.1	78.0	±0.2	84.4	±0.3	59.437	±0.025	0.137	±0.005	0.937	2.19	±0.01	12.9	±0.06	352	±6.84	0.34	0.095	±0.007	60
5	3506	±1	59.5	±0.0	27.0	±0.0	1015	±0	62.0	±0.0	105.0	±0.7	81.5	±1.3	90.9	±1.4	88.046	±0.295	0.250	±0.003	0.948	2.14	±0.01	13.2	±0.06	316	±6.84	0.42	0.110	±0.014	60
6	3504.1	±1	44.5	±0.0	26.0	±0.0	1015	±0	62.0	±0.0	90.8	±1.3	71.9	±0.8	79.1	±0.7	75.278	±0.334	0.186	±0.002	0.920	2.98	±0.01	12.8	±0.06	327	±6.84	0.39	0.108	±0.011	60
7	3496.9	±1	29.5	±0.0	27.0	±0.0	1015	±0	61.0	±0.0	94.7	±0.3	72.3	±0.1	79.2	±0.2	64.027	±0.011	0.147	±0.001	0.902	3.48	±0.01	12.0	±0.06	363	±6.84	0.38	0.095	±0.007	60
8	3493.7	±5	14.8	±0.4	28.0	±0.0	1015	±0	60.0	±0.0	92.8	±0.4	69.3	±0.1	76.0	±0.4	53.918	±0.001	0.114	±0.002	0.956	1.84	±0.01	13.0	±0.06	343	±6.84	0.51	0.070	±0.007	60
9	2513.8	±3	74.8	±0.4	27.0	±0.0	1015	±0	62.0	±0.0	96.6	±1.0	74.2	±0.4	84.2	±0.7	92.441	±0.082	0.188	±0.003	0.932	2.63	±0.01	13.0	±0.06	313	±6.84	0.43	0.100	±0.007	60
10	2491.7	±1	56.0	±0.0	28.0	±0.0	1015	±0	62.0	±0.0	90.2	±0.6	68.3	±0.8	77.7	±0.3	77.140	±0.167	0.138	±0.001	0.908	3.23	±0.01	12.5	±0.06	386	±6.84	0.33	0.085	±0.007	60
11	2493.9	±3	37.5	±0.0	27.0	±0.0	1015	±0	62.0	±0.0	85.1	±0.9	64.9	±0.0	73.2	±0.5	64.669	±0.041	0.105	±0.001	0.959	1.66	±0.01	13.5	±0.06	329	±6.84	0.44	0.062	±0.004	60
12	2514.7	±3	18.5	±0.0	27.0	±0.0	1015	±0	61.0	±0.0	82.0	±0.7	67.7	±2.1	75.4	±2.9	53.114	±0.347	0.083	±0.003	0.953	1.91	±0.01	13.3	±0.06	340	±6.84	0.48	0.058	±0.004	60

ANEXO 3.6

E20

Punto	régimen de giro [rpm]	Desviación estándar [rpm]	Torque [N.m]	Desviación estándar [N.m]	Condiciones Ambientes						Temperaturas						Presiones				Emisiones								Flujo de combustible		
					Temperatura [°C]	Desviación estándar [°C]	Presión [milibar]	Incertidumbre	Humedad relativa [%]	Desviación estándar [%]	Aceite [°C]	Desviación estándar [°C]	Entrada Refrigerante [°C]	Desviación estándar [°C]	Salida de Refrigerante [°C]	Desviación estándar [°C]	Admisión [kPa]	Desviación estándar [kPa]	Diferencial [inH20]	Desviación estándar [inH2O]	Factor Lambda [-]	CO [ppm]	Incertidumbre	CO2 [%]	Incertidumbre	HC [ppm]	Incertidumbre	O2 [%]	Peso [kg]	Desviación estándar [kg]	Tiempo [s]
1	4487	±8	43.8	±1.1	22.0	±0.0	1015	±0	75.0	±0.0	102.7	±5.0	81.2	±3.1	88.7	±3.8	85.975	±0.239	0.304	±0.004	0.930	2.57	±0.01	13.0	±0.06	296	±6.84	0.32	0.135	±0.007	60
2	4489	±3	32.3	±1.1	25.0	±0.0	1015	±0	67.0	±0.0	103.0	±1.7	78.9	±0.9	85.8	±1.3	75.144	±0.265	0.230	±0.002	0.877	4.40	±0.01	12.0	±0.06	400	±6.84	0.30	0.118	±0.004	60
3	4499	±1	21.0	±0.0	27.0	±0.0	1015	±0	67.0	±0.0	105.9	±0.1	79.5	±0.1	86.8	±0.2	67.554	±0.037	0.190	±0.001	0.875	4.52	±0.01	11.9	±0.06	369	±6.84	0.31	0.103	±0.004	60
4	4506	±4	10.5	±0.0	26.0	±0.0	1015	±0	67.0	±0.0	104.2	±0.1	77.1	±0.2	83.4	±0.4	59.802	±0.057	0.153	±0.001	0.877	4.35	±0.01	11.9	±0.06	365	±6.84	0.29	0.088	±0.004	60
5	3507	±5	60.0	±0.0	48.5	±0.0	1015	±0	48.5	±0.0	109.1	±0.8	80.9	±0.7	89.5	±0.9	88.063	±0.086	0.275	±0.004	0.894	3.78	±0.01	12.3	±0.06	355	±6.84	0.29	0.125	±0.007	60
6	3508	±2	45.0	±0.0	25.0	±0.0	1015	±0	68.0	±0.0	92.7	±1.2	70.8	±0.7	77.6	±0.8	76.041	±0.053	0.194	±0.001	0.934	2.43	±0.01	13.0	±0.06	310	±6.84	0.38	0.115	±0.000	60
7	3502	±0	30.0	±0.0	25.0	±0.0	1015	±0	68.0	±0.0	95.3	±0.0	70.7	±0.1	77.6	±0.2	65.133	±0.014	0.152	±0.005	0.885	4.16	±0.01	12.0	±0.06	356	±6.84	0.35	0.092	±0.004	60
8	3503	±1	15.0	±0.0	26.0	±0.0	1015	±0	68.0	±0.0	92.0	±0.1	68.9	±0.1	75.1	±0.1	54.417	±0.040	0.123	±0.003	0.960	1.71	±0.01	13.4	±0.06	310	±6.84	0.48	0.072	±0.004	60
9	2502	±8	74.3	±0.4	25.0	±0.0	1015	±0	70.0	±0.0	102.4	±2.2	74.4	±0.7	84.3	±1.8	92.344	±0.075	0.206	±0.006	0.980	1.27	±0.01	13.6	±0.06	293	±6.84	0.63	0.107	±0.004	60
10	2507	±1	56.0	±0.0	25.0	±0.0	1015	±0	69.0	±0.0	93.5	±0.6	68.8	±0.5	77.4	±0.6	77.496	±0.057	0.160	±0.002	0.977	1.12	±0.01	14.0	±0.06	312	±6.84	0.47	0.083	±0.004	60
11	2504	±2	37.0	±0.0	26.0	±0.0	1015	±0	67.0	±0.0	84.2	±0.4	65.2	±1.1	72.0	±0.0	65.241	±0.367	0.127	±0.004	0.966	1.42	±0.01	13.5	±0.06	312	±6.84	0.43	0.073	±0.004	60
12	2493	±4	18.5	±0.0	25.0	±0.0	1015	±0	68.0	±0.0	83.6	±0.8	64.5	±0.6	71.6	±1.5	53.178	±0.135	0.095	±0.003	0.964	1.60	±0.01	13.5	±0.06	330	±6.84	0.52	0.060	±0.007	60

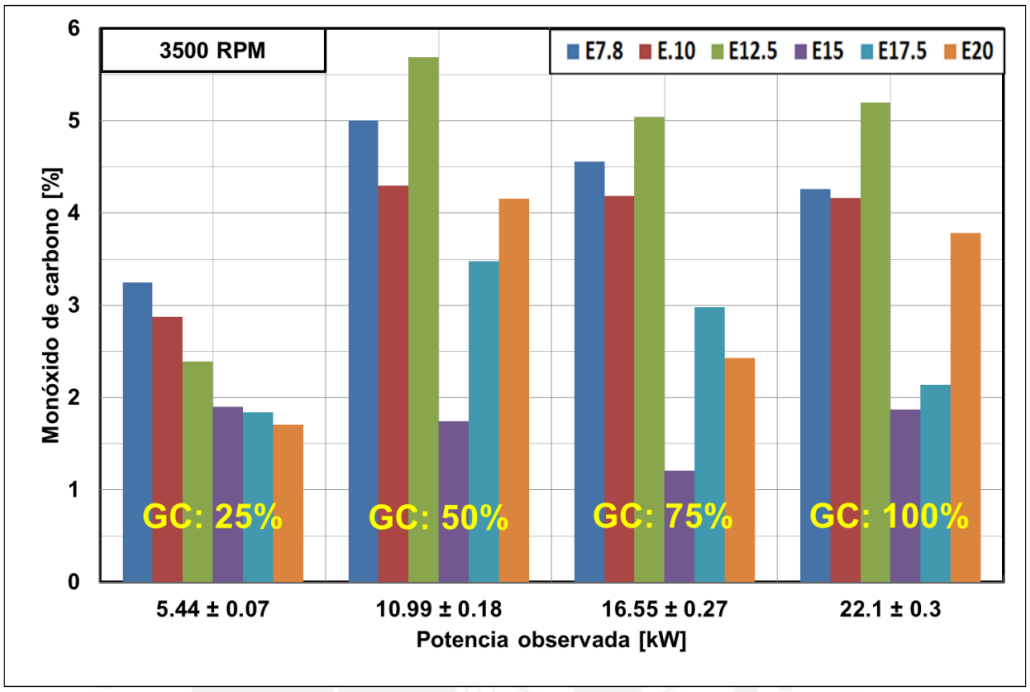
ANEXO 3.7

		4500 RPM				3500 RPM				2500 RPM			
		1	2	3	4	5	6	7	8	9	10	11	12
Densidad a condición de referencia[kg/m3]	**E7.8**	1.183	1.183	1.183	1.179	1.187	1.183	1.179	1.183	1.187	1.183	1.183	1.187
	E10	1.191	1.183	1.187	1.187	1.191	1.187	1.183	1.187	1.191	1.187	1.191	1.187
	E12.5	1.199	1.191	1.191	1.187	1.195	1.191	1.191	1.187	1.191	1.191	1.191	1.191
	E15	1.199	1.183	1.183	1.179	1.193	1.187	1.187	1.187	1.187	1.187	1.187	1.187
	E17.5	1.183	1.179	1.179	1.179	1.179	1.183	1.179	1.175	1.179	1.175	1.179	1.179
	E20	1.199	1.187	1.179	1.183	1.100	1.187	1.187	1.183	1.187	1.187	1.183	1.187
Flujo másico de aire [kg/hora]	**E7.8**	4258	4258	4258	4244	4272	4258	4244	4258	4272	4258	4258	4272
	E10	4287	4258	4272	4272	4287	4272	4258	4272	4287	4272	4287	4272
	E12.5	4316	4287	4287	4272	4301	4287	4287	4272	4287	4287	4287	4287
	E15	4316	4258	4258	4244	4294	4272	4272	4272	4272	4272	4272	4272
	E17.5	4258	4244	4244	4244	4244	4258	4244	4230	4244	4230	4244	4244
	E20	4316	4272	4244	4258	3960	4272	4272	4258	4272	4272	4258	4272
Flujo másico de combustible [kg/hora]	**E7.8**	8.25	7.35	6.00	6.60	7.20	6.30	5.70	4.20	5.70	5.10	3.75	3.30
	E10	8.40	7.35	6.45	5.40	7.50	6.60	5.55	4.20	6.15	5.10	4.65	3.00
	E12.5	8.25	6.90	5.85	5.25	7.35	6.45	5.55	3.90	6.30	4.80	4.50	3.45
	E15	7.95	6.45	5.70	4.20	7.50	6.45	5.70	4.20	6.15	5.25	4.20	3.75
	E17.5	8.10	7.05	6.15	5.70	6.60	6.45	5.70	4.20	6.00	5.10	3.75	3.45
	E20	8.10	7.05	6.15	5.25	7.50	6.90	5.55	4.35	6.45	4.95	4.35	3.60
Potencia efectiva [kW]	**E7.8**	21.14	15.77	10.63	5.17	22.44	16.88	11.21	5.49	19.71	14.79	9.83	4.86
	E10	19.91	15.10	10.12	4.96	21.88	16.36	10.80	5.32	19.37	14.40	9.72	4.84
	E12.5	19.80	14.95	10.24	5.07	21.88	16.33	10.92	5.42	19.53	14.70	9.71	4.83
	E15	20.67	15.30	10.12	4.95	22.51	16.89	11.20	5.49	19.85	14.88	9.91	4.99
	E17.5	20.96	15.78	10.39	5.18	21.85	16.33	10.80	5.40	19.68	14.61	9.79	4.87
	E20	20.56	15.16	9.89	4.95	22.03	16.53	11.00	5.50	19.45	14.70	9.70	4.83

ANEXO 3.8

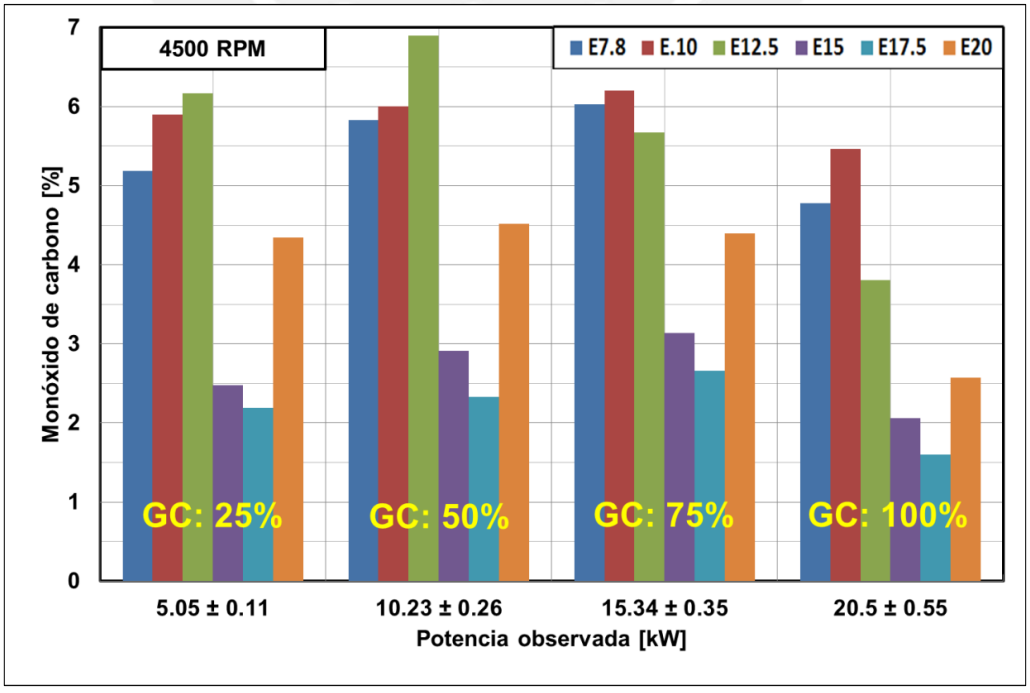
		4500 RPM				3500 RPM				2500 RPM			
		1	2	3	4	5	6	7	8	9	10	11	12
cec [g/kW.hora]	**E7.8**	390	466	564	1276	321	373	508	765	289	345	381	679
	E10	422	487	637	1089	343	403	514	789	318	354	478	620
	E12.5	417	461	571	1036	336	395	508	720	323	327	464	714
	E15	385	422	563	849	333	382	509	766	310	353	424	751
	E17.5	386	447	592	1100	302	395	528	778	305	349	383	708
	E20	394	465	622	1060	340	417	504	791	332	337	448	745
rendimiento efectivo[%]	**E7.8**	22	18	15	7	26	23	17	11	29	25	22	12
	E10	20	18	13	8	25	21	17	11	27	24	18	14
	E12.5	21	19	15	8	26	22	17	12	27	26	19	12
	E15	23	21	16	10	26	23	17	11	28	25	21	12
	E17.5	23	20	15	8	29	22	17	11	29	25	23	12
	E20	23	19	14	8	26	21	18	11	27	27	20	12
rendimiento volumétrico [%]	**E7.8**	51	45	40	35	61	53	47	41	73	65	56	50
	E10	50	44	38	35	62	52	46	40	74	64	55	47
	E12.5	49	43	38	35	60	51	45	39	71	63	55	47
	E15	51	44	38	35	62	51	44	38	74	63	54	46
	E17.5	49	44	39	34	59	51	45	40	71	62	54	47
	E20	50	44	40	36	64	52	46	41	75	66	59	51

ANEXO 4



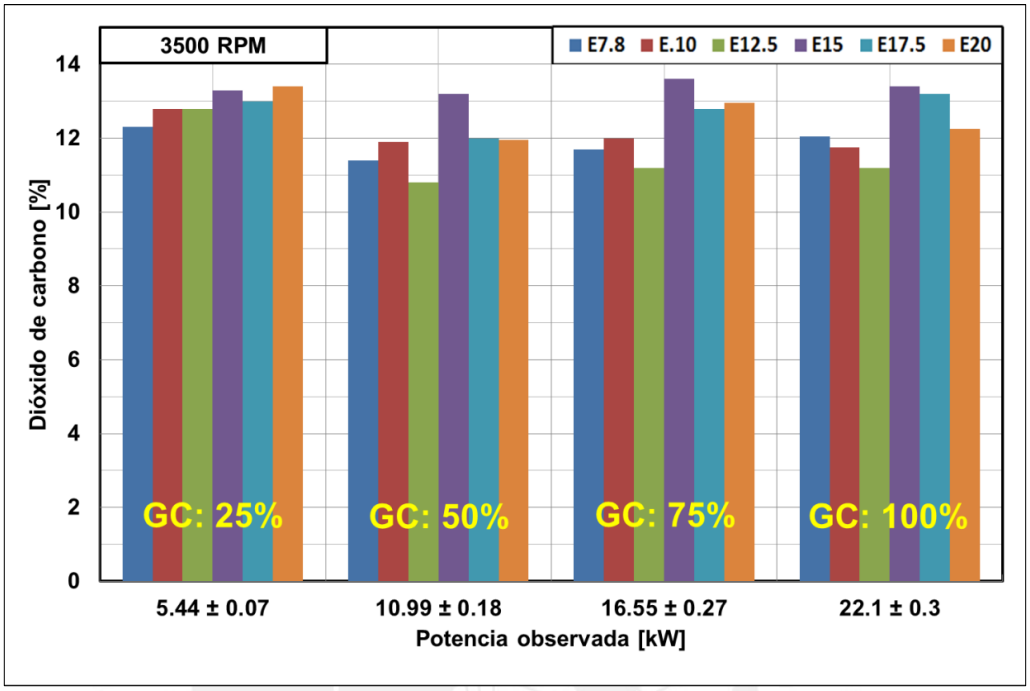
CO versus Potencia observada a 3500 RPM para diferentes mezclas gasolina-etanol.

ANEXO 5



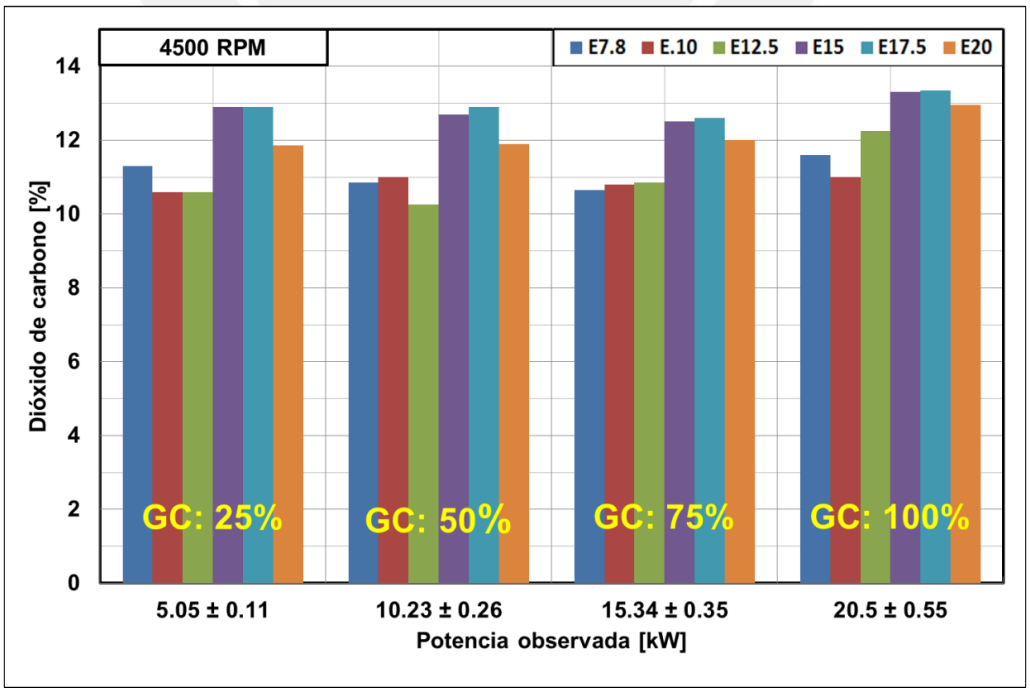
CO versus Potencia observada a 4500 RPM para diferentes mezclas gasolina-etanol.

ANEXO 6



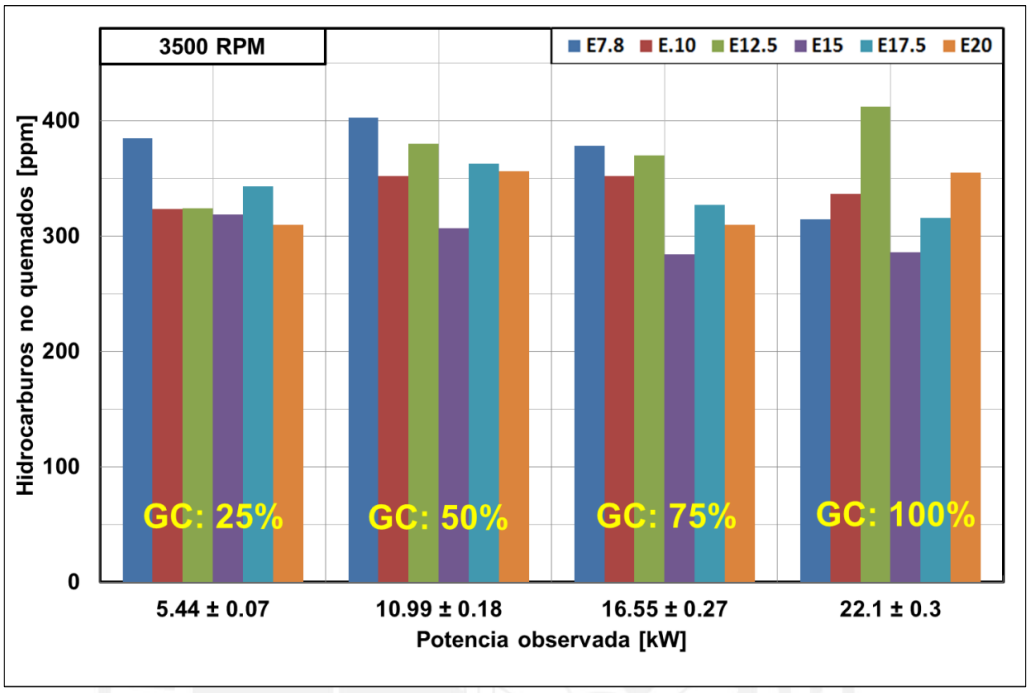
CO_2 versus Potencia observada a 3500 RPM para diferentes mezclas gasolina-etanol.

ANEXO 7



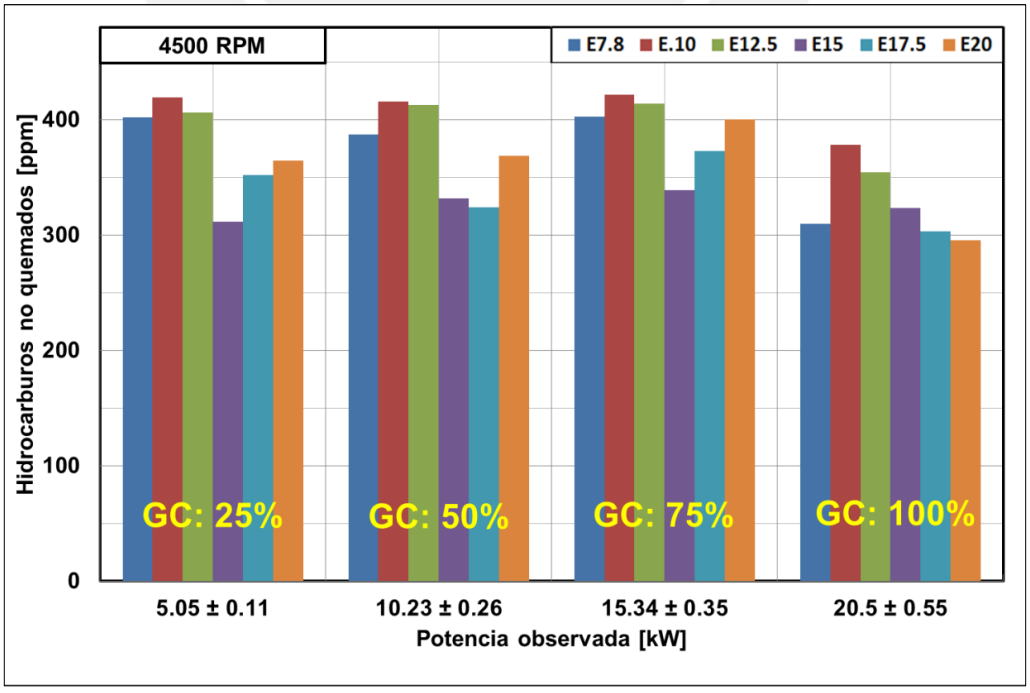
CO2 versus Potencia observada a 4500 RPM para diferentes mezclas gasolina-etanol.

ANEXO 8



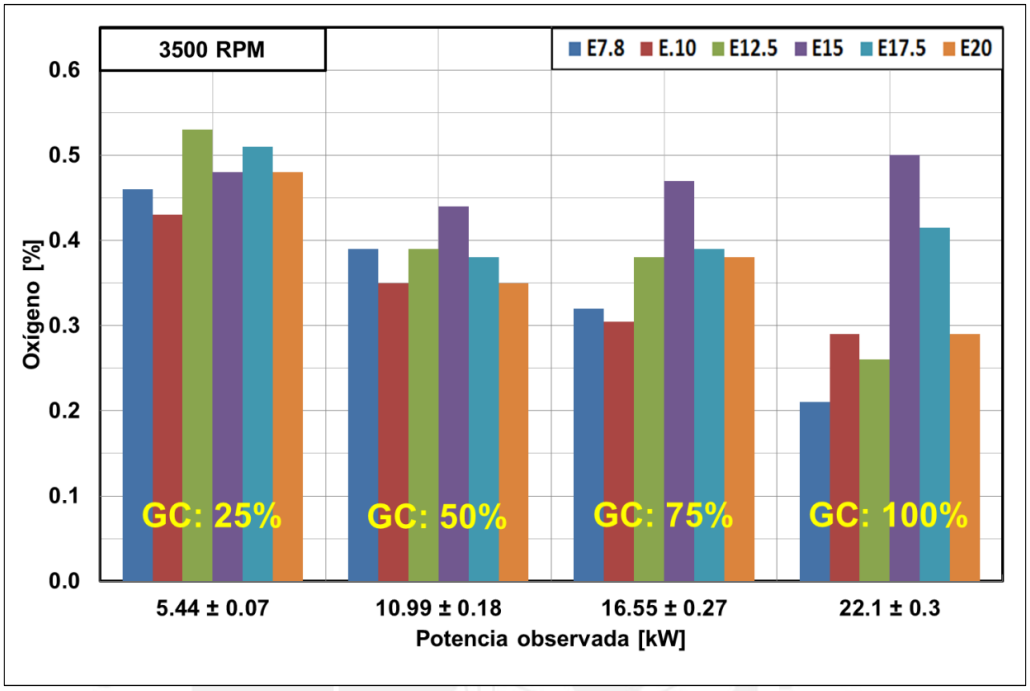
HC versus Potencia observada a 3500 RPM para diferentes mezclas gasolina-etanol.

ANEXO 9



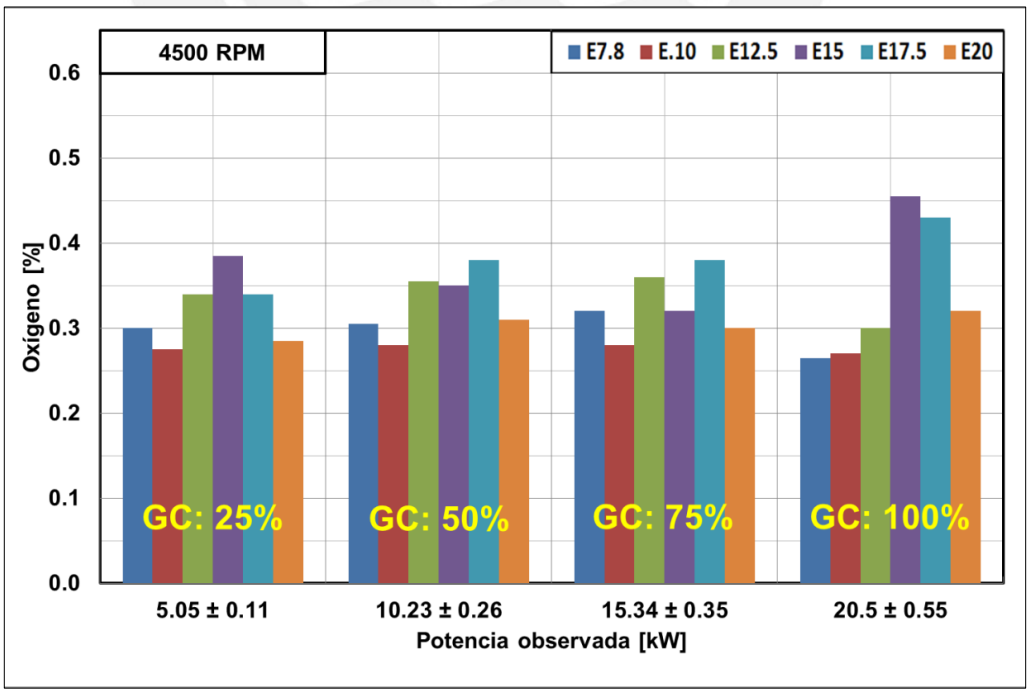
HC versus Potencia observada a 4500 RPM para diferentes mezclas gasolina-etanol.

ANEXO 10



O_2 versus Potencia observada a 3500 RPM para diferentes mezclas gasolina-etanol.

ANEXO 11



O_2 versus Potencia observada a 4500 RPM para diferentes mezclas gasolina-etanol.