California vs. Non-California Gasoline

WSPA

September 29, 2004

CARB Example 2002 RFGs

	Houston	New York	Chicago	CaRFG3
RVP	6.9	6.8	6.8	6.87
T50	203	199	209	209
T90	332	334	331	307
Arom	20.5	19.0	18.7	23
Olef	11.3	11.6	5.7	4
Oxy	2.1	2.0	3.5	2.1
Sulfur	132	144	122	11
Benzene	0.60	0.63	0.74	0.6

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Oxy	2.1	2.0	3.5	2.1
Sulfur	132	144	122	11
Benzene	0.60	0.63	0.74	0.6
NOx, % Change*	2.9	2.7	5.6	-2.6
THC, % Change*	0.1	-1.3	-1.1	-1.4
Toxics, % Change*	0.6	0.5	-1.9	-8.6

*Sulfur level set at 30 ppm per EPA Tier 2 Standard

Example 2003 RFGs

	Houston	New York	Chicago	CaRFG3
RVP	6.9	6.8	6.8	6.87
T50	201	207	210	209
T90	333	327	330	307
Arom	20.3	21.4	18.5	23
Olef	12.9	12.7	6.4	4
Oxy	2.2	2.1	3.5	2.1
Sulfur	132	81	127	11
Benzene	0.60	0.67	0.72	0.6
NOx, % Change*	3.5	3.7	5.9	-2.6
THC, % Change*	-0.4	-0.6	-1.2	-1.4
Toxics, % Change*	1.9	3.7	-1.9	-8.6

*Sulfur level set at 30 ppm per EPA Tier 2 Standard

Variation About The 2002 Average

	Houston	New York	Chicago
No. Fuels Tested	525	1305	894
No. Pass CARB*	1	3	0
% Pass CARB	0.2%	0.2%	0.0%

*Sulfur level set at 30 ppm per EPA Tier 2 Standard

CARB Example 2002 RFGs

Projections for EtOH in Place of MTBE

	Houston	New York
RVP	6.8	6.7
T50	212	208
T90	338	340
Arom	22.2	20.6
Olef	11.8	12.1
Oxy	3.5	3.5
Sulfur	30	30
Benzene	0.65	0.68
NOx, % Change*	8.4	8.4
THC, % Change*	0.9	-0.7
Toxics, % Change*	5.4	5.2

***Sulfur level set at 30 ppm per EPA Tier 2 Standard**

Conventional Gasoline

RVP	8.3
T50	214
T90	335
Arom	28.0
Olef	12.1
Oxy	0.7
Sulfur	297
Benzene	1.11
NOx, % Change	2.8
THC, % Change	17.8
Toxics, % Change	29.3

*Sulfur level set at 30 ppm per EPA Tier 2 Standard

CaRFG3 vs. RFG

- CaRFG3 is Significantly More Stringent Than Federal RFG
- Increasing The Stringency Of CaRFG4 Would Increase This Difference
- Federal RFG is Significantly More Stringent Than Conventional
- There Has Been Resistance To Adopt Federal RFG Due To Supply/Cost Issues (e.g., Baton Rouge, Atlanta)

Summary

- Adoption of a More Stringent CaRFG as a “National Low-Emission Fuel” for Non-Attainment Areas is a Dubious Concept
- Adoption of a More Stringent CaRFG as a “National Fuel” That Would Apply to Both Attainment and Non-Attainment Areas is a Non-Starter
  - EPA “Boutique Fuels” Study: 10-13% Capacity Reduction for Nationwide CBG3