

Table 6. Meeting MSAT: MTBE-Ban Case Analysis for RFG Production – Federal RFG Producing Refinery

	Case 5		Case 6		Case 7		Case 8	
	Case 3 + Isomerization		Case 5 + DeSulfurization		Case 7 + Alkylate to Restore Volumes		Full Volumes – No Ethanol	
	Volume (MB/D)	Vol %						
Gasoline Blend Components Based on 100MB/D Refinery: MB/D								
<i>Production</i>								
LSR & Other C ₅ 's.....	0.0	0.0	0.0	0.0	0.5	0.9	3.6	6.5
Isomerate.....	3.6	7.0	3.6	6.9	3.6	6.6	3.6	6.6
Reformate.....	17.7	34.3	18.4	35.0	18.5	33.9	18.1	33.2
FCC Gasoline.....	15.5	30.1	15.7	29.9	15.7	28.8	15.7	28.8
Alkylate.....	9.5	18.5	9.5	18.1	9.5	17.5	9.5	17.4
n-Butane.....	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1
Refinery Production.....	46.3		47.2		47.8		50.5	
<i>Purchases</i>								
MTBE.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethanol.....	5.1	10.0	5.2	10.0	5.4	10.0	0.0	0.0
C ₃ Alkylate.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C ₄ Alkylate.....	0.0	0.0	0.0	0.0	1.2	2.3	4.1	7.4
Total Purchases.....	5.1		5.2		6.7		4.1	
Total Gasoline Production.....	51.4	100.0	52.4	100.0	54.5	100.0	54.5	100.0
Properties								
Octane: (R+M)/2.....	90.1		90.0		90.0		86.9	
RVP: psi.....	6.4		6.5		6.6		6.4	
Benzene: vol%.....	0.30		0.29		0.28		0.28	
Aromatics: vol%.....	26.0		26.2		25.3		24.9	
Olefins: vol%.....	9.3		8.2		7.9		7.9	
Sulfur:ppm.....	122		11.9		11.5		11.4	
E200: vol%.....	42		42.0		42.3		39.3	
E300: vol%.....	79		78.1		78.6		78.8	
Summary RFG Requirements								
	Changes from Industry Baseline ^a	Federal Target ^b	Changes from Industry Baseline ^a	Federal Target ^b	Changes from Industry Baseline ^a	Federal Target ^b	Changes from Industry Baseline ^a	Federal Target ^b
VOC: % Reduction.....	-25.9	≥25.9	-26.3	≥25.9	-25.9	≥25.9	-25.9	≥25.9
Toxics: % Reduction.....	-30.0	≥20.0	-32.0	≥20.0	-32.6	≥20.0	-32.3	≥20.0
NO _x : % Reduction.....	-8.9	≥5.5	-14.1	≥5.5	-14.4	≥5.5	-14.4	≥5.5
Benzene: vol %.....	0.30	≤1.0	0.29	≤1.0	0.28	≤1.0	0.28	≤1.0

^a Emission reductions and benzene content of illustrative fuel for comparison with Federal requirements.

^b Federal reformulated gasoline required emission reductions and benzene content from industry baseline.

Definition of abbreviations and technical terms:

LSR = light straight run;
FCC = fluid catalytic cracking;
ppm = parts per million;
psi = pounds per square inch;
vol% = volume percent;
VOC = volatile organic compounds;
POM = polycyclic organic materials;
MB/D = thousand barrels per day
mg/mi = milligrams per mile;
MTBE = methyl tertiary butyl ether;
ETBE = ethyl tertiary butyl ether;
TAME = tertiary amyl methyl ether;
RVP = Reid vapor pressure.

Source: Energy Information Administration