

SPECIFICATIONS FOR CARBOB REGULAR

Product Code A1 (1) (2) (3) (4)

<u>Specification Points</u>	<u>ASTM Method (2)</u>	<u>CARB 3</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max.	13 CCR § 2297 D-323 & D-6378-08	5.99
Sulfur, ppmw	D-5453-93	21
Benzene, Vol. % Max	D-5580-02	1.22
Aromatic HC, Vol. % Max	D-5580-02	38.7
Olefins, Vol. % Max	D-6550-10	11.1
MTBE, Vol% Max	D-7754-11	0.05
Oxygen, (Combined) Wt. %, Max (Total, from combined Oxygenates other Than MTBE or Ethanol)	D-7754-11	0.06
Distillation, deg. F. T50, Max	D-86-99ae1	232
T90, Max		335
End Point, Max		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Phosphorus, Max gm/gal	D-3231	0.005

- (1) In addition to above KM specifications, product must meet latest revision of ASTM D4814.
- (2) This CARBOB certified for 3.3-3.7 wt% oxygen range with 10 vol% ethanol.
- (3) This product does not comply with the standards for California gasoline without the addition of ethanol.
- (4) Product suppliers assume all liability for consequences of this product not meeting required specifications according to the test methods prescribed above.

SPECIFICATIONS FOR CARBOB REGULAR

Product Code A2 (1) (2) (3) (4)

<u>Specification Points</u>	<u>ASTM Method (2)</u>	<u>CARB 3</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max.	13 CCR § 2297 D-323 & D-6378-08	10.5
Sulfur, ppmw	D-5453-93	21
Benzene, Vol. % Max	D-5580-02	1.22
Aromatic HC, Vol. % Max	D-5580-02	38.7
Olefins, Vol. % Max	D-6550-10	11.1
MTBE, Vol% Max	D-7754-11	0.05
Oxygen, (Combined) Wt. %, Max (Total, from combined Oxygenates other than MTBE or Ethanol)	D-7754-11	0.06
Distillation, deg. F. T50, Max	D-86-99ae1	237
T90, Max		335
End Point, Max		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Phosphorus, Max gm/gal	D-3231	0.005

- (1) In addition to above KM specifications, product must meet latest revision of ASTM D4814.
- (2) This CARBOB certified for 3.3-3.7 wt% oxygen range with 10 vol% ethanol.
- (3) This product does not comply with the standards for California gasoline without the addition of ethanol.
- (4) Product suppliers assume all liability for consequences of this product not meeting required specifications according to the test methods prescribed above.

SPECIFICATIONS FOR CARBOB REGULAR

Product Code A3 (1) (2) (3) (4)

<u>Specification Points</u>	<u>ASTM Method (2)</u>	<u>CARB 3</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max.	13 CCR § 2297 D-323 & D-6378-08	12.5
Sulfur, ppmw	D-5453-93	21
Benzene, Vol. % Max	D-5580-02	1.22
Aromatic HC, Vol. % Max	D-5580-02	38.7
Olefins, Vol. % Max	D-6550-10	11.1
MTBE, Vol% Max	D-7754-11	0.05
Oxygen, (Combined) Wt. %, Max (Total, from combined Oxygenates other Than MTBE or Ethanol)	D-7754-11	0.06
Distillation, deg. F. T50, Max	D-86-99ae1	237
T90, Max		335
End Point, Max		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Phosphorus, Max gm/gal	D-3231	0.005

- (1) In addition to above KM specifications, product must meet latest revision of ASTM D4814.
- (2) This CARBOB certified for 3.3-3.7 wt% oxygen range with 10 vol% ethanol.
- (3) This product does not comply with the standards for California gasoline without the addition of ethanol.
- (4) Product suppliers assume all liability for consequences of this product not meeting required specifications according to the test methods prescribed above.

SPECIFICATIONS FOR CARBOB REGULAR

Product Code A4 (1) (2) (3) (4)

<u>Specification Points</u>	<u>ASTM Method (2)</u>	<u>CARB 3</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max.	13 CCR § 2297 D-323 & D-6378-08	14.0
Sulfur, ppmw	D-5453-93	21
Benzene, Vol. % Max	D-5580-02	1.22
Aromatic HC, Vol. % Max	D-5580-10	38.7
Olefins, Vol. % Max	D-6550-10	11.1
MTBE, Vol% Max	D-7754-11	0.05
Oxygen, (Combined) Wt. %, Max (Total, from combined Oxygenates other Than MTBE or Ethanol)	D-7754-11	0.06
Distillation, deg. F. T50, Max	D-86-99ae1	237
T90, Max		335
End Point, Max		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Phosphorus, Max gm/gal	D-3231	0.005

- (1) In addition to above KM specifications, product must meet latest revision of ASTM D4814.
- (2) This CARBOB certified for 3.3-3.7 wt% oxygen range with 10 vol% ethanol.
- (3) This product does not comply with the standards for California gasoline without the addition of ethanol.
- (4) Product suppliers assume all liability for consequences of this product not meeting required specifications according to the test methods prescribed above.

SPECIFICATIONS FOR CARBOB PREMIUM

Product Code B1 (1) (2) (3) (4)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>CARB 3</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max.	13 CCR § 2297 D-323 & D-6378-08	5.99
Sulfur, ppmw	D-5453-93	21
Benzene, Vol. % Max	D-5580-02	1.22
Aromatic HC, Vol. % Max	D-5580-02	38.7
Olefins, Vol. % Max	D-6550-10	11.1
MTBE, Vol% Max	D-7754-11	0.05
Oxygen, (Combined) Wt. %, Max (Total, from combined Oxygenates other Than MTBE or Ethanol)	D-7754-11	0.06
Distillation, deg. F. T50, Max	D-86-99ae1	232
T90, Max		335
End Point, Max		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Phosphorus, Max gm/gal	D-3231	0.005

- (1) In addition to above KM specifications, product must meet latest revision of ASTM D4814.
- (2) This CARBOB certified for 3.3-3.7 wt% oxygen range with 10 vol% ethanol.
- (3) This product does not comply with the standards for California gasoline without the addition of ethanol.
- (4) Product suppliers assume all liability for consequences of this product not meeting required specifications according to the test methods prescribed above.

SPECIFICATIONS FOR CARBOB PREMIUM

Product Code B2 (1) (2) (3) (4)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>CARB 3</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max.	13 CCR § 2297 D-323 & D-6378-08	10.5
Sulfur, ppmw	D-5453-93	21
Benzene, Vol. % Max	D-5580-02	1.22
Aromatic HC, Vol. % Max	D-5580-02	38.7
Olefins, Vol. % Max	D-6550-10	11.1
MTBE, Vol% Max	D-7754-11	0.05
Oxygen, (Combined) Wt. %, Max (Total, from combined Oxygenates other Than MTBE or Ethanol)	D-7754-11	0.06
Distillation, deg. F. T50, Max	D-86-99ae1	237
T90, Max		335
End Point, Max		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Phosphorus, Max gm/gal	D-3231	0.005

- (1) In addition to above KM specifications, product must meet latest revision of ASTM D4814.
- (2) This CARBOB certified for 3.3-3.7 wt% oxygen range with 10 vol% ethanol.
- (3) This product does not comply with the standards for California gasoline without the addition of ethanol.
- (4) Product suppliers assume all liability for consequences of this product not meeting required specifications according to the test methods prescribed above.

SPECIFICATIONS FOR CARBOB PREMIUM

Product Code B3 (1) (2) (3) (4)

<u>Specification Points</u>	<u>ASTM Method (2)</u>	<u>CARB 3</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max.	13 CCR § 2297 D-323 & D-6378-08	12.5
Sulfur, ppmw	D-5453-93	21
Benzene, Vol. % Max	D-5580-02	1.22
Aromatic HC, Vol. % Max	D-5580-02	38.7
Olefins, Vol. % Max	D-6550-10	11.1
MTBE, Vol% Max	D-7754-11	0.05
Oxygen, (Combined) Wt. %, Max (Total, from combined Oxygenates other Than MTBE or Ethanol)	D-7754-11	0.06
Distillation, deg. F. T50, Max	D-86-99ae1	237
T90, Max		335
End Point, Max		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Phosphorus, Max gm/gal	D-3231	0.005

- (1) In addition to above KM specifications, product must meet latest revision of ASTM D4814.
- (2) This CARBOB certified for 3.3-3.7 wt% oxygen range with 10 vol% ethanol.
- (3) This product does not comply with the standards for California gasoline without the addition of ethanol.
- (4) Product suppliers assume all liability for consequences of this product not meeting required specifications according to the test methods prescribed above.

SPECIFICATIONS FOR CARBOB PREMIUM

Product Code B4 (1) (2) (3) (4)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>CARB 3</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max.	13 CCR § 2297 D-323 & D-6378-08	14.0
Sulfur, ppmw	D-5453-93	21
Benzene, Vol. % Max	D-5580-02	1.22
Aromatic HC, Vol. % Max	D-5580-02	38.7
Olefins, Vol. % Max	D-6550-10	11.1
MTBE, Vol% Max	D-7754-11	0.05
Oxygen, (Combined) Wt. %, Max (Total, from combined Oxygenates other Than MTBE or Ethanol)	D-7754-11	0.06
Distillation, deg. F. T50, Max	D-86-99ae1	237
T90, Max		335
End Point, Max		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Phosphorus, Max gm/gal	D-3231	0.005

- (1) In addition to above KM specifications, product must meet latest revision of ASTM D4814.
- (2) This CARBOB certified for 3.3-3.7 wt% oxygen range with 10 vol% ethanol.
- (3) This product does not comply with the standards for California gasoline without the addition of ethanol.
- (4) Product suppliers assume all liability for consequences of this product not meeting required specifications according to the test methods prescribed above.

SPECIFICATIONS FOR SUB-OCTANE UNLEADED REGULAR GASOLINE

Product Code H2 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner EPA	7.8
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
EndPoint,Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 7.8 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR SUB-OCTANE UNLEADED REGULAR GASOLINE

Product Code H3 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner EPA	10.5
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
EndPoint Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 10.5 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR SUB-OCTANE UNLEADED REGULAR GASOLINE

Product Code H4 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	14.0
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
EndPoint,Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 14.0 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR SUB-OCTANE UNLEADED REGULAR GASOLINE

Product Code H5 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner EPA	12.5
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
EndPoint,Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 12.5 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR SUB-OCTANE UNLEADED REGULAR GASOLINE

Product Code H6 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	10.0
Distillation, deg. F. T-50, min T-50, min (with 10% ethanol blend) EndPoint,Max.	D-86	170 150(2) 437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 10.0 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %

SPECIFICATIONS FOR SUB-OCTANE UNLEADED REGULAR GASOLINE

Product Code H7 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	11.5
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
EndPoint,Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 11.5 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR SUB-OCTANE UNLEADED REGULAR GASOLINE

Product Code H8 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	13.5
Distillation, deg. F. T-50, min T-50, min (with 10% ethanol blend) EndPoint,Max.	D-86	170 150(2) 437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 13.5 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR SUB-OCTANE UNLEADED REGULAR GASOLINE

Product Code H9 (1) (2) (3) (4) (5)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	9.0
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
EndPoint,Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) Suitable for the special RVP provisions for ethanol blends that contain between 9 and 10 vol% ethanol.
- (2) The RVP of this blendstock/gasoline does not exceed 9.0 psi.
- (3) The use of this gasoline to manufacture a gasoline-ethanol blend containing anything other than between 9 and 10 volume percent ethanol may cause a summertime RVP violation.
- (4) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (5) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR SUB-OCTANE UNLEADED REGULAR GASOLINE

Product Code HA (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	15.0
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
EndPoint,Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 15.0 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR SUB-OCTANE UNLEADED PREMIUM GASOLINE
Product Code L6 (1) (2) (3) (4) (5)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	92.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner EPA	9.0
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
EndPoint,Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) Suitable for the special RVP provisions for ethanol blends that contain between 9 and 10 vol% ethanol.
- (2) The RVP of this blendstock/gasoline does not exceed 9.0 psi.
- (3) The use of this gasoline to manufacture a gasoline-ethanol blend containing anything other than between 9 and 10 volume percent ethanol may cause a summertime RVP violation.
- (4) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (5) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR SUB-OCTANE UNLEADED PREMIUM GASOLINE

Product Code L7 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	92.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	11.5
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
EndPoint,Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 11.5 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR SUB-OCTANE UNLEADED PREMIUM GASOLINE

Product Code L8 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	92.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	13.5
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
EndPoint,Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 13.5 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR SUB-OCTANE UNLEADED PREMIUM GASOLINE

Product Code L9 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	92.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	15.0
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
EndPoint,Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 15.0 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR SUB-OCTANE UNLEADED REGULAR GASOLINE

Product Code M5 (1) (2) (3) (4) (5)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner EPA	9.0
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
End Point Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) Suitable for the special RVP provisions for ethanol blends that contain between 9 and 10 vol% ethanol.
- (2) The RVP of this blendstock/gasoline does not exceed 9.0 psi.
- (3) The use of this gasoline to manufacture a gasoline-ethanol blend containing anything other than between 9 and 10 volume percent ethanol may cause a summertime RVP violation.
- (4) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (5) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR SUB-OCTANR UNLEADED REGULAR GASOLINE

Product Code M7 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	11.5
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
End Point Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 11.5 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet min T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight % .

SPECIFICATIONS FOR SUB-OCTANE UNLEADED REGULAR GASOLINE

Product Code M8 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	13.5
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
End Point Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 13.5 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet min T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight % .

SPECIFICATIONS FOR SUB-OCTANE UNLEADED REGULAR GASOLINE

Product Code M9 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	15.0
Distillation, deg. F. T-50, min T-50, min (with 10% ethanol blend) End Point Max.	D-86	170 150(2) 437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 15.0 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet min T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight % .

SPECIFICATIONS FOR UNLEADED PREMIUM SUB-OCTANE GASOLINE

Product Code P2 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner EPA	7.8
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
End Point Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 7.8 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR UNLEADED PREMIUM SUB-OCTANE GASOLINE

Product Code P3 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner EPA	10.5
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
End Point Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 10.5 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR UNLEADED PREMIUM SUB-OCTANE GASOLINE

Product Code P4 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner EPA	14.0
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
End Point Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 14.0 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR UNLEADED PREMIUM SUB-OCTANE GASOLINE

Product Code P5 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner EPA	12.5
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
End Point Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 12.5 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR UNLEADED PREMIUM SUB-OCTANE GASOLINE

Product Code P6 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	10.0
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
End Point Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 10.0 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %

SPECIFICATIONS FOR UNLEADED PREMIUM SUB-OCTANE GASOLINE

Product Code P7 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	11.5
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
End Point Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 11.5 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR UNLEADED PREMIUM SUB-OCTANE GASOLINE

Product Code P8 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	13.5
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
End Point Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 13.5 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR UNLEADED PREMIUM SUB-OCTANE GASOLINE

Product Code P9 (1) (2) (3) (4) (5)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM/EPA	9.0
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
End Point Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) Suitable for the special RVP provisions for ethanol blends that contain between 9 and 10 vol% ethanol.
- (2) The RVP of this blendstock/gasoline does not exceed 9.0 psi.
- (3) The use of this gasoline to manufacture a gasoline-ethanol blend containing anything other than between 9 and 10 volume percent ethanol may cause a summertime RVP violation.
- (4) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (5) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR UNLEADED PREMIUM SUB-OCTANE GASOLINE

Product Code PA (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	15.0
Distillation, deg. F.	D-86	
T-50, min		170
T-50, min (with 10% ethanol blend)		150(2)
End Point Max.		437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

- (1) The RVP of this gasoline does not exceed 15.0 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814. Product must meet T-50 min 150 deg F when blended with ethanol.
- (3) Maximum oxygen content is 0.05 weight %.

SPECIFICATIONS FOR FULL OCTANE UNLEADED REGULAR GASOLINE

Product Code S8 (1) (2) (3) *

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
Octane (R+M)/2	D-2699 D-2700	87.0
Vapor Pressure psi max	D-4953, D-5191 Grabner EPA	10.0
Distillation, deg. F. T-50, min End Point Max.	D-86	170 437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

* This Product is NOT transported via KM's main line systems (East Line, West Line, Calnev Line, South Line, North Line and Oregon Line).

- (1) The RVP of this gasoline does not exceed 10.0 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814.
- (3) Maximum oxygen content is 0.05 weight %

SPECIFICATIONS FOR UNLEADED PREMIUM FULL OCTANE GASOLINE

Product Code S9 (1) (2) (3) *

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
Octane (R+M)/2	D-2699 D-2700	91.0
Vapor Pressure psi max	D-4953, D-5191 Grabner EPA	10.0
Distillation, deg. F. T-50, min End Point Max.	D-86	170 437
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur, ppm max	D-4294, D-2622, D-5453	80
Phosphorus Max. gm/gal.	D-3231	0.005

* This Product is NOT transported via KM's main line systems (East Line, West Line, Calnev Line, South Line, North Line and Oregon Line).

- (1) The RVP of this gasoline does not exceed 10.0 psi.
- (2) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814.
- (3) Maximum oxygen content is 0.05 weight %

SPECIFICATIONS FOR UNLEADED REGULAR SUB-OCTANE GASOLINE
9MEX-84

Product Code SA*

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
RVP max, psi, (kPa)	D4953, D5191, D5482, or D6378	9.0 (62)
Sulfur Mercaptan mg/kg (ppm wt)	D3227	20
Copper Corrosion 3h @ 50°C	D130	1
Silver Strip Corrosion 2h @50°C	D7667, D7671	1
Solvent Washed Gum kg/m ³ , (mg/100 ml)	D381	0.050, (5)
Oxidation Stability, minimum, minutes	D525	240
OCTANE		
RON	D2699	Report
MON (min)	D2700	82.0
(R+M)/2		87.0*
*Octane specification is post blending with 5.8 vol% Fuel Ethanol per ASTM D4806		
Aromatics max, vol%	D1319	Report
Olefins max, vol%	D1319	Report
Benzene max, vol%	D3606, D5580, or D6277	2.0
Sulfur max, mg/kg (ppm wt)	D5453, D2622, D7039 or D7220	30
Oxygen max, wt% or vol%	D4815, D5845	0.0
Phosphorous max, kg/m ³ , g/gal	D3231	0.001, 0.004
Manganese max, ppm	D3831	0.5
Ferrocene max, ppm	D3831	0.5
Color	Visual	Undyed
Distillation, deg C (F)	D86, D7344, D7345	
T-10, max		70 (158)
T-50, min		77 (170)
T50, max		121 (249)
T-90, max		190 (374)
FBP		225 (437)
Residue, vol%		2
T (V/L=20),deg C (F) min	D5188	54 (129)

*This product code for shipment on the East 300 Line ONLY.

SPECIFICATIONS FOR UNLEADED REGULAR SUB-OCTANE GASOLINE
10MX-84

Product Code SB *

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
RVP max, psi, (kPa)	D4953, D5191, D5482, or D6378	10.0 (69)
Sulfur Mercaptan mg/kg (ppm wt)	D3227	20
Copper Corrosion 3h @ 50°C	D130	1
Silver Strip Corrosion 2h @50°C	D7667, D7671	1
Solvent Washed Gum kg/m ³ , (mg/100 ml)	D381	0.050, (5)
Oxidation Stability, minimum, minutes	D525	240
OCTANE		
RON	D2699	Report
MON (min)	D2700	82.0
(R+M)/2		87.0*
*Octane specification is post blending with 5.8 vol% Fuel Ethanol per ASTM D4806		
Aromatics max, vol%	D1319	Report
Olefins max, vol%	D1319	Report
Benzene max, vol%	D3606, D5580, or D6277	2.0
Sulfur max, mg/kg (ppm wt)	D5453, D2622, D7039 or D7220	30
Oxygen max, wt% or vol%	D4815, D5485	0.0
Phosphorous max, kg/m ³ , g/gal	D3231	0.001, 0.004
Manganese max, ppm	D3831	0.5
Ferrocene max, ppm	D3831	0.5
Color	Visual	Undyed
Distillation, deg C (F)	D86, D7344, D7345	
T-10, max		65 (149)
T-50, min		77 (170)
T50, max		118 (245)
T-90, max		190 (374)
FBP		225 (437)
Residue, vol%		2
T (V/L=20),deg C (F)	D5188	50 (122)

*This product code for shipment on the East 300 Line ONLY.

SPECIFICATIONS FOR UNLEADED REGULAR SUB-OCTANE GASOLINE
115MX-84

Product Code SC *

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
RVP max, psi, (kPa)	D4953, D5191, D5482, or D6378	11.5 (79)
Sulfur Mercaptan mg/kg (ppm wt)	D3227	20
Copper Corrosion 3h @ 50°C	D130	1
Silver Strip Corrosion 2h @50°C	D7667, D7671	1
Solvent Washed Gum kg/m ³ , (mg/100 ml)	D381	0.050, (5)
Oxidation Stability, minimum, minutes	D525	240
OCTANE		
RON	D2699	Report
MON (min)	D2700	82.0
(R+M)/2		87.0*
*Octane specification is post blending with 5.8 vol% Fuel Ethanol per ASTM D4806		
Aromatics max, vol%	D1319	Report
Olefins max, vol%	D1319	Report
Benzene max, vol%	D3606, D5580, or D6277	2.0
Sulfur max, mg/kg (ppm wt)	D5453, D2622, D7039 or D7220	30
Oxygen max, wt% or vol%	D4815, D5485	0.0
Phosphorous max, kg/m ³ , g/gal	D3231	0.001, 0.004
Manganese max, ppm	D3831	0.5
Ferrocene max, ppm	D3831	0.5
Color	Visual	Undyed
Distillation, deg C (F)	D86, D7344, D7345	
T-10, max		60 (140)
T-50, min		77 (170)
T50, max		116 (240)
T-90, max		185 (365)
FBP		225 (437)
Residue, vol%		2
T (V/L=20),deg C (F)	D5188	47 (117)

*This product code for shipment on the East 300 Line ONLY.

SPECIFICATIONS FOR UNLEADED REGULAR FULL-OCTANE GASOLINE
9MEX-87

Product Code SX*

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
RVP max, psi, (kPa)	D4953, D5191, D5482, or D6378	9.0 (62)
Sulfur Mercaptan mg/kg (ppm wt)	D3227	20
Copper Corrosion 3h @ 50°C	D130	1
Silver Strip Corrosion 2h @50°C	D7667, D7671	1
Solvent Washed Gum kg/m ³ , (mg/100 ml)	D381	0.050, (5)
Oxidation Stability, minimum, minutes	D525	240
OCTANE		
RON	D2699	Report
MON (min)	D2700	82.0
(R+M)/2		87.0
Aromatics max, vol%	D1319	Report
Olefins max, vol%	D1319	Report
Benzene max, vol%	D3606, D5580, or D6277	2.0
Sulfur max, mg/kg (ppm wt)	D5453, D2622, D7039 or D7220	30
Oxygen max, wt% or vol%	D4815, D5845	0.0
Phosphorous max, kg/m ³ , g/gal	D3231	0.001, 0.004
Manganese max, ppm	D3831	0.5
Ferrocene max, ppm	D3831	0.5
Color	Visual	Undyed
Distillation, deg C (F)	D86, D7344, D7345	
T-10, max		70 (158)
T-50, min		77 (170)
T50, max		121 (249)
T-90, max		190 (374)
FBP		225 (437)
Residue, vol%		2
T (V/L=20),deg C (F) min	D5188	54 (129)

*This product code for shipment on the East 300 Line ONLY.

SPECIFICATIONS FOR UNLEADED REGULAR FULL-OCTANE GASOLINE
10MEX-87

Product Code SY *

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
RVP max, psi, (kPa)	D4953, D5191, D5482, or D6378	10.0 (69)
Sulfur Mercaptan mg/kg (ppm wt)	D3227	20
Copper Corrosion 3h @ 50°C	D130	1
Silver Strip Corrosion 2h @50°C	D7667, D7671	1
Solvent Washed Gum kg/m ³ , (mg/100 ml)	D381	0.050, (5)
Oxidation Stability, minimum, minutes	D525	240
OCTANE		
RON	D2699	Report
MON (min)	D2700	82.0
(R+M)/2		87.0
Aromatics max, vol%	D1319	Report
Olefins max, vol%	D1319	Report
Benzene max, vol%	D3606, D5580, or D6277	2.0
Sulfur max, mg/kg (ppm wt)	D5453, D2622, D7039 or D7220	30
Oxygen max, wt% or vol%	D4815, D5485	0.0
Phosphorous max, kg/m ³ , g/gal	D3231	0.001, 0.004
Manganese max, ppm	D3831	0.5
Ferrocene max, ppm	D3831	0.5
Color	Visual	Undyed
Distillation, deg C (F)	D86, D7344, D7345	
T-10, max		65 (149)
T-50, min		77 (170)
T50, max		118 (245)
T-90, max		190 (374)
FBP		225 (437)
Residue, vol%		2
T (V/L=20),deg C (F)	D5188	50 (122)

*This product code for shipment on the East 300 Line ONLY.

SPECIFICATIONS FOR UNLEADED REGULAR FULL-OCTANE GASOLINE
115MEX-87

Product Code SZ *

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
RVP max, psi, (kPa)	D4953, D5191, D5482, or D6378	11.5 (79)
Sulfur Mercaptan mg/kg (ppm wt)	D3227	20
Copper Corrosion 3h @ 50°C	D130	1
Silver Strip Corrosion 2h @50°C	D7667, D7671	1
Solvent Washed Gum kg/m ³ , (mg/100 ml)	D381	0.050, (5)
Oxidation Stability, minimum, minutes	D525	240
OCTANE		
RON	D2699	Report
MON (min)	D2700	82.0
(R+M)/2		87.0
Aromatics max, vol%	D1319	Report
Olefins max, vol%	D1319	Report
Benzene max, vol%	D3606, D5580, or D6277	2.0
Sulfur max, mg/kg (ppm wt)	D5453, D2622, D7039 or D7220	30
Oxygen max, wt% or vol%	D4815, D5485	0.0
Phosphorous max, kg/m ³ , g/gal	D3231	0.001, 0.004
Manganese max, ppm	D3831	0.5
Ferrocene max, ppm	D3831	0.5
Color	Visual	Undyed
Distillation, deg C (F)	D86, D7344, D7345	
T-10, max		60 (140)
T-50, min		77 (170)
T50, max		116 (240)
T-90, max		185 (365)
FBP		225 (437)
Residue, vol%		2
T (V/L=20),deg C (F)	D5188	47 (117)

*This product code for shipment on the East 300 Line ONLY.

SPECIFICATIONS FOR UNLEADED PREMIUM SUB-OCTANE GASOLINE
9MEX-88

Product Code TA*

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
RVP max, psi, (kPa)	D4953, D5191, D5482, or D6378	9.0 (62)
Sulfur Mercaptan mg/kg (ppm wt)	D3227	20
Copper Corrosion 3h @ 50°C	D130	1
Silver Strip Corrosion 2h @50°C	D7667, D7671	1
Solvent Washed Gum kg/m ³ , (mg/100 ml)	D381	0.050, (5)
Oxidation Stability, minimum, minutes	D525	240
OCTANE		
RON	D2699	94.0
MON (min)	D2700	Report
(R+M)/2		91*
*Octane specification is post blending with 5.8 vol% Fuel Ethanol per ASTM D4806		
Aromatics max, vol%	D1319	32
Olefins max, vol%	D1319	12.5
Benzene max, vol%	D3606, D5580, or D6277	2.0
Sulfur max, mg/kg (ppm wt)	D5453, D2622, D7039 or D7220	30
Oxygen max, wt% or vol%	D4815, D5845	0.0
Phosphorous max, kg/m ³ , g/gal	D3231	0.001, 0.004
Manganese max, ppm	D3831	0.5
Ferrocene max, ppm	D3831	0.5
Color	Visual	Undyed
Distillation, deg C (F)	D86, D7344, D7345	
T-10, max		70 (158)
T-50, min		77 (170)
T50, max		121 (249)
T-90, max		190 (374)
FBP		225 (437)
Residue, vol%		2
T (V/L=20), deg C (F) min	D5188	54 (129)

*This product code for shipment on the East 300 Line ONLY.

SPECIFICATIONS FOR UNLEADED PREMIUM SUB-OCTANE GASOLINE
10MX-88

Product Code TB *

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
RVP max, psi, (kPa)	D4953, D5191, D5482, or D6378	10.0 (69)
Sulfur Mercaptan mg/kg (ppm wt)	D3227	20
Copper Corrosion 3h @ 50°C	D130	1
Silver Strip Corrosion 2h @50°C	D7667, D7671	1
Solvent Washed Gum kg/m ³ , (mg/100 ml)	D381	0.050, (5)
Oxidation Stability, minimum, minutes	D525	240
OCTANE		
RON	D2699	94.0
MON (min)	D2700	Report
(R+M)/2		91*
*Octane specification is post blending with 5.8 vol% Fuel Ethanol per ASTM D4806		
Aromatics max, vol%	D1319	32
Olefins max, vol%	D1319	12.5
Benzene max, vol%	D3606, D5580, or D6277	2.0
Sulfur max, mg/kg (ppm wt)	D5453, D2622, D7039 or D7220	30
Oxygen max, wt% or vol%	D4815, D5485	0.0
Phosphorous max, kg/m ³ , g/gal	D3231	0.001, 0.004
Manganese max, ppm	D3831	0.5
Ferrocene max, ppm	D3831	0.5
Color	Visual	Undyed
Distillation, deg C (F)	D86, D7344, D7345	
T-10, max		65 (149)
T-50, min		77 (170)
T50, max		118 (245)
T-90, max		190 (374)
FBP		225 (437)
Residue, vol%		2
T (V/L=20),deg C (F)	D5188	50 (122)

*This product code for shipment on the East 300 Line ONLY.

SPECIFICATIONS FOR UNLEADED PREMIUM SUB-OCTANE GASOLINE
115MX-88

Product Code TC *

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
RVP max, psi, (kPa)	D4953, D5191, D5482, or D6378	11.5 (79)
Sulfur Mercaptan mg/kg (ppm wt)	D3227	20
Copper Corrosion 3h @ 50°C	D130	1
Silver Strip Corrosion 2h @50°C	D7667, D7671	1
Solvent Washed Gum kg/m ³ , (mg/100 ml)	D381	0.050, (5)
Oxidation Stability, minimum, minutes	D525	240
OCTANE		
RON	D2699	94.0
MON (min)	D2700	Report
(R+M)/2		91*
*Octane specification is post blending with 5.8 vol% Fuel Ethanol per ASTM D4806		
Aromatics max, vol%	D1319	Report
Olefins max, vol%	D1319	Report
Benzene max, vol%	D3606, D5580, or D6277	2.0
Sulfur max, mg/kg (ppm wt)	D5453, D2622, D7039 or D7220	30
Oxygen max, wt% or vol%	D4815, D5485	0.0
Phosphorous max, kg/m ³ , g/gal	D3231	0.001, 0.004
Manganese max, ppm	D3831	0.5
Ferrocene max, ppm	D3831	0.5
Color	Visual	Undyed
Distillation, deg C (F)	D86, D7344, D7345	
T-10, max		60 (140)
T-50, min		77 (170)
T50, max		116 (240)
T-90, max		185 (365)
FBP		225 (437)
Residue, vol%		2
T (V/L=20),deg C (F)	D5188	47 (117)

*This product code for shipment on the East 300 Line ONLY.

SPECIFICATIONS FOR UNLEADED PREMIUM FULL-OCTANE GASOLINE
9MEX-91

Product Code TX *

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
RVP max, psi, (kPa)	D4953, D5191, D5482, or D6378	9.0 (62)
Sulfur Mercaptan mg/kg (ppm wt)	D3227	20
Copper Corrosion 3h @ 50°C	D130	1
Silver Strip Corrosion 2h @50°C	D7667, D7671	1
Solvent Washed Gum kg/m ³ , (mg/100 ml)	D381	0.050, (5)
Oxidation Stability, minimum, minutes	D525	240
OCTANE		
RON	D2699	94.0
MON (min)	D2700	Report
(R+M)/2		91
Aromatics max, vol%	D1319	32
Olefins max, vol%	D1319	12.5
Benzene max, vol%	D3606, D5580, or D6277	2.0
Sulfur max, mg/kg (ppm wt)	D5453, D2622, D7039 or D7220	30
Oxygen max, wt% or vol%	D4815, D5845	0.0
Phosphorous max, kg/m ³ , g/gal	D3231	0.001, 0.004
Manganese max, ppm	D3831	0.5
Ferrocene max, ppm	D3831	0.5
Color	Visual	Undyed
Distillation, deg C (F)	D86, D7344, D7345	
T-10, max		70 (158)
T-50, min		77 (170)
T50, max		121 (249)
T-90, max		190 (374)
FBP		225 (437)
Residue, vol%		2
T (V/L=20),deg C (F) min	D5188	54 (129)

*This product code for shipment on the East 300 Line ONLY.

SPECIFICATIONS FOR UNLEADED PREMIUM FULL-OCTANE GASOLINE
10MEX-91

Product Code TY

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
RVP max, psi, (kPa)	D4953, D5191, D5482, or D6378	10.0 (69)
Sulfur Mercaptan mg/kg (ppm wt)	D3227	20
Copper Corrosion 3h @ 50°C	D130	1
Silver Strip Corrosion 2h @50°C	D7667, D7671	1
Solvent Washed Gum kg/m ³ , (mg/100 ml)	D381	0.050, (5)
Oxidation Stability, minimum, minutes	D525	240
OCTANE		
RON	D2699	94.0
MON (min)	D2700	Report
(R+M)/2		91
Aromatics max, vol%	D1319	32
Olefins max, vol%	D1319	12.5
Benzene max, vol%	D3606, D5580, or D6277	2.0
Sulfur max, mg/kg (ppm wt)	D5453, D2622, D7039 or D7220	30
Oxygen max, wt% or vol%	D4815, D5485	0.0
Phosphorous max, kg/m ³ , g/gal	D3231	0.001, 0.004
Manganese max, ppm	D3831	0.5
Ferrocene max, ppm	D3831	0.5
Color	Visual	Undyed
Distillation, deg C (F)	D86, D7344, D7345	
T-10, max		65 (149)
T-50, min		77 (170)
T50, max		118 (245)
T-90, max		190 (374)
FBP		225 (437)
Residue, vol%		2
T (V/L=20),deg C (F)	D5188	50 (122)

*This product code for shipment on the East 300 Line ONLY.

SPECIFICATIONS FOR UNLEADED PREMIUM FULL-OCTANE GASOLINE
115MEX-91

Product Code TZ

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
RVP max, psi, (kPa)	D4953, D5191, D5482, or D6378	11.5 (79)
Sulfur Mercaptan mg/kg (ppm wt)	D3227	20
Copper Corrosion 3h @ 50°C	D130	1
Silver Strip Corrosion 2h @50°C	D7667, D7671	1
Solvent Washed Gum kg/m ³ , (mg/100 ml)	D381	0.050, (5)
Oxidation Stability, minimum, minutes	D525	240
OCTANE		
RON	D2699	94.0
MON (min)	D2700	Report
(R+M)/2		91
Aromatics max, vol%	D1319	Report
Olefins max, vol%	D1319	Report
Benzene max, vol%	D3606, D5580, or D6277	2.0
Sulfur max, mg/kg (ppm wt)	D5453, D2622, D7039 or D7220	30
Oxygen max, wt% or vol%	D4815, D5485	0.0
Phosphorous max, kg/m ³ , g/gal	D3231	0.001, 0.004
Manganese max, ppm	D3831	0.5
Ferrocene max, ppm	D3831	0.5
Color	Visual	Undyed
Distillation, deg C (F)	D86, D7344, D7345	
T-10, max		60 (140)
T-50, min		77 (170)
T50, max		116 (240)
T-90, max		185 (365)
FBP		225 (437)
Residue, vol%		2
T (V/L=20),deg C (F)	D5188	47 (117)

*This product code for shipment on the East 300 Line ONLY.

SPECIFICATIONS FOR UNLEADED REGULAR SUBGRADE
ARIZONA CLEANER BURNING GASOLINE
(AZRBOB)

Product Code X6 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	8.0
Distillation, deg. F.	D-86	
T50 (max)		237
T90 (max)		335
End Point (max).		437
Aromatics, vol% (max)	D-5580	33.1
Olefins, vol% (max)	D-1319 or correlated D6650	11.1
Oxygen, wt% (max)	D-4815	0.05
Sulfur ppmw (max).	D-2622-94; D-5453-93	89
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030

- (1) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814.
- (2) AZRBOB does not comply with the standards for Arizona CBG without the addition of oxygenate.
- (3) This AZRBOB is intended for blending with 10 vol% ethanol and may not be combined with AZRBOBs requiring oxygenate blending with any other type or amount of oxygenate.

SPECIFICATIONS FOR UNLEADED REGULAR SUBGRADE
ARIZONA CLEANER BURNING GASOLINE
(AZRBOB)

Product Code X9 (1) (2) (3) (4)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	87.0
*Octane specification is post blending with 10 vol% Fuel Ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	5.7
Distillation, deg. F. E200 E300 End Point Max.	D-86	65-25% 100-65% 437
Aromatics, vol% (max)	D-5580	55
Olefins, vol% (max)	D-1319 or correlated D6650	27.5
Oxygen, wt%-Max	D-4815	0.05
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur ppm, Max.	D-2622-94; D-5453-93	89

- (1) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814.
- (2) AZRBOB does not comply with the standards for Arizona CBG without the addition of oxygenate.
- (3) This AZRBOB is intended for blending with 10 vol% ethanol and may not be combined with AZRBOBs requiring oxygenate blending with any other type or amount of oxygenate.
- (4) Supplier must certify that product will meet requirements of AAC R-3-7-751 when blended with 10 vol% ethanol.

SPECIFICATIONS FOR UNLEADED PREMIUM
ARIZONA CLEANER BURNING GASOLINE
(AZRBOB)

Product Code Z6 (1) (2) (3)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	8.0
Distillation, deg. F.	D-86	
T50 (max)		237
T90 (max)		335
End Point (max).		437
Aromatics, vol% (max)	D-5580	33.1
Olefins, vol% (max)	D-1319 or correlated D6650	11.1
Oxygen, wt% (max)	D-4815	0.05
Sulfur ppm (max).	D-2622-94; D-5453-93	89
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030

- (1) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814.
- (2) AZRBOB does not comply with the standards for Arizona CBG without the addition of oxygenate.
- (3) This AZRBOB is intended for blending with 10 vol% ethanol and may not be combined with AZRBOB requiring oxygenate blending with any other type or amount of oxygenate.

SPECIFICATIONS FOR UNLEADED PREMIUM SUBGRADE
ARIZONA CLEANER BURNING GASOLINE
(AZRBOB)

Product Code Z9 (1) (2) (3) (4)

<u>Specification Points</u>	<u>ASTM Method</u>	<u>Refinery Shipments</u>
*Octane (R+M)/2	D-2699 D-2700	91.0
*Octane specification is post blending with 10 vol% Fuel ethanol per ASTM D4806		
Vapor Pressure psi max	D-4953, D-5191 Grabner ASTM	5.7
Distillation, deg. F. E200 E300 End Point Max.	D-86	65-25% 100-65% 437
Aromatics, vol% (max)	D-5580	55
Olefins, vol% (max)	D-1319 D-1319 or correlated D6650	27.5
Oxygen, wt%-Max	D-4815	0.05
Workmanship		Clear and Bright
Lead, Max. gm/gal.	D-3237	0.030
Sulfur ppm, Max.	D-2622-94; D-5453-93	89

- (1) In addition to the above KM specifications, product must meet latest revision of ASTM D-4814.
- (2) AZRBOB does not comply with the standards for Arizona CBG without the addition of oxygenate.
- (3) This AZRBOB is intended for blending with 10 vol% ethanol and may not be combined with AZRBOBs requiring oxygenate blending with any other type or amount of oxygenate.
- (4) Supplier must certify that product will meet requirements of AAC R-3-7-751 when blended with 10 vol% ethanol.