



**Pipeline  
Specifications**



# **NuStar Logistics, L.P. Product Specifications**

## **Northern Mexico Supply (Nuevo Laredo)**

**SPECIFICATION FOR MEXICO GRADE ULTRA LOW SULFUR FUEL DIESEL**

**GRADE 88**

<u>Specification Points</u>	<u>ASTM</u> Test <u>Methods</u>	<u>Shipments</u> (At Origin)	
		<u>Minimum</u>	<u>Maximum</u>
Specific Gravity	D4052, D1298	Report	
Color	D1500		2.5
Color visual		Undyed	
Distillation,	D86, D7344, D7345		
Initial boiling temp, C		Report	
10% Recovered, C			275
50% Recovered, C		Report	
90% Recovered, C			345
Final Boiling temp, C		Report	
Corrosion, Copper Strip @ 50 C D130		1	
Cetane			
(1) Cetane Number	D613	45	
Or (2) Cetane Index, Procedure A	D4737	45	
Cetane Index <u>1</u> /	D976	45	
Flash, C	D93,D7094,D3828	45	
Carbon Residue on 10% Bottoms			
(Ramsbottom) - PercentD524			0.25
Cloud Point, C	D2500	Report	
Pour Point, C	D97		0 (Mar to Oct)
Pour Point, C	D97		-5 (Nov to Feb)

Kinematic Viscosity, mm <sup>2</sup> /s @40 C	D445	1.9	4.1
Ash, % mass	D482		0.01
Sulfur (Zones ZMVM,ZMG,ZMM,ZFN)	D5453,D2622,D7039,D7220		15
Sulfur (Rest of country) ppm	D5453,D2622,7039,D7220		500
Aromatics (Volume %)	D1319, D5186		35
Water & Sediment, vol.%	D2709		0.05
Conductivity, pS/m @ 70 F	D2624, D4308	25	
Lubricity, microns	D6079, D7688		520

1/ In the case the Cetane Number is measured, it shall be performed on the un-additized fuel.

<u>Zones:</u>	ZMVM	Mexico Valley Metropolitan Zone
	ZMG	Guadalajara Metropolitan Zone
	ZMM	Monterrey Metropolitan Zone
	ZFN	Northern Frontier Zone

Rev. 1

03/12/2019

**SPECIFICATION FOR MEXICO GRADE GASOLINE BLENDSTOCK  
87 Octane Gasoline – Monterrey  
Grade 76**

Monterrey Finished Gasoline Spec After Blending with 15% MTBE

<u>Specification Points</u>	<u>ASTM Test Method</u>	<u>Origin Shipments</u>	
		<u>Minimum</u>	<u>Maximum</u>
Specific Gravity	D1298,4052	Report Only	
Vapor Pressure, kPa	D4953,D5191,D5482,D6378	69 (B-2), 79 (C-3)	
Vapor Pressure, psi	D4953,D5191,D5482,D6378	10.0 (B-2), 11.5 (C-3)	
Distillation temp			
Initial boiling temp, F	D86		
10% Recovered, F	D86	170.6	158 (B-2 & C-3)
50% Recovered, F	D86		249.8(B-2 & C-3)
90% Recovered, F	D86		374 (B-2 & C-3)
Final boiling temp, F	D86		437 (B-2 & C-3)
Distillation Residue, vol% D86			2 (B-2 & C-3)
Benzene, vol %	D3606,D5580,D6277		1.0
Aromatics, vol %	D1319		25.0
Olefins, vol %	D1319		10.0
Mercaptan Sulfur, mg/kg	D3227		20
One of the following requirements must be met:			
Copper Corrosion	D 130		1
Silver Corrosion	D7667,D7671		1
Gum, Washed, mg/100ml	D 381		5
Gum, Unwashed, mg/100ml	D 381		70
Induction Period, min.	D 525	240	
Vapor lock protection temp, F @ V:L=20			122.0 (B-2), 116.6 (C-3)
Research Octane {R}	D2699		Report
Motor Octane {M}	D2700	82.0	
(R+M)/2	D4814	87.0	
Sulfur, ppm	D5453,D2622,D7039,D7220		30 avg, 80 max
Oxygen, % mass (MTBE)	D4815	1.0	2.7
BTX, vol %	D5580		Report
Appearance (70 F)	D4176		Clear & Bright

ZMM Monterrey Metropolitan Zone

**Volatility class specification by geographic region and season**

	<b>ZMM</b>	
January	C-3	C = RVP 11.5
February	C-3	
March	B-2	B = RVP 10.0
April	B-2	
May	B-2	3 = V/L 116.6
June	B-2	
July	B-2	2 = V/L 122.0
August	B-2	
September	B-2	
October	B-2	
November	C-3	
December	C-3	

Monterrey Gasoline Spec Before Blending with 15% MTBE

<u>Specification Points</u>	<u>ASTM Test Method</u>	<u>Origin Shipments</u>	
		<u>Minimum</u>	<u>Maximum</u>
Specific Gravity	D1298,4052	Report Only	
Vapor Pressure, psi	D4953,D5191,D5482,D6378		(Target 9.9/11.5 )
Benzene, vol %	D3606,D5580,D6277	Report	
Aromatics, vol %	D1319	Report	
Olefins, vol %	D1319	Report	
Mercaptan Sulfur, mg/kg	D3227	Report	
One of the following requirements must be met:			
Copper Corrosion	D 130		1
Silver Corrosion	D7667,D7671		1
Gum, Washed, mg/100ml	D 381	Report	
Gum, Unwashed, mg/100ml	D 381	Report	
Induction Period, min.	D 525	Report	
(R+M)/2	D4814	82.8	(Target)
Sulfur, ppm	D5453,D2622,D7039,D7220		80 max
Oxygen, % mass (MTBE)	D4815	Report	
BTX, vol %	D5580	Report	
Appearance (70 F)	D4176	Clear & Bright	

**SPECIFICATION FOR MEXICO GRADE GASOLINE BLENDSTOCK  
91 Octane Gasoline – Monterrey  
Grade 77**

Monterrey Finished Gasoline Spec After Blending with 15% MTBE

<u>Specification Points</u>	<u>ASTM Test Method</u>	<u>Origin Shipments</u>	
		<u>Minimum</u>	<u>Maximum</u>
Specific Gravity	D1298,4052	Report Only	
Vapor Pressure, kPa	D4953,D5191,D5482,D6378	69 (B-2), 79 (C-3)	
Vapor Pressure, psi	D4953,D5191,D5482,D6378	10.0 (B-2), 11.5 (C-3)	
Distillation temp			
Initial boiling temp, F	D86		
10% Recovered, F	D86	170.6	158 (B-2 & C-3)
50% Recovered, F	D86		249.8(B-2 & C-3)
90% Recovered, F	D86		374 (B-2 & C-3)
Final boiling temp, F	D86		437 (B-2 & C-3)
Distillation Residue, vol% D86			2 (B-2 & C-3)
Benzene, vol %	D3606,D5580,D6277		1.0
Aromatics, vol %	D1319		25.0
Olefins, vol %	D1319		10.0
Mercaptan Sulfur, mg/kg	D3227		20
One of the following requirements must be met:			
Copper Corrosion	D 130		1
Silver Corrosion	D7667,D7671		1
Gum, Washed, mg/100ml	D 381		5
Gum, Unwashed, mg/100ml	D 381		70
Induction Period, min.	D 525	240	
Vapor lock protection temp, F @ V:L=20			122.0 (B-2), 116.6 (C-3)
Research Octane {R}	D2699	94.0	
Motor Octane {M}	D2700		Report
(R+M)/2	D4814	91.0	
Sulfur, ppm	D5453,D2622,D7039,D7220		30 avg, 80 max
Oxygen, % mass (MTBE)	D4815	1.0	2.7
BTX, vol %	D5580		Report
Appearance (70 F)	D4176		Clear & Bright

ZMM Monterrey Metropolitan Zone

**Volatility class specification by geographic region and season**

	<b>ZMM</b>	
January	C-3	C = RVP 11.5
February	C-3	
March	B-2	B = RVP 10.0
April	B-2	
May	B-2	3 = V/L 116.6
June	B-2	
July	B-2	2 = V/L 122.0
August	B-2	
September	B-2	
October	B-2	
November	C-3	
December	C-3	

Monterrey Gasoline Spec Before Blending with 15% MTBE

<u>Specification Points</u>	<u>ASTM Test Method</u>	<u>Origin Shipments</u>	
		<u>Minimum</u>	<u>Maximum</u>
Specific Gravity	D1298,4052	Report Only	
Vapor Pressure, psi	D4953,D5191,D5482,D6378		(Target 9.9/11.5 )
Benzene, vol %	D3606,D5580,D6277	Report	
Aromatics, vol %	D1319	Report	
Olefins, vol %	D1319	Report	
Mercaptan Sulfur, mg/kg	D3227	Report	
One of the following requirements must be met:			
Copper Corrosion	D 130		1
Silver Corrosion	D7667,D7671		1
Gum, Washed, mg/100ml	D 381	Report	
Gum, Unwashed, mg/100ml	D 381	Report	
Induction Period, min.	D 525	Report	
(R+M)/2	D4814	87.7	(Target)
Sulfur, ppm	D5453,D2622,D7039,D7220		80 max
Oxygen, % mass (MTBE)	D4815	Report	
BTX, vol %	D5580	Report	
Appearance (70 F)	D4176	Clear & Bright	



**SPECIFICATION FOR MEXICO GRADE GASOLINE BLENDSTOCK  
87 Octane Gasoline – Rest of Country  
Grades 86**

Finished Gasoline Spec – Neat of After Ethanol or After MTBE

<u>Specification Points</u>	<u>ASTM Test Method</u>	<u>Origin Shipments</u>	
		<u>Minimum</u>	<u>Maximum</u>
Specific Gravity	D1298,4052	Report Only	
Vapor Pressure, kPa	D4953,D5191,D5482,D6378	69 (B-2), 79 (C-3)	
Vapor Pressure, psi	D4953,D5191,D5482,D6378	10.0 (B-2), 11.5 (C-3)	
Distillation temp			
Initial boiling temp, F	D86		
10% Recovered, F	D86	170.6	149 (B-2), 140 (C-3)
50% Recovered, F	D86		244.4(B-2), 240.9 (C-3)
90% Recovered, F	D86		374 (B-2), 365 (C-3)
Final boiling temp, F	D86		437 (B-2 & C-3)
Distillation Residue, vol% D86			2 (B-2 & C-3)
Benzene, vol %	D3606,D5580,D6277		2.0
Aromatics, vol %	D1319		Report
Olefins, vol %	D1319		Report
Mercaptan Sulfur, mg/kg	D3227		20
One of the following requirements must be met:			
Copper Corrosion	D 130		1
Silver Corrosion	D7667,D7671		1
Gum, Washed, mg/100ml	D 381		5
Gum, Unwashed, mg/100ml	D 381		70
Induction Period, min.	D 525	240	
Vapor lock protection temp, F @ V:L=20			122.0 (B-2), 116.6 (C-3)
Research Octane {R}	D2699		Report
Motor Octane {M}	D2700	82.0	
(R+M)/2	D4814	87.0	
Sulfur, ppm	D5453,D2622,D7039,D7220		30 avg, 80 max
Oxygen, % mass (MTBE)	D4815		2.7
BTX, vol %	D5580		Report
Appearance (70 F)	D4176		Clear & Bright

ZMM Monterrey Metropolitan Zone

**Volatility class specification by geographic region and season**

	<b>North</b>	
January	C-3	
February	C-3	C = RVP 11.5
March	B-2	
April	B-2	B = RVP 10.0
May	B-2	
June	B-2	3 = V/L 116.6
July	B-2	
August	B-2	2 = V/L 122.0
September	B-2	
October	B-2	
November	C-3	
December	C-3	

Northern Rest of Country Gasoline Spec Before Blending with 14% MTBE

<u>Specification Points</u>	<u>ASTM Test Method</u>	<u>Origin Shipments</u>	
		<u>Minimum</u>	<u>Maximum</u>
(R+M)/2	D4814	82.8	(Target)
RVP for 10.0 gas			9.9 (Target)
RVP for 11.5 gas			11.5 (Target)

Revision 1

1/14/2020

**SPECIFICATION FOR MEXICO GRADE GASOLINE BLENDSTOCK  
91 Octane Gasoline – Rest of Country  
Grades 87**

Finished Gasoline Spec – Neat of After Ethanol or After MTBE

<u>Specification Points</u>	<u>ASTM Test Method</u>	<u>Origin Shipments</u>	
		<u>Minimum</u>	<u>Maximum</u>
Specific Gravity	D1298,4052	Report Only	
Vapor Pressure, kPa	D4953,D5191,D5482,D6378	69 (B-2), 79 (C-3)	
Vapor Pressure, psi	D4953,D5191,D5482,D6378	10.0 (B-2), 11.5 (C-3)	
Distillation temp			
Initial boiling temp, F	D86		
10% Recovered, F	D86	170.6	149 (B-2), 140 (C-3)
50% Recovered, F	D86		244.4(B-2), 240.9 (C-3)
90% Recovered, F	D86		374 (B-2), 365 (C-3)
Final boiling temp, F	D86		437 (B-2 & C-3)
Distillation Residue, vol% D86			2 (B-2 & C-3)
Benzene, vol %	D3606,D5580,D6277		2.0
Aromatics, vol %	D1319		32
Olefins, vol %	D1319		12.5
Mercaptan Sulfur, mg/kg	D3227		20
One of the following requirements must be met:			
Copper Corrosion	D 130		1
Silver Corrosion	D7667,D7671		1
Gum, Washed, mg/100ml	D 381		5
Gum, Unwashed, mg/100ml	D 381		70
Induction Period, min.	D 525	240	
Vapor lock protection temp, F @ V:L=20			122.0 (B-2), 116.6 (C-3)
Research Octane {R}	D2699	94.0	
Motor Octane {M}	D2700		Report
(R+M)/2	D4814	91.0	
Sulfur, ppm	D5453,D2622,D7039,D7220		30 avg, 80 max
Oxygen, % mass (MTBE)	D4815		2.7
BTX, vol %	D5580		Report
Appearance (70 F)	D4176		Clear & Bright

ZMM Monterrey Metropolitan Zone

**Volatility class specification by geographic region and season**

	<b>North</b>	
January	C-3	
February	C-3	C = RVP 11.5
March	B-2	
April	B-2	B = RVP 10.0
May	B-2	
June	B-2	3 = 116.6
July	B-2	
August	B-2	2 = 122.0
September	B-2	
October	B-2	
November	C-3	
December	C-3	

Northern Rest of Country Gasoline Spec Before Blending with 14% MTBE

<u>Specification Points</u>	ASTM Test <u>Method</u>	Origin Shipments	
		<u>Minimum</u>	<u>Maximum</u>
(R+M)/2	D4814	87.7	(Target)
RVP for 10.0 gas			9.9 (Target)
RVP for 11.5 gas			11.5 (Target)

Revision 1

1/14/2020

### Revision Table

Version No.	Date	Action(s)
1	August 30, 2019	Initial Issue
2	March 1, 2020	Addition of (1) Mexico Grade Gasoline Blendstock, 87 Octane Gasoline-Monterrey, Grade 76, (2) Mexico Grade Gasoline Blendstock, 91 Octane Gasoline- Monterrey, Grade 77, (3) Mexico Grade Gasoline Blendstock, Grade 86 Octane Gasoline- Rest of Country Grade 86 and (4) Mexico Grade Gasoline Blendstock, 91 Octane Gasoline- Rest of Country, Grade 87.
	January 31, 2024	Revised format