

geographic ethanol/fuel blend guide

Cooler temperatures require ethanol blenders to adjust the amount of ethanol and hydrocarbons (gasoline) in their product to improve the vehicle cold-start and warm-up performance. The amount of ethanol blend depends on the geographical region and the season.

ASTM 5798-07 "Fuel Ethanol (Ed75-Ed85) for Automotive Spark-Ignition Engines" covers this fuel

blend, nominally 75 to 85 percent denatured fuel ethanol and 15 to 25 percent hydrocarbons for use in flexible fuel vehicles.

Three Vapor Classes have been established that determine the percentage of denatured ethanol and hydrocarbon that need to be blended to maintain "on-spec product". Class 1 (85/15) is the summer blend; Class 2 (80/20) is the transition blend utilized in the spring and fall; and Class 3 (75/25) is the winter blend. The percentage of volatile hydrocarbons is

increased in the winter to aid in colder weather "startability".

Retailers who have ethanol blender pumps must be aware of their E85 supplier's current blend percentage to ensure their blends are meeting specification. They have to adjust the computer in the dispenser to certify that their mid-level blends (E20, E30, etc.) contain accurate percentages of ethanol.

This chart lists the volatility class that should be used in each month and is broken down for each state.

State and Fuel Marketing Region	Volatility Class by Month											
	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Alabama	2	2	2	2	2/1	1	1	1	1	1/2	2	2
Alaska												
Southern Region	3	3	3	3	3/2	2/1	1	1/2	2/3	3	3	3
South Mainland	3	3	3	3	3/2	2/1	1/2	2	2/3	3	3	3
Arizona												
North of 34° lat. & E. of 111° long.	3	3	3	3/2	2	2/1	1	1	1/2	2/3	3	3
Remainder south of 34°	2	2	2	2/1	1	1	1	1	1	1/2	2	2
Arkansas	3	3	3/2	2/1	1	1	1	1	1/2	2	2/3	3
California												
North Coast	2	2	2	2	2	2/1	1	1	1	1/2	2	2
South Coast	2	2	2	2	2/1	1	1	1	1	1/2	2	2
Southeast	3	3/2	2	2	2/1	1	1	1	1/2	2	2/3	3
Interior	2	2	2	2	2	2/1	1	1	1	1/2	2	2
Colorado												
East of 105° longitude	3	3	3	3/2	2	2/1	1	1	1/2	2/3	3	3
West of 105° longitude	3	3	3	3	3/2	2	2/1	1/2	2/3	3	3	3
Connecticut	3	3	3	3/2	2	2/1	1	1	1/2	2	2/3	3
Delaware	3	3	3/2	2	2/1	1	1	1	1/2	2	2/3	3
District of Columbia	3	3	3/2	2	2/1	1	1	1	1/2	2	2/3	3
Florida												
North of 29° latitude	2	2	2	2/1	1	1	1	1	1	1/2	2	2
South of 29° latitude	2	2/1	1	1	1	1	1	1	1	1	1/2	2
Georgia	3	3/2	2	2/1	1	1	1	1	1	1/2	2	2/3
Hawaii	1	1	1	1	1	1	1	1	1	1	1	1
Idaho	3	3	3	3/2	2	2	2/1	1/2	2	2/3	3	3
Illinois												
North of 40° latitude	3	3	3	3/2	2	2/1	1	1	1/2	2/3	3	3
South of 40° latitude	3	3	3	3/2	2/1	1	1	1	1/2	2/3	3	3
Indiana	3	3	3	3/2	2/1	1	1	1	1/2	2/3	3	3
Iowa	3	3	3	3/2	2	2/1	1	1	1/2	2/3	3	3
Kansas	3	3	3	3/2	2	2/1	1	1	1/2	2/3	3	3
Kentucky	3	3	3/2	2	2/1	1	1	1	1/2	2	2/3	3
Louisiana	2	2	2	2/1	1	1	1	1	1	1/2	2	2

State and Fuel Marketing Region	Volatility Class by Month											
	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Maine	3	3	3	3/2	2	2/1	1	1/2	2	2/3	3	3
Maryland	3	3	3/2	2	2/1	1	1	1	1/2	2	2/3	3
Massachusetts	3	3	3	3/2	2	2/1	1	1	1/2	2	2/3	3
Michigan												
Lower Peninsula	3	3	3	3/2	2	2/1	1	1/2	2	2/3	3	3
Upper Peninsula	3	3	3	3	3/2	2/1	1	1/2	2	2/3	3	3
Minnesota	3	3	3	3	3/2	2/1	1	1/2	2	2/3	3	3
Mississippi	2	2	2	2/1	1	1	1	1	1	1/2	2	2
Missouri	3	3	3	3/2	2/1	1	1	1	1/2	2/3	3	3
Montana	3	3	3	3	3/2	2	2/1	1/2	2/3	3	3	3
Nebraska	3	3	3	3/2	2	2/1	1	1/2	2	2/3	3	3
Nevada												
North of 38° latitude	3	3	3	3/2	2	2	2/1	1/2	2	2/3	3	3
South of 38° latitude	3	3	3/2	2	2/1	1	1	1	1/2	2	2/3	3
New Hampshire	3	3	3	3/2	2	2/1	1	1/2	2	2/3	3	3
New Jersey	3	3	3/2	2	2/1	1	1	1	1/2	2	2/3	3
New Mexico												
North of 34° latitude	3	3	3	3/2	2	2/1	1	1	1/2	2/3	3	3
South of 34° latitude	3	3	3/2	2/1	1	1	1	1	1/2	2/3	2/3	3
New York												
North of 42° latitude	3	3	3	3/2	2	2/1	1	1/2	2	2/3	3	3
South of 42° latitude	3	3	3	3/2	2/1	1	1	1	1/2	2	2/3	3
North Carolina	3	3	3/2	2	2/1	1	1	1	1/2	2/3	3	3
North Dakota	3	3	3	3	3/2	2/1	1	1/2	2	2/3	3	3
Ohio	3	3	3	3/2	2/1	1	1	1	1/2	2/3	3	3
Oklahoma	3	3	3	3/2	2/1	1	1	1	1/2	2	2/3	3
Oregon												
East of 122° longitude	3	3	3	3/2	2	2	2/1	1/2	2	2/3	3	3
West of 122° longitude	3	3/2	2	2	2	2/1	1	1	1/2	2	2	2/3
Pennsylvania												
North of 41° latitude	3	3	3	3/2	2	2/1	1	1/2	2	2/3	3	3
South of 41° latitude	3	3	3	3/2	2	2/1	1	1	1/2	2	2/3	3
Rhode Island	3	3	3	3/2	2/1	1	1	1	1/2	2	2/3	3
South Carolina	2	2	2	2/1	1	1	1	1	1	1/2	2	2
South Dakota	3	3	3	3/2	2	2/1	1	1/2	2	2/3	3	3
Tennessee	3	3	3/2	2	2/1	1	1	1	1/2	2	2/3	3
Texas												
North of 31° latitude	3	3	3/2	2	2/1	1	1	1	1/2	2	2/3	3
South of 31° latitude	2	2	2	2/1	1	1	1	1	1	1/2	2	2
Utah	3	3	3	3/2	2	2/1	1	1	1/2	2/3	3	3
Vermont	3	3	3	3/2	2	2/1	1	1/2	2	2/3	3	3
Virginia	3	3	3/2	2	2/1	1	1	1	1/2	2	2/3	3
Washington												
East of 122° longitude	3	3	3/2	2	2	2/1	1	1	1/2	2/3	3	3
West of 122° longitude	3	3/2	2	2	2	2/1	1	1	1/2	2	2	2/3
West Virginia	3	3	3	3/2	2	2/1	1	1/2	2	2/3	3	3
Wisconsin	3	3	3	3/2	2	2/1	1	1/2	2	2/3	3	3
Wyoming	3	3	3	3	3/2	2	2/1	1/2	2	2/3	3	3

Source: National Ethanol Vehicle Coalition