

## E15 FACT CHECK:

### Separating Fact from Fiction on the E15 Emergency Waiver

On April 12, President Biden [announced](#) that the U.S. Environmental Protection Agency (EPA) will soon issue a nationwide emergency waiver to allow continued sales of lower-cost E15 throughout the summer. Immediately following the announcement, biofuel opponents launched an aggressive misinformation campaign designed to confuse and mislead consumers about the benefits of E15. This **Fact Check** takes on some of the most common myths propagated by ethanol’s detractors and provides the facts to refute their false claims.

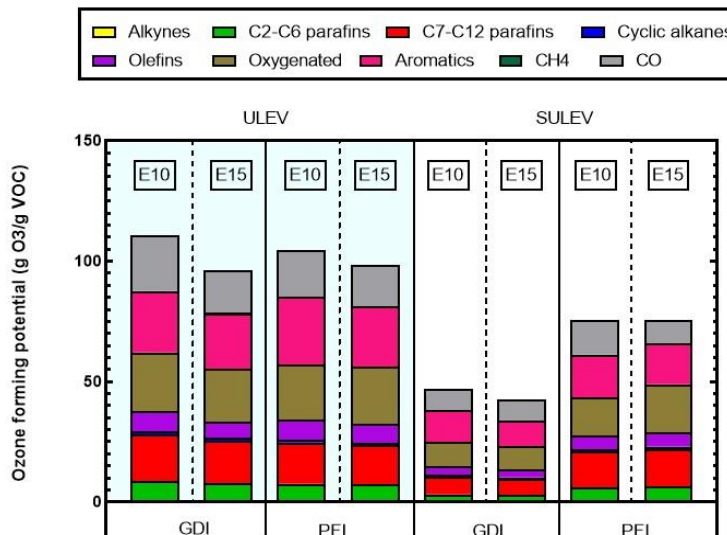
**MYTH:** EPA previously “banned” the sale of E15 during the summer because the fuel could “increase smog.”

**FACT:** E15 *reduces* ground-level ozone pollution and smog compared to today’s regular gasoline.

Smog is created when ozone combines with particle pollution and other gases. E15 reduces emissions of most pollutants that cause smog, according to [studies](#) by the U.S. Department of Energy, EPA, University of California, a consortium of auto and oil companies, and others. In fact, the [most recent study](#) by the University of California-Riverside tested 20 vehicles and found that **E15 reduced particle pollution and toxic gases. E15 cut the potential for ground-level ozone formation** by 10-15% compared to regular gasoline (i.e., E10) in most vehicles.



## Ozone Forming Potential



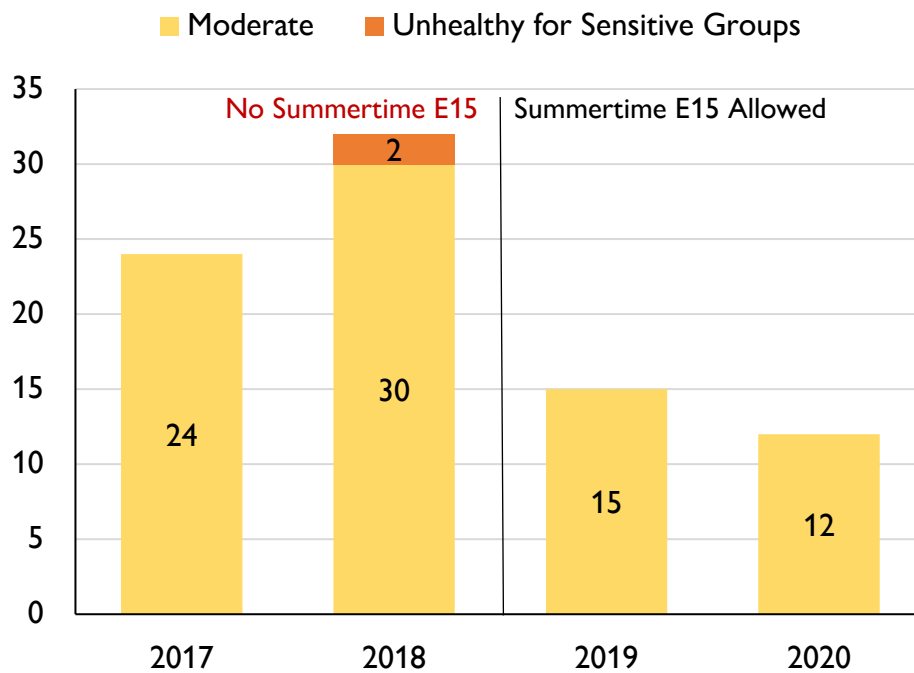
The University of California scientists who conducted the study concluded that “ozone forming potential **trended lower for E15 compared to E10**,” while noting that E15 “...likely **reduces air toxics** from current vehicles and will not lead to air quality degradation...”.

**FACT: Ozone concentrations in regions where E15 is most common continued to trend lower after year-round E15 was approved in 2019.**

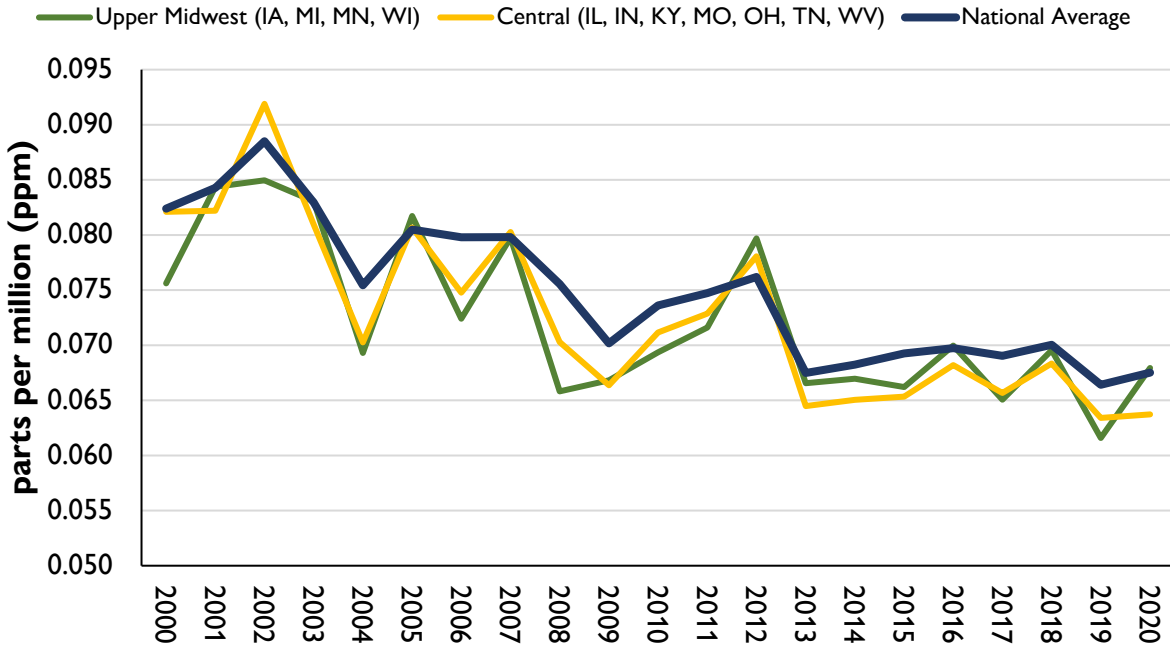
Year-round sales of E15 first occurred in 2019 and continued through 2021. Data from EPA air quality monitors show that ozone concentrations in areas where E15 is most common have generally continued to trend downward in recent years (despite the rollback or relaxation of certain air quality standards by EPA under the previous administration).

For example, [EPA data](#) show the number of days in Polk County, Iowa (Des Moines metro area) when ozone air quality reached concerning levels (moderate or unhealthy) was lower in 2019 and 2020 (i.e., when year-round E15 was available) compared to 2017 and 2018 (when E15 sales were restricted in the summer). The data also show that average ozone concentrations in the Upper Midwest (IA, MI, MN, WI) hit their lowest point on record in 2019—the first year of summertime E15 sales.

**Polk County, Iowa: Number of Days with Moderate or Unhealthy Ozone Air Quality**



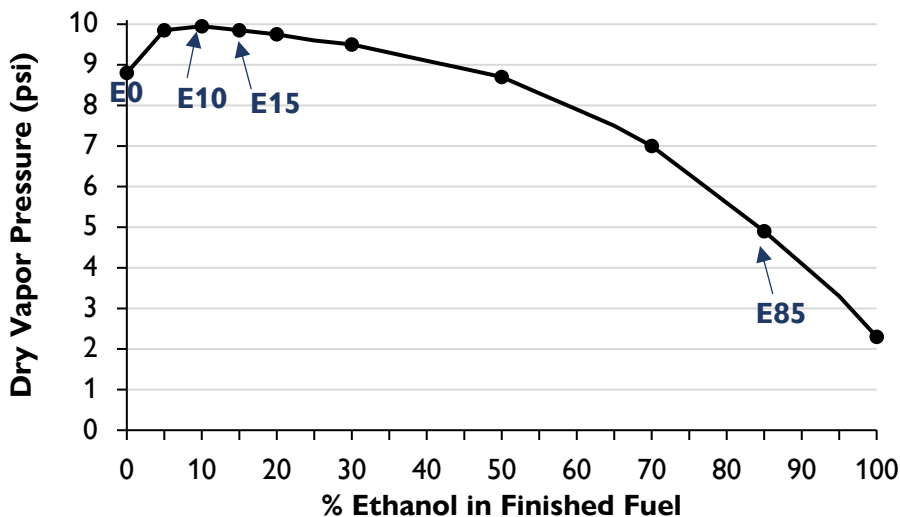
## Average Ozone Concentration



**FACT: E15 has lower vapor pressure than today's regular gasoline.**

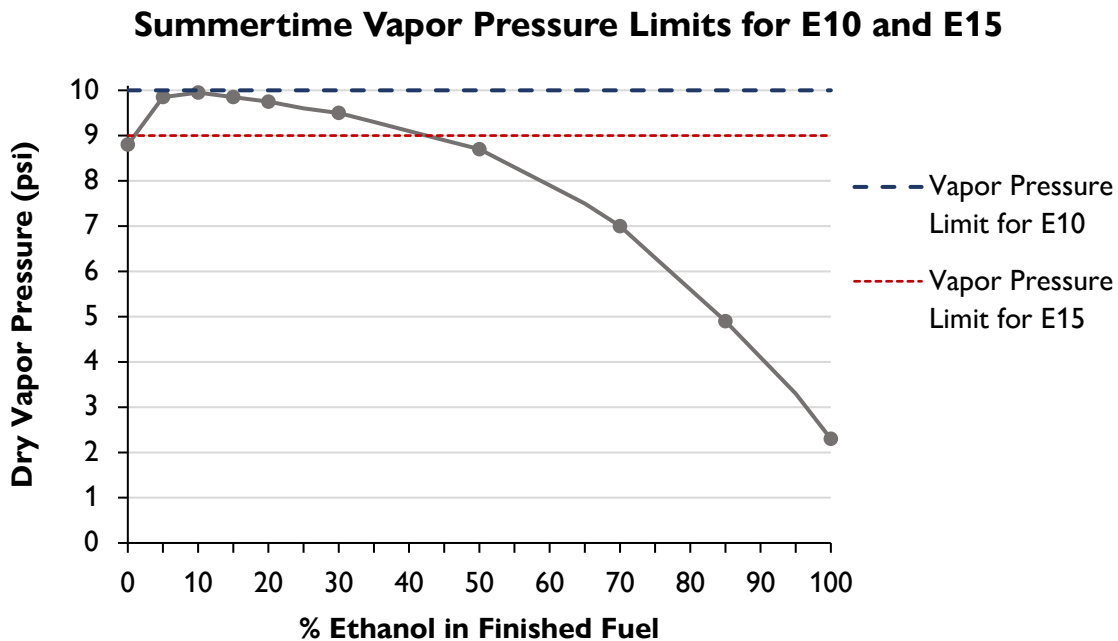
Evaporative emissions from gasoline can contribute to ground-level ozone formation, which in turn can lead to smog. Thus, in an effort to reduce evaporative emissions, EPA regulates the vapor pressure of gasoline in the summer months when temperatures are higher. The vapor pressure of **E15 is slightly lower** (1-2%) than the vapor pressure of today's regular gasoline, meaning E15 is likely to produce fewer evaporative emissions in the summertime.

## Impact of Ethanol on Vapor Pressure



**FACT: The real reason E15 sales were previously restricted in the summer is because the fuel was held to a far more restrictive vapor pressure standard than regular gasoline.**

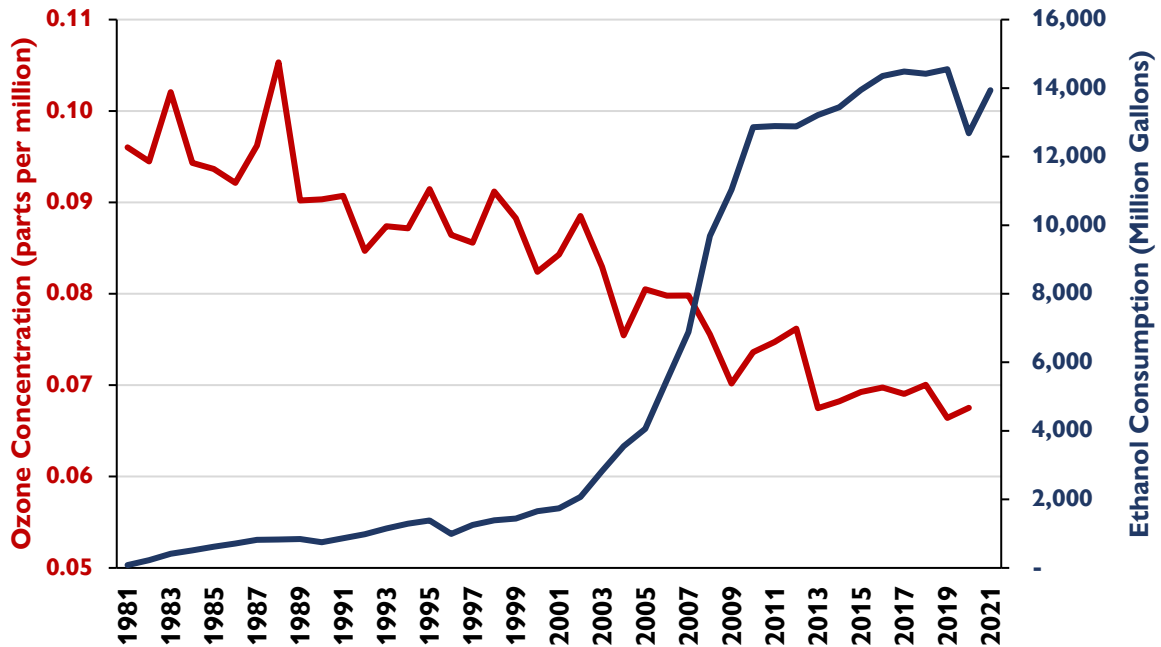
Even though E15 has a vapor pressure that is 1-2% lower than today’s regular gasoline, EPA regulations (prior to 2019, and again after the oil industry won a lawsuit against EPA in 2021) require E15 to meet a vapor pressure limitation that is **10% lower** than the limit applied to regular gasoline. This more restrictive standard for E15 is the product of antiquated regulations that were developed more than 30 years ago, when it was assumed that ethanol could never constitute more than 10% of the gasoline pool. President Biden’s emergency waiver would simply apply the same vapor pressure limit to both E10 and E15 during the summer.



**FACT: As an oxygenate, ethanol has a long history of reducing smog and improving urban air quality.**

In response to worsening air quality problems in large urban areas, the Clean Air Act Amendments of 1990 directed EPA to develop a “reformulated gasoline” (RFG) program to reduce smog. Ethanol was a key ingredient in RFG because its high oxygen content helped gasoline burn more cleanly, and it displaced certain gasoline components that caused smog-forming emissions. The RFG program has been a resounding success and many of the urban areas with major smog problems in the 1990s and early 2000s today have cleaner air that meets or exceeds federal air quality standards. In fact, [EPA data](#) show ground-level ozone concentrations are down nearly 30% since RFG began entering the market in the mid-1990s.

## U.S. Fuel Ethanol Consumption and National Average Ground-Level Ozone Concentration



**MYTH:** E15’s lower energy density results in a fuel economy hit that negates the cost savings offered at the pump.

**FACT:** E15 offers a lower cost per mile traveled, even when its slightly lower energy density is considered.

DOE data show that the energy density per volumetric gallon of E15 is approximately 1.7% lower than the energy density per volumetric gallon of regular gasoline (E10). However, fuel economy is not solely determined by energy density. Other factors like the fuel’s heat of vaporization, octane value (reflecting the fuel’s ability to resist premature combustion), fuel injection calibrations, and other factors can also impact fuel economy.

Recent dynamometer vehicle testing by the University of California-Riverside analyzed the fuel economy of 20 light-duty vehicles when operating on E10 vs. E15, finding that average fuel economy across all vehicles was just 1.3% lower when using E15 (28.65 miles per gallon on E10 vs. 28.28 mpg on E15). Notably, three of the vehicles tested in California saw *improved* fuel economy when using E15, and four vehicles showed no meaningful different (-0.3% or less).

In theory, the slightly lower average fuel economy associated with E15 means 101 gallons of E15 would be needed, on average, to travel the same distance as would be traveled on 100 gallons of

regular E10 gasoline. This means the number of fill-ups (i.e., gas station visits) needed by a driver using E15 would be the same as a driver using E10 over the course of a year. And because E15 is typically 3-7% less expensive than regular gasoline, drivers who use E15 are spending less per mile traveled because E15's price discount far outweighs the minimal fuel economy reduction.

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**MYTH:** Using E15 increases greenhouse gas (GHG) emissions.

**FACT:** E15 reduces GHG emissions compared to regular gasoline.

Because ethanol reduces GHG emissions by **40-50% compared to gasoline**, using a higher level of ethanol means fewer carbon emissions. According to DOE's Argonne National Laboratory, typical corn ethanol provides a 44% GHG savings compared to gasoline. Similarly, researchers from Harvard, MIT, and Tufts concluded that today's corn ethanol offers an average GHG reduction of 46% versus gasoline. These estimates account for all emissions related to the entire ethanol production process, including fertilizer, energy use and emissions for corn farming, as well as possible soil and vegetation carbon losses from hypothetical cropland expansion. Therefore, E15 cuts GHG emissions by about 2.5% compared to regular E10 gasoline and nearly 7.5% compared to gasoline without any ethanol added.

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**MYTH:** Many cars on the road can't use E15.

**FACT:** E15 is legally approved for use in more than 96% of all cars, pickups, SUVs, and vans on the road today.

After conducting more than 6 million miles of vehicle testing, EPA in 2011 approved the use of E15 in all light-duty vehicles manufactured after 2000. Today, more than 96% of the vehicles on the road are model-year 2001 or newer.

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**MYTH:** Using E15 will "damage engines" and "void warranty coverage" because automakers "don't approve the use of E15."

**FACT:** Not a single confirmed case of "engine damage" or inferior performance has been reported since E15's introduction a decade ago.

E15 debuted in the U.S. marketplace in 2012, with increasing volumes being sold in every year since. American consumers used a record amount of E15 in 2021, **driving roughly 20 billion miles using E15 last year alone**. Over the past decade, not a single confirmed case of "engine damage" attributable to E15 has been reported.

In addition, auto warranty claims related to fuel systems have continued a flat or downward trend over the past 10 years for most automakers. Moreover, the average lifespan of engines and vehicles has continued to trend higher in recent years in the U.S., [reaching a record](#) in 2020. This dispels the myth that the increased use of ethanol over the past few decades has somehow increased engine wear or “damage.”

**FACT: Auto manufacturers explicitly and unequivocally approve the use of E15 for more than 94% of vehicles sold today.**

An exhaustive review of owner’s manuals and warranty statements shows that virtually all automakers who sell vehicles in the U.S. market [clearly approve the use of E15](#) in their new vehicles. In fact, major automakers like GM and Ford have approved the use of E15 in their vehicles for nearly a decade. Meanwhile, not a single automaker in the U.S. market approves or warrants the use of the [low-octane gasoline](#) (85 or 86 AKI) that refiners continue to sell in certain states with high elevation. Yet these same refiners continue to perpetuate the myth that automakers don’t endorse the use of E15.

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**MYTH: E15 is being “mandated” at the pump.**

**FACT: E15 is not being required or mandated in any way.**

President Biden’s action simply ensures that consumers will continue to have the choice to purchase E15 this summer if they want to save money and reduce emissions. Similarly, retail gas station owners are not being required in any way to sell E15.

It is also important to note that E15 is not legally approved by EPA for use in off-road engines like lawnmowers, snowmobiles, ATVs, and motorcycles. Thus, every retail station offering E15 today also offers regular gasoline (E10) and many even offer gasoline without ethanol (E0).

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**MYTH: Allowing E15 sales in the summer could increase food prices, because more corn will be used for ethanol.**

**FACT: Summertime E15 sales in 2022 will have little or no discernable impact on corn prices.**

The action taken by President Biden doesn’t create new demand for corn; rather, it **allows an existing market for corn to remain open** this summer. Year-round E15 sales have occurred for the past three years (2019-2021), so allowing E15 sales to continue this summer will not put new or unexpected demands on the corn supply. In fact, if E15 sales had been halted this summer (as occurred in years prior to 2019), corn growers would have experienced a minor *decrease* in demand for their crop.

According to [AgriVisor](#), if summertime E15 sales had been restricted in 2022, corn demand might have been lower by some 25-45 million bushels. In any case, the estimated amount of corn affected by continued sales of E15 this year is equal to just 0.15-0.27% of the [U.S. corn supply](#) (i.e., less than three-tenths of 1 percent) and just 0.08% of the global coarse grains supply. Because such a miniscule fraction of the world grain supply will be impacted, the summertime E15 waiver will have a virtually indiscernible impact on grain prices.

**FACT: Summertime E15 sales will have no impact on U.S. or global food prices.**

The value of farm commodities and ingredients (including corn) represents just a minor share of retail food prices. In fact, [according to USDA](#), only 16 cents of every dollar spent on food pays for the farm commodities and ingredients in the finished food items. The remaining 84 cents pays for the energy required to produce, package, and transport the food; labor costs; advertising; and other marketing costs.

Thus, if summertime E15 sales are expected to have only a trivial impact on corn supply and prices, the effect on retail food prices **will be even less**. In fact, the impact will be so small as to be undetectable.

**When you spend a dollar on food, what is it paying for?**

