

# AIR

## Ethanol Fact Sheet



### Ethanol

#### What it is and where it is used-

- Ethanol is ethyl alcohol, a fuel produced from renewable resources. It is made mainly from corn but can also be made from wheat, barley, sorghum, sugarcane, etc. Current research is investigating the use of “cellulosic feedstocks” including switchgrass, cornstalks, and paper pulp.
- Ethanol can be blended with gasoline to make a motor fuel. Terminology is often used interchangeably and can be easily confused. The three terms below are sometimes referred to as “ethanol” or “gasohol”:
  - “Ethanol” is the 100% pure ethanol coming from the production facility.
  - “E10” is the blend of 10% ethanol and 90% gasoline.
  - “E85” is the blend of 85% ethanol and 15% gasoline.

#### What it is NOT -

- Ethanol is not biodiesel. For more information on biodiesel, see the biodiesel fact sheet.

#### Use of Ethanol blends -

- Blends of E10 or lower are often used as a fuel oxygenate to reduce vehicle emissions. These blends can be used in most post-1983 cars without adverse effects on the vehicle.
- E85 can **only** be used in “flexible fuel vehicles.”

Flexible fuel vehicles (FFVs) can run on gasoline or E85. Many consumers are unaware their vehicle is an FFV. An FFV will be marked on the inside of the fuel cover or by a logo elsewhere on the vehicle. A list of FFVs can be found at [www.e85fuel.com](http://www.e85fuel.com). Always double-check the vehicle’s owner manual.

- Using E85 in FFVs decreases fuel economy up to 30%.

#### Emissions from ethanol blends/environmental effects -

- Use of E85 can reduce many exhaust emissions, though the actual emissions will vary with engine design. These numbers reflect the potential reductions offered by ethanol (E85) relative to conventional gasoline:
  - Reductions in volatile organic compounds (VOCs) of 15%.
  - Reductions in carbon monoxide (CO) of 40%.
  - Reductions in particulate matter (PM) emissions of 20%.
  - Reductions in nitrogen oxides (NO<sub>x</sub>) emissions of 10%.
  - Reductions in sulfate emissions of 80%.

#### Ethanol Production Facilities -

- While ethanol production facilities are considered good for the economy, many other factors should be considered by communities.
  - Ethanol production facilities consume and discharge large amounts of water. Water issues can be discussed with Ed Dührberg at 405-702-8184.
  - While ethanol and its blends are considered by many to be “environmentally friendly” in comparison to petroleum refineries, ethanol plants also release pollutants into the air.

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## Permitting Ethanol Production Facilities –

- Facilities with emissions under 40 tons per year (TPY) generally are “permit exempt” unless they are subject to an emission, equipment, or work practice standard under NSPS (New Source Performance Standard) or NESHAP (National Emissions Standards for Hazardous Air Pollutants), or meet the definition of a “major source.”
- The Air Quality Division (AQD) operates a dual permitting system - construction and operating permits.
- A **construction permit** is required before a new source is constructed or an existing source is modified. The construction permit is issued after it is determined the source is designed to meet applicable rules and pre-construction requirements.
- An **operating permit** is issued after construction is completed and demonstration is made that the source is capable of meeting applicable emissions limitations and air pollution control requirements. Permits and sources are further classified as either major or minor based on their potential-to-emit (PTE).
- A **major source** is any source with PTE of 100 TPY or more of any regulated air pollutant, 10 TPY or more of any one HAP, or 25 TPY or more of any combination of HAPs. Major source permit fees range from \$900 to \$2,000.
- **Minor sources** are those that do not meet the major source definition. Minor source permit fees range from \$150 to \$1500.
- If you aren't sure whether you need a permit, you should request that the AQD staff perform an **Applicability Determination (AD)**. The AD is a written document issued by the DEQ to determine whether a particular source or operation is subject to the requirements of a rule, including whether or not



you need a permit. If you need a permit, the fee of \$250 for the AD is credited towards the permit fee.

### Contacts:

- For general information on ethanol, contact Leon Ashford at 405-702-4173 or Tracy Rudisill 405-702-4167.
- For air permitting information on ethanol production facilities, contact Phillip Fielder at 405-702-4180.

### Links for more information:

- Environmental Protection Agency [www.epa.gov](http://www.epa.gov) specifically [www.epa.gov/OMS/consumer/fuels/altfuels/420f00035.pdf](http://www.epa.gov/OMS/consumer/fuels/altfuels/420f00035.pdf)
- Association of Central Oklahoma Governments [www.acogok.org](http://www.acogok.org)
- Indian Nations Council of Governments [www.incog.org](http://www.incog.org)
- National Renewable Energy Laboratory [www.nrel.gov](http://www.nrel.gov)
- Alternative Fuels Data Center [www.eere.energy.gov/afdc/](http://www.eere.energy.gov/afdc/)
- National Ethanol Vehicle Coalition [www.e85fuel.com](http://www.e85fuel.com)
- American Coalition for Ethanol [www.ethanol.org](http://www.ethanol.org)



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