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## Use of Straight Run Gasoline as a Denaturing Material

*The Alcohol and Tobacco Tax and Trade Bureau (TTB) authorizes straight run gasoline as a substitute denaturant and a material for rendering fuel alcohol unfit for beverage use.*

### TTB Ruling 2008-2

#### Introduction

A producer of fuel ethanol has asked the Alcohol and Tobacco Tax and Trade Bureau (TTB) to authorize the substance known as “straight run gasoline” as a denaturant in completely denatured alcohol formula 20 (CDA-20; 27 CFR 21.24) and as a material that an alcohol fuel plant (AFP) proprietor may use to render distilled spirits produced for fuel use unfit for beverage use (27 CFR 19.1005). That industry’s current expansion has increased the demand for acceptable denaturing materials, thus contributing to an increase in their cost. Consequently, the producer proposed straight run gasoline as a less costly alternative.

#### Background

Pursuant to 26 U.S.C. § 5242, TTB regulates materials that are suitable to denature distilled spirits. The regulations in 27 CFR Part 21 identify suitable materials. Additionally, under the authority of 27 CFR 21.91, the appropriate TTB officer may authorize the use of substitute denaturants where the substitution will not jeopardize the revenue. Denaturing materials approved by TTB shall be such as to render the spirits with which they are mixed unfit for beverage or internal human medicinal use (see 27 CFR 21.11). Requests for approval of substitute denaturants must come from distilled spirits plants (DSPs) that are denaturers (see 27 CFR 21.91).

Pursuant to 26 U.S.C. § 5181(e)(2), TTB regulates materials that may be used to render distilled spirits unfit for beverage use before the spirits are withdrawn from an alcohol fuel plant. Under the authority of 27 CFR 19.1005 the appropriate TTB officer shall determine and authorize the use of materials for rendering spirits unfit for beverage use if the materials, while rendering the spirits unfit for beverage use, will not impair the quality of the spirits for fuel use. The TTB officer approving a new material must also specify the quantity of new material that will be added to the distilled spirits in order to render them unfit for beverage use. Requests for approval of new materials in fuel alcohol must come from AFPs (see 27 CFR 19.1006).

The regulatory standards that a material must meet to gain TTB approval under parts 21 and 19 are different. However, this petition has asked us to approve “straight run gasoline” under both parts. To do so, TTB must make the following determinations:

1. First, TTB must determine whether the proposed material will not impair the quality of the spirits for fuel use (see 27 CFR 19.1006).
2. Second, TTB must determine that the material makes the ethanol “unfit for beverage use” (see 27 CFR 19.1005 and 21.11) or for “internal medicinal use” (21.11); and must determine the quantity required for this purpose (see 27 CFR 19.1005).
3. Third, TTB must determine that the proposed material will be adequate to protect the Federal excise tax revenue (see 27 CFR 21.91 and 26 U.S.C. §§ 5242 and 5181(e)(2)).

Because there are so many possible variables, TTB cannot define quantitative parameters that apply to making these three determinations for every proposed or potential denaturing material or material for rendering distilled spirits produced for fuel use unfit for beverage use. For these petitions TTB must make a determination on a case-by-case basis. We have, when evaluating these petitions in the past, generally considered such factors as the following:

- To determine whether a material is adequate to protect the revenue, we have considered circumstances which assure that the ethanol is not likely to be diverted for beverage purposes.
  - We have considered the complexity and expense of the equipment or processes that would be needed in order to obtain a significant quantity of potable alcohol.
  - Materials having boiling points similar to ethanol or forming azeotropic mixtures with ethanol would also be considered difficult to separate from ethanol if a sufficient quantity of the material distills with the ethanol to indicate that minimal quantities of pure ethyl alcohol are recoverable.
- To determine whether a material renders the ethanol unfit for beverage purposes, we have considered the circumstances which assure that a normal person would not be inclined to drink it as an alcohol beverage,

either because it would be disagreeable to the senses or harmful to one's health. In the latter case, we have considered whether the mixture has a warning taste and odor.

For straight run gasoline, the requester submitted samples, detailed results of analysis, and proposed specifications.

### **TTB Determination Regarding the Use of Straight Run Gasoline**

TTB has determined that the use of straight run gasoline in CDA-20 (27 CFR 21.24) as a substitute denaturant and in fuel alcohol pursuant to 27 CFR part 19, subpart Y, will not impair the quality of the spirits for fuel use, will render the spirits unfit for beverage use or internal medicinal use, and is adequate to protect the revenue.

*Held:* Straight run gasoline conforming to the specifications below may be used by a DSP proprietor as a substitute denaturant in CDA-20 (27 CFR 21.24) and may be used by an AFP proprietor to render spirits unfit for beverage use (27 CFR 19.1005). Accordingly, at a DSP straight run gasoline may be used alone, or in any combination totaling 2.0 gallons with one or more of the denaturants listed in 27 CFR 21.24, to produce CDA-20 by adding 2.0 gallons of denaturant to every 100 gallons of distilled spirits of at least 195 proof; and at an AFP straight run gasoline may be used alone, or in any combination totaling 2 or more gallons with one or more of the materials listed in 27 CFR 19.1005(c) or published on the TTB Web site (<http://www.ttb.gov>), to produce fuel alcohol by adding 2 or more gallons of authorized material to every 100 gallons of distilled spirits.

*Held further:* If straight run gasoline meets all of the specifications given below, it is acceptable regardless of the name under which it is sold. Other names by which straight run gasoline may be known include, but are not necessarily limited to, light straight run gasoline, condensate, and gasoline blendstock.

### **Specifications for Straight Run Gasoline**

1. Straight run gasoline is a mixture consisting predominantly (greater than 60 percent by volume) of C<sub>4</sub>, C<sub>5</sub>, C<sub>6</sub>, C<sub>7</sub> and/or C<sub>8</sub> hydrocarbons, and is either (1) a petroleum distillate coming straight from an atmospheric distillation unit without being cracked or reformed or (2) a condensate coming directly from an oil/gas recovery operation.

2. API gravity: 72° minimum, 85° maximum.
3. Reid vapor pressure: 15 psi maximum.
4. Sulfur: 120 ppm maximum.
5. Benzene: 1.1% by volume maximum.
6. Distillation: 10%: 97° F minimum, 158° F maximum.  
50%: 250° F maximum.  
Final boiling point: 437° F maximum.

Date Approved: April 8, 2008.

**Signed by John Manfreda**

John J. Manfreda,  
Administrator