



ENVIRONMENTAL PROTECTION AGENCY

6560-50-P

[EPA-HQ-OAR-2011-0893; **FRL-9680-9**]

**Regulation of Fuel and Fuel Additives: Modification to Octamix Waiver (TXCeed)**

**AGENCY:** Environmental Protection Agency (EPA)

**ACTION:** Notice

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**SUMMARY:** The Environmental Protection Agency has reconsidered a portion of a fuel waiver that was granted to the Texas Methanol Corporation (Texas Methanol) under the Clean Air Act on February 8, 1988. This waiver was previously reconsidered and modified on October 28, 1988, in a **Federal Register** publication titled "Fuel and Fuel Additives; Modification of a Fuel Waiver Granted to the Texas Methanol Corporation." Today's notice approves the use of an alternative corrosion inhibitor, TXCeed, in Texas Methanol's gasoline-alcohol fuel, OCTAMIX.

**ADDRESSES:** EPA has established a docket for this action under Docket ID Number EPA-HQ-OAR-2011-0893. All documents and public comments in the docket are listed on the <http://www.regulations.gov> Web site. Publicly available docket materials are available either electronically through <http://www.regulations.gov> or in hard copy at the Air Docket, EPA Headquarters Library, Mail Code: 2822T, EPA West Building, 1301 Constitution Ave., N.W., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday

through Friday, excluding holidays. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding holidays. The telephone number for the Public Reading Room is (202) 566-1742, and the facsimile number for the Air Docket is (202) 566-9744.

**FOR FURTHER INFORMATION CONTACT:** For information regarding this notice contact, Joseph R. Sopata, U.S. Environmental Protection Agency, Office of Air and Radiation, Office of Transportation and Air Quality, (202) 343-9034, fax number, (202) 343-2800, e-mail address: [sopata.joe@epa.gov](mailto:sopata.joe@epa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **I. Background**

Section 211(f)(1) of the Clean Air Act (CAA or the Act) makes it unlawful for any manufacturer of any fuel or fuel additive to first introduce into commerce, or to increase the concentration in use of, any fuel or fuel additive for use by any person in motor vehicles manufactured after model year 1974, which is not substantially similar to any fuel or fuel additive utilized in the certification of any model year 1975, or subsequent model year, vehicle or engine under section 206 of the Act. The Environmental Protection Agency (EPA or the Agency) last issued an interpretive rule on the phrase “substantially similar” at 73 FR 22281 (April 25, 2008). Generally speaking, this interpretive rule describes the types of unleaded gasoline that are likely to be considered “substantially similar” to the unleaded gasoline utilized in EPA’s certification program by placing limits on a gasoline’s chemical composition as well as

its physical properties, including the amount of alcohols and ethers (oxygenates) that may be added to gasoline. Fuels that are found to be “substantially similar” to EPA’s certification fuels may be registered and introduced into commerce. The current “substantially similar” interpretive rule for unleaded gasoline allows no more than 2.7 percent oxygen by weight for certain ethers and alcohols.

Section 211(f)(4) of the Act provides that upon application of any fuel or fuel additive manufacturer, the Administrator may waive the prohibitions of section 211(f)(1) if the Administrator determines that the applicant has established that the fuel or fuel additive, or a specified concentration thereof, will not cause or contribute to a failure of any emission control device or system (over the useful life of the motor vehicle, motor vehicle engine, nonroad engine or nonroad vehicle in which such device or system is used) to achieve compliance by the vehicle or engine with the emission standards to which it has been certified pursuant to sections 206 and 213(a) of the Act. The statute requires that the Administrator shall take final action to grant or deny an application after public notice and comment, within 270 days of receipt of the application.

The Texas Methanol Corporation received a waiver under CAA section 211(f)(4) for a gasoline-alcohol fuel blend, known as OCTAMIX,<sup>1</sup> provided that the resultant fuel is composed of a maximum of 3.7 percent by weight oxygen, a maximum of 5 percent by volume methanol, a minimum of 2.5 percent by volume co-solvents<sup>2</sup> and 42.7 milligrams per liter (mg/l) of Petrolite

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<sup>1</sup> OCTAMIX waiver decision, 53 FR 3636 (February 8, 1988).

<sup>2</sup> The co-solvents are any one or a mixture of ethanol, propanols, butanols, pentanols, hexanols, heptanols and octanols with the following constraints: the ethanol, propanols and butanols or mixtures thereof must compose a minimum of 60 percent by weight of the co-solvent mixture; a maximum limit of 40 percent by weight of the co-

TOLAD MFA-10 corrosion inhibitor<sup>3</sup>. In the OCTAMIX waiver, the Agency invited other corrosion inhibitor manufacturers to submit test data to establish, on a case-by-case basis, whether their fuel additive formulations are acceptable as alternatives to TOLAD MFA-10.<sup>4</sup>

On March 23, 2011, Spirit of 21<sup>st</sup> Century LLC requested EPA allow the use of its alternative corrosion inhibitor, TXCeed, in the OCTAMIX gasoline-alcohol fuel blend which otherwise would not be allowed under the waiver.<sup>5</sup> Spirit of 21<sup>st</sup> Century LLC subsequently followed up its March 23 request with additional information on May 17, 2011, July 6, 2011 and August 15, 2011.<sup>6,7,8</sup> TXCeed is a fuel additive formulation consisting of a corrosion inhibitor.

On December 14, 2011, EPA published a notice in the Federal Register (76 FR 77828) announcing receipt of Spirit of 21<sup>st</sup> Century LLC's request and inviting comment on it. The comment period closed on January 13, 2012. There were no public comments submitted to the Agency in response to the notice published on December 14, 2011.

## **II. Discussion**

One of the major areas of concern to EPA in reviewing any waiver request is the problem of materials compatibility. Materials compatibility data could show a potential failure of fuel

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solvents mixture is placed on the pentanols, hexanols, heptanols and octanols; and the heptanols and octanols are limited to 5 percent by weight of the co-solvent mixture.

<sup>3</sup> Additional conditions were the final fuel must meet ASTM volatility specifications contained in ASTM D439-85a, as well as phase separation conditions specified in ASTM D-2 Proposal P-176 and Texas Methanol alcohol purity specifications.

<sup>4</sup> 53 FR at 3637.

<sup>5</sup> EPA-HQ-OAR-2011-0893-03.

<sup>6</sup> EPA-HQ-OAR-2011-0893-004.

<sup>7</sup> EPA-HQ-OAR-2011-0893-006.

<sup>8</sup> EPA-HQ-OAR-2011-0893-005.

systems, emissions related parts and emission control parts from use of the fuel or fuel additive. Any failure could result in greater emissions that would cause or contribute to the engines or vehicles exceeding their emissions standards. Initially, Texas Methanol requested the use of TOLAD MFA-10 or an appropriate concentration of any other corrosion inhibitor such that the fuel will pass the National Association of Corrosion Engineer's TM-01-72 (NACE RUST TEST). However, EPA concluded that compliance with the NACE Rust Test alone was not adequate in determining suitability of a corrosion inhibitor for use under the OCTAMIX waiver.<sup>9</sup> The Agency decided, therefore, to look at corrosion inhibitors on a case-by-case basis to establish whether each formulation would be acceptable as an alternative to the formulation of the original corrosion inhibitor, TOLAD MFA-10, used in the OCTAMIX waiver.<sup>10</sup>

In order to determine whether the OCTAMIX waiver would meet the criteria of section 211(f) if TXCeed were to be used as an alternative corrosion inhibitor, EPA reviewed all data submitted with or referenced by the Spirit of 21<sup>st</sup> Century LLC application. Spirit of 21<sup>st</sup> Century LLC provided data showing their corrosion inhibitor, TXCeed, met ASTM<sup>11</sup> and NACE<sup>12</sup> corrosion test results, as well as physical property information.

TXCeed is a fuel additive mixture of naturally occurring triglyceride oils and terpenes that purports to eliminate the corrosion tendencies of alcohols. While both TOLAD MFA-10 and DMA-67 were only evaluated with respect to their corrosion inhibitor efficacy under the NACE corrosion test, TXCeed was evaluated and passed the most current NACE corrosion test and two

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<sup>9</sup> 53 FR at 3637

<sup>10</sup> 53 FR at 3637

<sup>11</sup> ASTM D130-04<sup>e1</sup> and ASTM D4814-10a

<sup>12</sup> NACE Standard TM0172-2001.

additional corrosion tests, the ASTM silver and copper corrosion tests.<sup>13</sup> Moreover, TXCeed was evaluated on the most aggressive fuel formulation of alcohols allowed under the OCTAMIX waiver,<sup>14</sup> which is an OCTAMIX fuel formulation that included only methanol at 5 volume percent and ethanol at 2.5 volume percent. The use of higher molecular weight cosolvent alcohols, such as propanols or butanols, would tend to be less corrosive. Since TXCeed passed the most current NACE corrosion test and the ASTM silver and copper corrosion tests using the most aggressive fuel formulation allowed under the OCTAMIX waiver, the Agency believes that Spirit of 21<sup>st</sup> Century LLC has met the burden of showing that it is an effective corrosion inhibitor for use under the OCTAMIX waiver.

With regard to the question of the emissions impacts of TXCeed, Table 1 compares the physical properties (including the treat rate) of TXCeed to a previously approved corrosion inhibitor under the OCTAMIX waiver, DMA-67. Normally we would compare the physical properties of the new corrosion inhibitor (TXCeed) to the physical properties of the corrosion inhibitor previously approved under the waiver (TOLAD MFA-10). In this instance, the physical property information for TOLAD MFA-10 is no longer available, so we are comparing the physical properties of TXCeed with the physical properties of an alternative corrosion inhibitor previously approved under the OCTAMIX waiver, DMA-67. TXCeed is added at about 30 times more than that of DMA-67, has a similar specific gravity, and a much improved ash content performance. Although TXCeed's flash point and viscosity are larger than DMA-67,

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<sup>13</sup> See EPA-HQ-OAR-2011-0893-0003.

<sup>14</sup> The co-solvents are any one or a mixture of ethanol, propanols, butanols, pentanols, hexanols, heptanols and octanols with the following constraints: the ethanol, propanols and butanols or mixtures thereof must compose a minimum of 60 percent by weight of the co-solvent mixture; a maximum limit of 40 percent by weight of the co-solvents mixture is placed on the pentanols, hexanols, heptanols and octanols; and the heptanols and octanols are limited to 5 percent by weight of the co-solvent mixture.

TXCeed's chemical composition and treat rate of less than 0.1 mass percent by weight is such that it is a fuel additive falling under the baseline gasoline fuel grouping category<sup>15</sup> under our fuel and fuel additive registration regulations. In addition, TXCeed's chemical composition and treat rate is such that it meets our substantially similar definition<sup>16</sup>. Given that TXCeed is a fuel additive that is both substantially similar to the fuel additives used in our certification program and a fuel additive falling under the baseline gasoline fuel category, one would not expect significant emissions changes from the use of TXCeed compared to other fuel additives that fall under the baseline gasoline fuel category, which also includes TOLAD MFA-10 and DMA-67. Therefore, as long as the other conditions of the OCTAMIX waiver are met, which include applicable gasoline volatility specifications,<sup>17</sup> gasoline phase separation specifications<sup>18</sup> and alcohol purity conditions,<sup>19</sup> the Agency believes that the use of TXCeed in place of TOLAD MFA-10 will allow engines and vehicles to remain compliant with their emissions standards when using fuels made as approved under the original conditions granted for the OCTAMIX waiver.

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<sup>15</sup> See 40 CFR 79.56(e)(3)(i).

<sup>16</sup> For our most recent substantially similar gasoline interpretative rule, please see: <http://www.epa.gov/fedrgstr/EPA-AIR/2008/April/Day-25/a8944.pdf>.

<sup>17</sup> See 40 CFR 80.27 for applicable volatility specifications for conventional gasoline, or 40 CFR 80 Subpart D for reformulated gasoline requirements, or any applicable state implementation plan approved by EPA that includes low RVP fuel.

<sup>18</sup> See American Society for Testing and Materials (ASTM) D4814 for applicable gasoline phase separation conditions.

<sup>19</sup> Additional conditions were the final fuel must meet ASTM volatility specifications contained in ASTM D439-85a, as well as phase separation conditions specified in ASTM D-2 Proposal P-176 and Texas Methanol alcohol purity specifications. Since the time that the OCTAMIX waiver was granted, ASTM D4814 has superceded ASTM volatility specifications contained in ASTM D439-85a and the phase separation conditions specified in ASTM D-2 Proposal P-176.

Table 1: Physical Properties of DMA-67 and TXCeed

Physical Properties	DMA-67	TXCeed
Treat Rate (mg/liter)	31.4	987.6
Physical Form	Clear Amber Liquid	Liquid <sup>20</sup>
Specific Gravity 60/60°F	0.93	0.9662
Flash Point, PMCC, °F	64°F	230°F
Ash Content, weight percent	<0.1	<0.0001
Viscosity, cSt @0°F	663	19210
Viscosity, cSt @32°F	180	3220
Viscosity, cST @100°F	30	151

### III. Finding and Conclusion

Based on the information submitted by Spirit of 21<sup>st</sup> Century LLC in its application, I conclude that the performance of TXCeed in OCTAMIX would be comparable to TOLAD MFA-10 and DMA-67. Therefore, I am modifying condition (3) of the OCTAMIX waiver to read as follows:

(3) Any one of the following three corrosion inhibitors must be included:

(a) Petrolite's corrosion inhibitor formulation, TOLAD MFA-10, blended in the final fuel at 42.7 mg/l;

OR

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<sup>20</sup> According to Spirit of 21<sup>st</sup> Century LLC, the color of the liquid is dependent on the clarity of the chemical components comprised in fuel additive formulation of TXCeed.

(b) DuPont's corrosion inhibitor formulation, DMA-67, blended in the final fuel at 31.4 mg/l;

OR

(c) Spirit of 21<sup>st</sup> Century LLC's corrosion inhibitor formulation, TXCeed, blended in the final fuel at 3.9 ml/gal (987.6 mg/l).

This action should provide additional flexibility to any manufacturer wishing to produce the OCTAMIX blend. At the same time, any manufacturer wishing to use a corrosion inhibitor other than the three permitted by the OCTAMIX waiver must apply for a further modification of the waiver. Since EPA is still unaware of any basis for extrapolating findings in the emissions impact of one inhibitor to other inhibitors, the Agency will continue to examine the emissions impact of specific corrosion inhibitor formulations on a case-by-case basis.

#### **IV. Miscellaneous**

This waiver modification decision is final agency action of national applicability for purposes of section 307(b)(1) of the Act. Pursuant to CAA section 307(b)(1), judicial review of this final agency action may be sought only in the United States Court of Appeals for the District of Columbia Circuit. Petitions for review must be filed by **[INSERT 60 DAYS FROM DATE OF PUBLICATION]**. Judicial review of this final agency action may not be obtained in

subsequent proceedings, pursuant to CAA section 307(b)(2). This action is not a rulemaking and is not subject to the various statutory and other provisions applicable to a rulemaking.

Dated: May 31, 2012

Lisa P. Jackson,  
Administrator.

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