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described at § 80.70(f) and (i). For purposes of § 80.78(a)(1)(v), gasoline designated as adjusted VOC gasoline that is intended for use or that is sold for use by an ultimate consumer in any covered area in VOC-Control Region 2 other than those described at § 80.70(f) and (i), is subject to the VOC performance standards in § 80.41 applicable to all other gasoline designated for VOC-Control Region 2.

[59 FR 7813, Feb. 16, 1994, as amended at 66 FR 37164, July 17, 2001; 67 FR 8736, Feb. 26, 2002]

§ 80.41 Standards and requirements for compliance.

(a) *Simple model per-gallon standards.* The “simple model” standards for compliance when achieved on a per-gallon basis are as follows:

SIMPLE MODEL PER-GALLON STANDARDS

| | |
|---|-------|
| Reid vapor pressure (in pounds per square inch): | |
| Gasoline designated for VOC-Control Region 1 | ≤7.2 |
| Gasoline designated for VOC-Control Region 2 | ≤8.1 |
| Oxygen content (percent, by weight) | ≥2.0 |
| Toxic air pollutants emissions reduction (percent) .. | ≥15.0 |
| Benzene (percent, by volume) | ≤1.00 |

(b) *Simple model averaged standards.* The “simple model” standards when achieved on average are as follows:

SIMPLE MODEL AVERAGED STANDARDS

| | |
|---|-------|
| Reid vapor pressure (in pounds per square inch): | |
| Gasoline designated for VOC-Control Region 1: | |
| Standard | ≤7.1 |
| Per-Gallon Maximum | ≤7.4 |
| Gasoline designated for VOC-Control Region 2: | |
| Standard | ≤8.0 |
| Per-Gallon Maximum | ≤8.3 |
| Oxygen content (percent, by weight): | |
| Standard | ≥2.1 |
| Per-Gallon Minimum | ≥1.5 |
| Toxic air pollutants emissions reduction (percent) .. | ≥16.5 |
| Benzene (percent, by volume): | |
| Standard | ≤0.95 |
| Per-Gallon Maximum | ≤1.30 |

(c) *Phase I complex model per gallon standards.* The Phase I “complex model” standards for compliance when achieved on a per-gallon basis are as follows:

PHASE I—COMPLEX MODEL PER-GALLON STANDARDS

| | |
|--|-------|
| VOC emissions performance reduction (percent): | |
| Gasoline designated for VOC-Control Region 1 | ≥35.1 |
| Gasoline designated for VOC-Control Region 2 | ≥15.6 |

PHASE I—COMPLEX MODEL PER-GALLON STANDARDS—Continued

| | |
|--|-------|
| Toxic air pollutants emissions performance reduction (percent) | ≥15.0 |
| NO _x emissions performance reduction (percent) ... | ≥0.0 |
| Oxygen content (percent, by weight) | ≥2.0 |
| Benzene (percent, by volume) | ≤1.00 |

(d) *Phase I complex model averaged standards.* The Phase I “complex model” standards for compliance when achieved on average are as follows:

PHASE I COMPLEX MODEL AVERAGED STANDARDS

| | |
|--|-------|
| VOC emissions performance reduction (percent) | |
| Gasoline designated for VOC-Control Region 1: | |
| Standard | ≥36.6 |
| Per-Gallon Minimum | ≥32.6 |
| Gasoline designated for VOC-Control Region 2: | |
| Standard | ≥17.1 |
| Per-Gallon Minimum | ≥13.1 |
| Toxic air pollutants emissions performance reduction (percent) | ≥16.5 |
| NO _x emissions performance reduction (percent) | ≥1.5 |
| Oxygen content (percent, by weight): | |
| Standard | ≥2.1 |
| Per-Gallon Minimum | ≥1.5 |
| Benzene (percent, by volume): | |
| Standard | ≤0.95 |
| Per-Gallon Maximum | ≤1.30 |

(e) *Phase II complex model per-gallon standards.* The Phase II “complex model” standards for compliance when achieved on a per-gallon basis are as follows:

PHASE II—COMPLEX MODEL PER-GALLON STANDARDS

| | |
|--|-------|
| VOC emissions performance reduction (percent): | |
| Gasoline designated for VOC-Control Region 1 | ≥27.5 |
| Adjusted VOC gasoline designated for VOC-Control Region 2 | ≥23.9 |
| All other gasoline designated for VOC-Control Region 2 | ≥25.9 |
| Toxic air pollutants emissions performance reduction (percent) | ≥20.0 |
| NO _x emissions performance reduction (percent): | |
| Gasoline designated as VOC-controlled | ≥5.5 |
| Gasoline not designated as VOC-controlled | ≥0.0 |
| Benzene (percent, by volume) | ≤1.00 |

(f) *Phase II complex model averaged standards.* The Phase II “complex model” standards for compliance when achieved on average are as follows:

PHASE II COMPLEX MODEL AVERAGED STANDARDS

| | |
|--|-------|
| VOC emissions performance reduction (percent): | |
| Gasoline designated for VOC-Control Region 1: | |
| Standard | ≥29.0 |
| Per-Gallon Minimum | ≥25.0 |
| Adjusted VOC gasoline designated for VOC-Control Region 2: | |
| Standard | ≥25.4 |

PHASE II COMPLEX MODEL AVERAGED STANDARDS—Continued

| | |
|--|-------|
| Per-Gallon Minimum | ≥21.4 |
| All other gasoline designated for VOC-Control Region 2 | |
| Standard | ≥27.4 |
| Per-Gallon Minimum | ≥23.4 |
| Toxic air pollutants emissions performance reduction (percent) | ≥21.5 |
| NO _x emissions performance reduction (percent): | |
| Gasoline designated as VOC-controlled | ≥6.8 |
| Gasoline not designated as VOC-controlled | ≥1.5 |
| Benzene (percent, by volume): | |
| Standard | ≤0.95 |
| Per-Gallon Maximum | ≤1.30 |

(g) *Oxygen maximum standard.* (1) The per-gallon standard for maximum oxygen content, which applies to reformulated gasoline subject to the simple model per-gallon or average standards, is as follows:

(i) Oxygen content shall not exceed 3.2 percent by weight from ethanol within the boundaries of any State if the State notifies the Administrator that the use of an oxygenate will interfere with attainment or maintenance of an ambient air quality standard or will contribute to an air quality problem.

(ii) A State may request the standard specified in paragraph (g)(1)(i) of this section separately for reformulated gasoline designated as VOC-controlled and reformulated gasoline not designated as VOC-controlled.

(2) The standard in paragraph (g)(1)(i) of this section shall apply 60 days after the Administrator publishes a notice in the FEDERAL REGISTER announcing such a standard.

(h) *Additional standard requirements.* In addition to the standards specified in paragraphs (a) through (g) of this section, the following standards apply for all reformulated gasoline:

(1) The standard for heavy metals, including lead or manganese, on a per-gallon basis, is that reformulated gasoline may contain no heavy metals. The Administrator may waive this prohibition for a heavy metal (other than lead) if the Administrator determines that addition of the heavy metal to the gasoline will not increase, on an aggregate mass or cancer-risk basis, toxic air pollutant emissions from motor vehicles.

(2) In the case of any refinery or importer subject to the simple model standards:

(i) The annual average levels for sulfur, T-90, and olefins cannot exceed that refinery's or importer's 1990 baseline levels for each of these parameters; and

(ii) The 1990 baseline levels and the annual averages for these parameters shall be established using the methodology set forth in §§ 80.91 through 80.92; and

(iii) In the case of a refiner that operates more than one refinery, the standards specified under this paragraph (h)(2) shall be met using the refinery grouping selected by the refiner under § 80.101(h).

(i) *Use of simple and complex models.*

(1) During each calendar year 1995 through 1997, any refinery or importer shall be subject to either the simple model standards specified in paragraphs (a) and (b) of this section, or the Phase I complex model standards specified in paragraphs (c) and (d) of this section, at the option of the refiner or importer, provided that:

(i) No refinery or importer may be subject to a combination of simple and complex standards during any calendar year; and

(ii) Any refiner or importer that elects to achieve compliance with the anti-dumping requirements using the:

(A) Simple model shall meet the requirements of this subpart D using the simple model standards; or

(B) Complex model or optional complex model shall meet the requirements of this subpart D using the complex model standards.

(2) During the period January 1, 1998 through December 31, 1999, any refiner or importer shall be subject to the Phase I complex model standards specified in paragraphs (c) and (d) of this section.

(3) Beginning on January 1, 2000, any refiner or importer shall be subject to the Phase II complex model standards specified in paragraphs (e) and (f) of this section.

(j) *Complex model early use.* Before January 1, 1998, the VOC, toxics, and NO_x emissions performance standards for any refinery or importer subject to the Phase I complex model standards shall be determined by evaluating all of the following parameter levels in the

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Phase I complex model (specified in § 80.45) at one time:

(1) The simple model values for benzene, RVP, and oxygen specified in § 80.41 (a) or (b), as applicable;

(2) The aromatics value which, together with the values for benzene, RVP, and oxygen determined under paragraph (j)(1) of this section, meets the Simple Model toxics requirement specified in paragraph (a) or (b) of this section, as applicable;

(3) The refinery's or importer's individual baseline values for sulfur, E-300, and olefins, as established under § 80.91; and

(4) The appropriate seasonal value of E-200 specified in § 80.45(b)(2).

(k) *Effect of VOC survey failure.* (1) On each occasion during 1995 or 1996 that a covered area fails a simple model VOC emissions reduction survey conducted pursuant to § 80.68, the RVP requirements for that covered area beginning in the year following the failure shall be adjusted to be more stringent as follows:

(i) The required average RVP level shall be decreased by an additional 0.1 psi; and

(ii) The maximum RVP level for each gallon of averaged gasoline shall be decreased by an additional 0.1 psi.

(2) On each occasion that a covered area fails a complex model VOC emissions reduction survey conducted pursuant to § 80.68, or fails a simple model VOC emissions reduction survey conducted pursuant to § 80.68 during 1997, the VOC emissions performance standard for that covered area beginning in the year following the failure shall be adjusted to be more stringent as follows:

(i) The required average VOC emissions reduction shall be increased by an additional 1.0%; and

(ii) The minimum VOC emissions reduction, for each gallon of averaged gasoline, shall be increased by an additional 1.0%.

(3) In the event that a covered area for which required VOC emissions reductions have been made more stringent passes all VOC emissions reduction surveys in two consecutive years, the averaging standards VOC emissions reduction for that covered area beginning in the year following the second

year of passed survey series shall be made less stringent as follows:

(i) The required average VOC emissions reduction shall be decreased by 1.0%; and

(ii) The minimum VOC emissions reduction shall be decreased by 1.0%.

(4) In the event that a covered area for which the required VOC emissions reductions have been made less stringent fails a subsequent VOC emissions reduction survey:

(i) The required average VOC emission reductions for that covered area beginning in the year following this subsequent failure shall be made more stringent by increasing the required average and the minimum VOC emissions reduction by 1.0%; and

(ii) The required VOC emission reductions for that covered area thereafter shall not be made less stringent regardless of the results of subsequent VOC emissions reduction surveys.

(1) *Effect of toxics survey failure.* (1) On each occasion during 1995 or 1996 that a covered area fails a simple model toxics emissions reduction survey series, conducted pursuant to § 80.68, the simple model toxics emissions reduction requirement for that covered area beginning in the year following the year of the failure is made more stringent by increasing the average toxics emissions reduction by an additional 1.0%.

(2) On each occasion that a covered area fails a complex model toxics emissions reduction survey series, conducted pursuant to § 80.68, or fails a simple model toxics emissions reduction survey series conducted pursuant to § 80.68 during 1997, the complex model toxics emissions reduction requirement for that covered area beginning in the year following the year of the failure is made more stringent by increasing the average toxics emissions reduction by an additional 1.0%.

(3) In the event that a covered area for which the toxics emissions standard has been made more stringent passes all toxics emissions survey series in two consecutive years, the averaging standard for toxics emissions reductions for that covered area beginning in the year following the second year of passed survey series shall be made less

stringent by decreasing the average toxics emissions reduction by 1.0%.

(4) In the event that a covered area for which the toxics emissions reduction standard has been made less stringent fails a subsequent toxics emissions reduction survey series:

(i) The standard for toxics emissions reduction for that covered area beginning in the year following this subsequent failure shall be made more stringent by increasing the average toxics emissions reduction by 1.0%; and

(ii) The standard for toxics emissions reduction for that covered area thereafter shall not be made less stringent regardless of the results of subsequent toxics emissions reduction surveys.

(m) *Effect of NO_x survey or survey series failure.* (1) On each occasion that a covered area fails a NO_x emissions reduction survey or survey series conducted pursuant to § 80.68, the required average NO_x emissions reductions for that covered area beginning in the year following the failure shall be increased in stringency by an additional 1.0%.

(2) In the event that a covered area for which required NO_x emissions reductions have been made more stringent passes all NO_x emissions reduction surveys and survey series in two consecutive years, the required average NO_x emissions reductions for that covered area beginning in the year following the second year of passed surveys and survey series shall be decreased in stringency by 1.0%.

(3) In the event that a covered area for which the required NO_x emissions reductions have been made less stringent fails a subsequent NO_x emissions reduction survey or survey series:

(i) The required average NO_x emission reductions for that covered area beginning in the year following this subsequent failure shall be increased in stringency by 1.0%; and

(ii) The required NO_x emission reductions for that covered area thereafter shall not be made less stringent regardless of the results of subsequent NO_x emissions reduction surveys or survey series.

(n) *Effect of benzene survey failure.* (1) On each occasion that a covered area fails a benzene content survey series, conducted pursuant to § 80.68, the benzene content standards for that covered

area beginning in the year following the year of the failure shall be made more stringent as follows:

(i) The average benzene content shall be decreased by 0.05% by volume; and

(ii) The maximum benzene content for each gallon of averaged gasoline shall be decreased by 0.10% by volume.

(2) In the event that a covered area for which the benzene standards have been made more stringent passes all benzene content survey series conducted in two consecutive years, the benzene standards for that covered area beginning in the year following the second year of passed survey series shall be made less stringent as follows:

(i) The average benzene content shall be increased by 0.05% by volume; and

(ii) The maximum benzene content for each gallon of averaged gasoline shall be increased by 0.10% by volume.

(3) In the event that a covered area for which the benzene standards have been made less stringent fails a subsequent benzene content survey series:

(i) The standards for benzene content for that covered area beginning in the year following this subsequent failure shall be the more stringent standards which were in effect prior to the operation of paragraph (n)(2) of this section; and

(ii) The standards for benzene content for that covered area thereafter shall not be made less stringent regardless of the results of subsequent benzene content surveys.

(o) [Reserved]

(p) *Effective date for changed minimum or maximum standards.* In the case of any minimum or maximum standard that is changed to be more stringent by operation of paragraphs (k), (m), (n), or (o) of this section, the effective date for such change shall be the following number of days after the date EPA announces the change:

(1) 90 days for refinery or import facilities;

(2) 180 days for retail outlets and wholesale purchaser-consumer facilities; and

(3) 150 days for all other facilities.

(q) *Refineries and importers subject to adjusted standards.* Standards for average compliance that are adjusted to be more or less stringent by operation of

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paragraphs (k), (l) (m) or (n) of this section apply to average reformulated gasoline produced at each refinery or imported by each importer as follows:

(1) Adjusted standards for a covered area apply to averaged reformulated gasoline that is produced at a refinery if:

(i) Any averaged reformulated gasoline from that refinery supplied the covered area during any year a survey was conducted which gave rise to a standards adjustment; or

(ii) Any averaged reformulated gasoline from that refinery supplies the covered area during any year that the standards are more stringent than the initial standards; unless

(iii) The refiner is able to show that the volume of averaged reformulated gasoline from a refinery that supplied the covered area during any years under paragraphs (q)(1)(i) or (ii) of this section was less than one percent of the reformulated gasoline produced at the refinery during that year, or 100,000 barrels, whichever is less.

(2) Adjusted standards for a covered area apply to averaged reformulated gasoline that is imported by an importer if:

(i) The covered area with the adjusted standard is located in Petroleum Administration for Defense District (PADD) I, and the gasoline is imported at a facility located in PADDs I, II or III;

(ii) The covered area with the adjusted standard is located in PADD II, and the gasoline is imported at a facility located in PADDs I, II, III, or IV;

(iii) The covered area with the adjusted standard is located in PADD III, and the gasoline is imported at a facility located in PADDs II, III, or IV;

(iv) The covered area with the adjusted standard is located in PADD IV, and the gasoline is imported at a facility located in PADDs II, or IV; or

(v) The covered area with the adjusted standard is located in PADD V, and the gasoline is imported at a facility located in PADDs III, IV, or V; unless

(vi) Any gasoline which is imported by an importer at any facility located in any PADD supplies the covered area, in which case the adjusted standard also applies to averaged gasoline im-

ported at that facility by that importer.

(3) Any gasoline that is transported in a fungible manner by a pipeline, barge, or vessel shall be considered to have supplied each covered area that is supplied with any gasoline by that pipeline, or barge or vessel shipment, unless the refiner or importer is able to establish that the gasoline it produced or imported was supplied only to a smaller number of covered areas.

(4) Adjusted standards apply to all averaged reformulated gasoline produced by a refinery or imported by an importer identified in this paragraph (q), except:

(i) In the case of adjusted VOC standards for a covered area located in VOC Control Region 1, the adjusted VOC standards apply only to averaged reformulated gasoline designated as VOC-controlled intended for use in VOC Control Region 1; and

(ii) In the case of adjusted VOC standards for a covered area located in VOC Control Region 2, the adjusted VOC standards apply only to averaged reformulated gasoline designated as VOC-controlled intended for use in VOC Control Region 2.

(r) *Definition of PADD.* For the purposes of this section only, the following definitions of PADDs apply:

(1) The following States are included in PADD I:

| | |
|----------------------|----------------|
| Connecticut | New Hampshire |
| Delaware | New Jersey |
| District of Columbia | North Carolina |
| Florida | Pennsylvania |
| Georgia | Rhode Island |
| Maine | South Carolina |
| Maryland | Vermont |
| Massachusetts | Virginia |
| New York | West Virginia |

(2) The following States are included in PADD II:

| | |
|-----------|--------------|
| Illinois | Nebraska |
| Indiana | North Dakota |
| Iowa | Ohio |
| Kansas | Oklahoma |
| Kentucky | South Dakota |
| Michigan | Tennessee |
| Minnesota | Wisconsin |
| Missouri | |

(3) The following States are included in PADD III:

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Alabama
Arkansas
Louisiana

Mississippi
New Mexico
Texas

(4) The following States are included in PADD IV:

Colorado
Idaho
Montana

Utah
Wyoming

(5) The following States are included in PADD V:

Arizona
California
Nevada

Oregon
Washington

[59 FR 7813, Feb. 16, 1994, as amended at 59 FR 36958, July 20, 1994; 61 FR 12041, Mar. 25, 1996; 62 FR 68205, Dec. 31, 1997; 64 FR 37689, July 13, 1999; 66 FR 37164, July 17, 2001; 71 FR 74566, Dec. 15, 2005; 71 FR 8972, Feb. 22, 2006; 71 FR 26698, May 8, 2006]

§ 80.42 Simple emissions model.

(a) *VOC emissions.* The following equations shall comprise the simple model for VOC emissions. The simple model for VOC emissions shall be used only in determining toxics emissions:

Summer = The period of May 1 through September 15

Winter = The period of September 16 through April 30

EXHVOCS1 = Exhaust nonmethane, nonethane VOC emissions from the fuel in question, in grams per mile, for VOC control region 1 during the summer period.

EXHVOCS2 = Exhaust nonmethane, nonethane VOC emissions from the fuel in question, in grams per mile, for VOC control region 2 during the summer period.

EXHVOCW = Exhaust nonmethane, nonethane VOC emissions from the fuel in question, in grams per mile, during the winter period.

EVPVOCS1 = Evaporative nonmethane, nonethane VOC emissions from the fuel in question, in grams per mile, for VOC control region 1 during the summer period.

EVPVOCS2 = Evaporative nonmethane, nonethane VOC emissions from the fuel in question, in grams per mile, for VOC control region 2 during the summer period.

RLVOCS1 = Running loss nonmethane, nonethane VOC emissions from the fuel in question, in grams per mile, for VOC control region 1 during the summer period.

RLVOCS2 = Running loss nonmethane, nonethane VOC emissions from the fuel in question, in grams per mile, for VOC control region 2 during the summer period.

REFVOCS1 = Refueling nonmethane, nonethane VOC emissions from the fuel in question, in grams per mile, for VOC control region 1 during the summer period.

REFVOCS2 = Refueling nonmethane, nonethane VOC emissions from the fuel in question, in grams per mile, for VOC control region 2 during the summer period.

OXCON = Oxygen content of the fuel in question, in terms of weight percent (as measured under § 80.46)

RVP = Reid vapor pressure of the fuel in question, in pounds per square inch (psi)

(1) The following equations shall comprise the simple model for VOC emissions in VOC Control Region 1 during the summer period:

$$\begin{aligned} \text{EXHVOCS1} &= 0.444 \times (1 - (0.127/2.7) \times \text{OXCON}) \\ \text{EVPVOCS1} &= 0.7952 - 0.2461 \times \text{RVP} \\ &\quad + 0.02293 \times \text{RVP} \times \text{RVP} \\ \text{RLVOCS1} &= -0.734 + 0.1096 \times \text{RVP} \\ &\quad + 0.002791 \times \text{RVP} \times \text{RVP} \\ \text{REFVOCS1} &= 0.04 \times ((0.1667 \times \text{RVP}) - 0.45) \end{aligned}$$

(2) The following equations shall comprise the simple model for VOC emissions in VOC Control Region 2 during the summer period:

$$\begin{aligned} \text{EXHVOCS2} &= 0.444 \times (1 - (0.127/2.7) \times \text{OXCON}) \\ \text{EVPVOCS2} &= 0.813 - 0.2393 \times \text{RVP} + 0.021239 \\ &\quad \times \text{RVP} \times \text{RVP} \\ \text{RLVOCS2} &= 0.2963 - 0.1306 \times \text{RVP} + 0.016255 \times \\ &\quad \text{RVP} \times \text{RVP} \\ \text{REFVOCS2} &= 0.04 \times ((0.1667 \times \text{RVP}) - 0.45) \end{aligned}$$

(3) The following equation shall comprise the simple model for VOC emissions during the winter period:

$$\text{EXHVOCW} = 0.656 \times (1 - (0.127/2.7) \times \text{OXCON})$$

(b) *Toxics emissions.* The following equations shall comprise the simple model for toxics emissions:

EXHBEN = Exhaust benzene emissions from the fuel in question, in milligrams per mile

EVPBEN = Evaporative benzene emissions from the fuel in question, in milligrams per mile

HSBEN = Hot soak benzene emissions from the fuel in question, in milligrams per mile

DIBEN = Diurnal benzene emissions from the fuel in question, in milligrams per mile

RLBEN = Running loss benzene emissions from the fuel in question, in milligrams per mile

REFBEN = Refueling benzene emissions from the fuel in question, in milligrams per mile

MTBE = Oxygen content of the fuel in question in the form of MTBE, in terms of weight percent (as measured under § 80.46)

ETOH = Oxygen content of the fuel in question in the form of ethanol, in terms of weight percent (as measured under § 80.46)

ETBE = Oxygen content of the fuel in question in the form of ETBE, in terms of weight percent (as measured under § 80.46)

FORM = Formaldehyde emissions from the fuel in question, in milligrams per mile