

the proposed amendment should result in reductions of ambient NO_x and ozone concentrations. Therefore, in compliance with 31 TAC §505.22(e), the commission affirms that this rulemaking is consistent with CMP goals and policies.

HEARING AND COMMENTERS. A public hearing was held on January 20, 1998. No testimony was provided at the hearing. The public comment period also closed on January 20, 1998. Three commenters, the Galveston-Houston Association for Smog Prevention, an individual, and an attorney representing the Texas Industry Project, expressed general support for the amendment. These commenters referenced the proposed rulemaking in their comments on the concurrent proposed amendments to Chapter 116, without specific comments in regard to the Chapter 106 amendment. There was no general opposition to the amendment.

STATUTORY AUTHORITY. The amendment is adopted under the Texas Health and Safety Code, the Texas Clean Air Act (TCAA), §§382.012, 382.017, 382.051, and 382.057. Section 382.012 requires the commission to prepare and develop a general, comprehensive plan for the proper control of the state's air. Section 382.017 authorizes the commission to adopt rules consistent with the policy and purposes of the TCAA, while §382.051 authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits issued under the Health and Safety Code, Chapter 382. Section 382.057 authorizes the commission by rule to exempt certain facilities or changes to facilities from the requirements of §382.0518 if such facilities or changes will not make a significant contribution of air contaminants to the atmosphere.

This agency hereby certifies that the adoption has been reviewed by legal counsel and found to be a valid exercise of the agency's legal authority.

Filed with the Office of the Secretary of State on March 18, 1998.

TRD-9803968

Kevin McCalla

Director, Legal Division

Texas Natural Resource Conservation Commission

Effective date: April 7, 1998

Proposal publication date: December 19, 1997

For further information, please call: (512) 239-1966



Chapter 115. Control of Air Pollution From Volatile Organic Compounds

The commission adopts amendments to §115.10, concerning Definitions; new §115.420 and amendments to §§115.421-115.423, 115.426, 115.427, and 115.429, concerning Surface Coating Processes. Adopted with changes to the proposed text as published in the December 19, 1997, issue of the *Texas Register* (22 TexReg 12401) are §§115.420, 115.421, 115.423, 115.426, 115.427, and 115.429. Sections 115.10 and 115.422 are adopted without changes and will not be republished.

EXPLANATION OF ADOPTED RULES. The commission adopts these revisions to Chapter 115, concerning Control of Air Pollution from Volatile Organic Compounds (VOC) and to the State Implementation Plan (SIP) in order to add wood furniture coating rules and shipbuilding/ship repair coating rules which

are based upon two Control Techniques Guideline (CTG) guidance documents issued by the United States Environmental Protection Agency (EPA). Under §183 of the 1990 Amendments to the Federal Clean Air Act (FCAA), the EPA is required to issue CTGs for the purpose of assisting states in developing reasonably available control technology (RACT) controls for sources of VOC emissions. In turn, each state is required to submit a revision to its SIP which implements RACT for VOC sources in moderate or above ozone nonattainment areas. Specifically, FCAA §182(b)(2) requires states to submit RACT regulations for VOC sources that are covered by a CTG issued after November 15, 1990 (the enactment date of the 1990 FCAA), but prior to the time of attainment. FCAA §183(b)(4) requires the EPA to issue a CTG concerning emissions of VOC and particulate matter from coatings and solvents used in shipbuilding and ship repair. However, unlike the more general CTG requirements which mandate that the EPA establish a RACT level of control, §183(b)(4) instead requires the EPA to develop the shipbuilding and ship repair CTG based on best available control measures (BACM). BACM is a broadly defined term referring to "best" technologies and other "best" available measures that can be used to control pollution. Limits in state rules must be at least as stringent as the CTG limits or otherwise must be determined to meet RACT (and in the case of shipbuilding/ship repair, BACM).

The EPA issued a final wood furniture manufacturing CTG (61 Federal Register (FR) 25223, May 20, 1996), although this CTG did not establish adoption and implementation dates. Later, the EPA published a schedule for states to adopt and implement RACT rules based on the CTG (61 FR 50823, September 27, 1996). Consequently, adoption of RACT rules for this CTG source category is now required for VOC sources in ozone nonattainment areas. The wood furniture manufacturing CTG states (on page 5-3) that "RACT requirements apply to all sources located in nonattainment areas (other than extreme areas) that emit or have the potential to emit 25 tons per year (TPY) or more of VOCs." Similarly, the EPA issued a final shipbuilding and ship repair CTG (61 FR 44050, August 27, 1996), and adoption of RACT rules for this CTG source category is now required for major VOC sources in ozone nonattainment areas.

Under FCAA §182(b)(2)(C), (c), and (d), the state must also implement RACT for all major stationary VOC sources located in moderate, serious, and severe ozone nonattainment areas that are not covered by any EPA CTG document. The EPA did not include offshore oil or gas drilling platforms in the shipbuilding/ship repair CTG, despite the fact that marine vessels and offshore oil or gas drilling platforms are subject to the same corrosive sea water environment. Therefore, offshore oil or gas drilling platforms which are coated at shipbuilding/ship repair facilities will be subject to the surface coating requirements for shipbuilding/ship repair operations to ensure that this federal requirement for major source RACT is satisfied. Offshore oil or gas drilling platforms which are coated elsewhere will not be subject to the surface coating requirements for shipbuilding/ship repair operations.

It should be noted that the EPA's recommendations in the wood furniture and shipbuilding/ship repair CTGs are the result of a cooperative effort involving major stakeholders. Participants throughout the CTG development included representatives from industry (including small businesses), the Navy, the coatings industry, environmental groups, states, and local agencies.

Also, the CTGs were developed concurrently with the maximum achievable control technology (MACT) air toxics standards for wood furniture manufacturing operations (60 FR 62930, December 7, 1995) and for shipbuilding and ship repair surface coating (60 FR 64330, December 15, 1995). Finally, the exemption levels for the wood furniture and shipbuilding/ship repair coating rules may need to be lowered in the future in order to generate additional VOC emission reductions needed to maintain progress toward attaining the national ambient air quality standard for ozone.

The revisions to §115.10, concerning Definitions, delete the definitions of architectural coating, automotive basecoat/clearcoat system, automotive precoat, automotive pretreatment, automotive primer or primer surfacers, automotive sealers, automotive specialty coatings, automotive three-stage system, automotive wipe-down solutions, clear coat, clear sealers, coating, coating application system, coating line, drum, extreme performance coating, final repair coat, high-bake coatings, high-volume low-pressure spray guns, low-bake coatings, non-flat architectural coating, opaque ground coats and enamels, pail, pounds of VOC per gallon of coating (minus water and exempt solvents), pounds of VOC per gallon of solids, semitransparent spray stains and toners, semitransparent wiping and glazing stains, shellacs, surface coating processes (which includes definitions for large appliance coating, metal furniture coating, coil coating, paper coating, fabric coating, vinyl coating, can coating, automobile coating, light-duty truck coating, miscellaneous metal parts and products coating, factory surface coating of flat wood paneling, mirror backing coating, and wood parts and products coating), topcoat, transfer efficiency, varnishes, vehicle refinishing (body shops), and wash coat. These definitions were relocated to the new §115.420, concerning Surface Coating Definitions, without changes, except that the semantics in the second sentence in the definition of coating application system have been clarified; the definition of automotive pretreatment has been revised to clarify that adhesion refers to adhesion of subsequent coatings; and the references to other paragraphs in the definition of miscellaneous metal parts and products coating have been updated due to the relocation to §115.420. In addition, the revisions to §115.10 delete the definition of VOC because this term is already defined in §101.1, concerning Definitions. This deletion facilitates future revisions to the corresponding definition of VOC in §101.1, concerning Definitions. The new §115.420 includes all definitions used exclusively within the Chapter 115 surface coating rules and organizes them according to the type of surface coating process.

The new §115.420 also adds definitions of adhesive, aerospace vehicle or component, air flask specialty coating, antenna specialty coating, antifoulant specialty coating, basecoat, batch, bitumens, bituminous resin coating, cleaning operations, clear coat (as used in miscellaneous metal parts and products coating), coating solids (or solids), continuous coater, conventional air spray, epoxy, finishing application station, finishing material, finishing operation, general use coating, heat resistant specialty coating, high-gloss specialty coating, high-temperature specialty coating, inorganic zinc (high-build) specialty coating, maximum allowable thinning ratio, military exterior specialty coating, mist specialty coating, navigational aids specialty coating, nonskid specialty coating, nonvolatiles (or volume solids), normally closed container, nuclear specialty coating, organic solvent, organic zinc specialty coating, pleasure craft, pretreatment wash primer specialty coating, repair and maintenance of thermoplastic coating of commercial vessels (specialty coat-

ing), rubber camouflage specialty coating, sealant for thermal spray aluminum, sealer, ship, shipbuilding and ship repair operations, special marking specialty coating, specialty interior coating, stain, strippable booth coating, tack coat specialty coating, topcoat, touch-up and repair, undersea weapons systems specialty coating, washcoat, washoff operations, weld-through preconstruction primer (specialty coating), wood furniture, wood furniture component, and wood furniture manufacturing operations. The definition of aerospace vehicle or component is simply a placeholder for the definitions included in the forthcoming aerospace CTG, such that when the EPA finalizes this CTG, no renumbering of other definitions in §115.420 will be necessary. Clear coat, as this term is used in miscellaneous metal parts and products coating, has not been previously defined. The new definition of clearcoat is consistent with a June 1, 1995, regulation interpretation concerning this term. The remaining new definitions are used in the new rules which are based upon CTGs for wood furniture manufacturing and shipbuilding/ship repair.

The changes to §115.421, concerning Emission Specifications, establish emission limits for various coatings used in wood furniture manufacturing operations and shipbuilding/ship repair operations (including offshore oil or gas platforms); establish optional emission limit averaging equations for wood furniture manufacturing operations; establish equations for determining the maximum allowable amount of thinner which may be added to marine coatings; delete references to §115.10 for terms which are being relocated to §115.420; and change the term "applied" to "delivered to the application system" for consistency with the various emission limits in §115.421.

The changes to §115.422, concerning Control Requirements, establish emission limitations and procedures for cleaning operations at wood furniture manufacturing operations and shipbuilding/ship repair operations; and restrict the use of conventional air atomization spray guns at wood furniture manufacturing operations to specific circumstances.

The changes to §115.423, concerning Alternate Control Requirements, correct several references from "this section" to "this division."

The changes to §115.426, concerning Recordkeeping Requirements, update a reference to a rule which has been renumbered; establish an alternate recordkeeping procedure for wood parts/products coating operations which have VOC emissions less than 25 TPY; and clarify that temperature monitoring of direct-flame incinerators is to be done immediately downstream of the firebox, such that the firebox temperature is measured rather than the somewhat cooler stack temperature.

The changes to §115.427, concerning Exemptions, update the terminology in the existing miscellaneous metal parts/products exemption from "fully assembled marine vessels and fixed offshore structures" to "ships and offshore oil or gas drilling platforms" for consistency with the new requirements for surface coating of ships and offshore oil or gas drilling platforms. The changes to §115.427 also exempt shipbuilding/ship repair operations in the Beaumont/Port Arthur and Houston/Galveston ozone nonattainment areas with VOC emissions from ship and offshore oil or gas drilling platform surface coating operations of less than 100 TPY and 25 TPY, respectively.

In addition, the changes to §115.427 exempt wood furniture manufacturing facilities in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston ozone nonattainment

areas with VOC emissions less than 25 TPY from the new wood furniture emission specifications and control requirements. Because wood furniture manufacturing facilities in the Dallas/Fort Worth, El Paso, and Houston/Galveston ozone nonattainment areas with VOC emissions of at least 25 TPY are already subject to the wood parts/products emission limits of §115.421(a)(13), the revisions to §115.427 also exempt these facilities from §115.421(a)(13) once they begin complying with the new requirements of §115.421(a)(14) and §115.422(3). This will ensure that these wood furniture manufacturing facilities only have to comply with one set of requirements at a time. Wood parts/products coating operations in the Beaumont/Port ozone nonattainment area with VOC emissions less than 25 TPY continue to be exempt from the requirements of §115.421(a)(13).

Finally, the changes to §115.427 add an exemption for hand-held, nonrefillable, aerosol containers ("spray paint"). This exemption is being added because surface coating operations which include use of spray paint typically will limit its use due to cost considerations and switch to more conventional spray guns and coatings if more than a de minimis amount of spray paint is used. In addition, the EPA has published notice of its intent to regulate spray paint under a national consumer and commercial products rule (60 FR 15264, March 23, 1995) as required by FCAA §183(e).

The changes to §115.429, concerning Counties and Compliance Schedules, specify the compliance schedules for the new requirements.

REGULATORY IMPACT ANALYSIS The commission has reviewed this rulemaking in light of the regulatory analysis requirements of Texas Government Code, §2001.0225 and has determined that the rulemaking is not subject to §2001.0225 because although it meets the definition of a "major environmental rule" as defined in the act, it does not meet any of the four applicability requirements listed in §2001.0225(a). No comments on the proposal were received.

TAKINGS IMPACT ASSESSMENT. The commission has prepared a Takings Impact Assessment for these rules pursuant to Texas Government Code Annotated, §2007.043. The following is a summary of that assessment. The specific purpose of the rulemaking is to add wood furniture coating rules and shipbuilding/ship repair coating rules which are based upon two CTG guidance documents issued by the EPA, as required by §182(b)(2) of the FCAA. Promulgation and enforcement of the rule amendments will not affect private real property which is the subject of the rules because this rulemaking action does not restrict or limit the owner's right to the property that would otherwise exist in the absence of the rulemaking. Further, this rulemaking is not the producing cause of a reduction in the market value of private real property. Therefore, this action does not create a burden on private real property.

COASTAL MANAGEMENT PROGRAM CONSISTENCY REVIEW. The commission has determined that this rulemaking action is subject to the Texas Coastal Management Program (CMP) in accordance with the Coastal Coordination Act of 1991, as amended (Texas Natural Resources Code, §§33.201 et. seq.), the rules of the Coastal Coordination Council (31 TAC Chapters 501-506), and the commission's rules in 30 TAC Chapter 281, Subchapter B, concerning Consistency with the Texas Coastal Management Program. As required by 31 TAC §505.11(b)(2) and 30 TAC §281.45(a)(3) relating to actions and rules subject to the CMP, agency rules governing air pollutant

emissions must be consistent with the applicable goals and policies of the CMP. The commission has reviewed this action for consistency, and has determined that this rulemaking is consistent with the applicable CMP goals and policies. The primary CMP policy applicable to this rulemaking action is the policy that commission rules comply with regulations at Code of Federal Regulations, Title 40, to protect and enhance air quality in the coastal area. No new sources of air contaminants will be authorized by the rule revisions, and the revisions are expected to result in a reduction in VOC emissions. Therefore, in compliance with 31 TAC §505.22(e), the commission affirms that this rulemaking is consistent with CMP goals and policies.

HEARING AND COMMENTERS. A public hearing on this proposal was held in Austin on January 13, 1998. No commenters submitted oral testimony on the proposal. Five commenters submitted written comments on §115.10, concerning Definitions, and §§115.420-115.423, 115.426, 115.427, and 115.429, concerning Surface Coating Processes. The City of Dallas (Dallas), the EPA, Galveston County Health District (Galveston), and an individual generally supported the proposed revisions but suggested changes or clarifications. The Galveston-Houston Association for Smog Prevention (GHASP) supported the individual's comments.

An individual suggested that appropriate training on the new wood furniture manufacturing and shipbuilding/ship repair rules be provided for field personnel.

On September 18, 1996, the EPA conducted training course ET00296SB, Wood Furniture Surface Coating, with the author of the wood furniture CTG and MACT available to answer questions. Additional training regarding wood furniture coatings and shipbuilding/ship repair coatings may be available in the future as needed.

Dallas supported the relocation of surface coating definitions from §115.10 to §115.420, noting that the new arrangement is more user-friendly than the previous one.

The commission appreciates the commenter's support of its regulatory reform efforts.

An individual commented that there are too many coating categories for wood furniture manufacturing and shipbuilding/ship repair, and suggested that the definitions be simplified.

It should be noted that the EPA developed the coating categories for the wood furniture and shipbuilding/ship repair CTGs in conjunction with the wood furniture and shipbuilding/ship repair MACTs. While the commission agrees that the wood furniture and shipbuilding/ship repair definitions in §115.420(b)(12) and §115.420(b)(15)(B) include numerous coating categories, elimination of specific coating categories would cause these definitions to become inconsistent with the associated MACTs. Therefore, the commission has made no changes in response to the comment.

Galveston commented on §115.420(b)(12)(U) and §115.420(b)(12)(Z), concerning the definitions of pleasure craft and ship, respectively. Galveston noted that a yacht that is at least 20 meters in length does not appear to meet the definition of either pleasure craft or ship. Galveston questioned whether a yacht that is at least 20 meters in length is covered by the shipbuilding/ship repair rules.

Vessels which are at least 20 meters in length are intended to be regulated by the shipbuilding/ship repair rules, regardless of the

vessel's usage, while vessels less than 20 meters in length are intended to be regulated by the shipbuilding/ship repair rules only if used for commercial or military purposes. In order to clarify the rule applicability to all nonmilitary, noncommercial vessels which are at least 20 meters in length, the commission deleted the phrase "used for military or commercial operations" from the definition of ship.

An individual commented on §115.420(b)(13)(B)(ix), concerning the definition of vehicle refinishing (body shops). This definition specifically excludes the repair and recoating of trailers and construction equipment. The individual suggested that the definition state that trailers and construction equipment fall under the miscellaneous metal parts and products (MMPP) coating category. Also, the individual questioned whether surface coating of semi-tractor trailers falls under vehicle refinishing or MMPP.

The recoating of trailers (including trailers pulled by heavy-duty trucks) and construction equipment falls under the MMPP coating category, rather than the vehicle refinishing (body shops) category. Because the definition of MMPP found in §115.420(b)(10)(F) specifically includes transportation equipment, no additional clarification appears necessary. Therefore, the commission has made no changes in response to the comment.

The commission revised the term "undesigned head" to "division" in §115.420(a) and (b) in response to recently revised Texas Register rules (23 TexReg 1289, February 13, 1998).

An individual stated that surface coating of plastic and fiberglass should be regulated under §115.421.

The individual's suggestion is beyond the scope of this rule-making, and therefore the commission has made no changes in response to this comment. However, the commission may reevaluate this suggestion in the future if additional VOC reductions are needed to maintain progress toward attaining the national ambient air quality standard for ozone.

Dallas and Galveston commented on §115.421(a)(14) and stated that the wood furniture manufacturing coating limits should be in units of pounds of VOC per gallon of solids rather than pounds of VOC per pound of solids. Dallas also suggested that the limits in English units be listed before the limits in metric units.

The coating limits in §115.421(a)(14) are given in metric units for consistency with the wood furniture CTG, which in turn is consistent with the wood furniture MACT. The English units are given in parentheses for the convenience of the reader. The commission has made no changes in response to the comments.

Dallas and an individual commented on the exclusion of adhesives from §115.421(a)(14) and stated that VOC emissions from adhesives can be considerable in the wood furniture manufacturing industry. The individual likewise commented on the definition of adhesive in §115.420(b)(15)(B)(i), and objected to the exclusion of adhesives from §115.421(a)(14) in this definition.

The commission excluded adhesives from the wood furniture manufacturing requirements of §115.421(a)(14) for consistency with the wood furniture CTG, which in turn is consistent with the wood furniture MACT. The commission has made no changes in response to the comments but may reevaluate this exclusion in the future if additional VOC reductions are needed

to maintain progress toward attaining the national ambient air quality standard for ozone.

An individual commented on §115.421(a)(14)(A)(iv) and stated that the emissions averaging equation is too complicated, and that a simple, easy-to-use formula is needed.

While the commission agrees that simple equations are preferable whenever possible, it should be noted that the EPA developed this particular equation for the wood furniture CTG in conjunction with the wood furniture MACT. Substitution of a different equation would cause §115.421(a)(14)(A)(iv) to become inconsistent with the wood furniture MACT. Also, this averaging equation is optional. Therefore, the commission has made no changes in response to the comment.

The EPA commented on §115.421(a)(14)(A)(iv) and stated that the emissions averaging equation should specify a daily averaging period.

The commission agrees and has revised §115.421(a)(14)(A)(iv) and the lead-in paragraph of §115.421(a) to clarify that the averaging period for §115.421(a)(14)(A)(iv) is daily.

It has come to the commission's attention that in §115.421(a)(14)(A)(iv) and §115.421(a)(14)(B), "pounds of VOC per pound of solids" was inadvertently written as "pounds of VOC per gallon of solids" in the proposal. The commission has corrected these phrases. In addition, the commission revised the term "undesigned head" to "division" in the lead-in paragraphs of §115.421(a) and (b) in response to recently revised Texas Register rules (23 TexReg 1289, February 13, 1998).

An individual commented on §115.421(a)(15)(B) and stated that the equation for determining emission limits for thinned coatings is too complicated, and that a simple, easy-to-use formula is needed.

While the commission agrees that simple equations are preferable whenever possible, it should be noted that the equation in §115.421(a)(15)(B) is optional because this equation is used only if thinner is added to the coatings. Also, the EPA developed this particular equation for the shipbuilding/ship repair CTG in conjunction with the shipbuilding/ship repair MACT. Substitution of a different equation would cause §115.421(a)(15)(B) to become inconsistent with the shipbuilding/ship repair MACT. Therefore, the commission has made no changes in response to the comment.

Dallas commented on §115.422(3) and (4) and expressed support for limitations on the use of conventional spray guns in wood furniture manufacturing and on cleanup operations in wood furniture manufacturing and shipbuilding/ship repair operations.

The commission appreciates the support.

The EPA stated that all work practice standards outlined in the wood furniture manufacturing CTG should be included in §115.422(3). Specifically, the EPA referred to a leak inspection and maintenance program; work practice standards for general cleaning, washoff tanks, and spray gun/line cleaning; and work standards implementation plans.

The commission disagrees with the commenter. The commission has evaluated the work practice standards suggested in the wood furniture manufacturing CTG, and selected for inclusion in the proposed §115.422(3) those work practices which

it determined to be reasonable. Requirements which the commission determined to be unreasonable (for example, a leak inspection and maintenance program) were not included in the proposed §115.422(3). The commission has made no changes in response to the comment.

An individual suggested that §115.422 be revised to require high-volume low-pressure (HVLP) spray guns for most coating applications, including miscellaneous metal parts and products.

Coatings usage, and therefore emissions, can be reduced through the use of coating application systems with a higher transfer efficiency than that of conventional air atomization spray guns. The individual's suggestion is beyond the scope of this rulemaking, and therefore the commission has made no changes in response to this comment. However, the commission may reevaluate this suggestion in the future if additional VOC reductions are needed to maintain progress toward attaining the national ambient air quality standard for ozone.

No comments were received on §115.423. However, the commission revised the term "undesignated head" to "division" in §115.423(a)(1)-(2) and (b)(1)-(2) in response to recently revised Texas Register rules (23 TexReg 1289, February 13, 1998).

Dallas commented on §115.426(a)(1)(B)(ii) and expressed support for this alternative recordkeeping procedure for wood parts and products coating operations.

The commission appreciates the support.

The EPA commented on §115.426(a) and emphasized the need for a variety of records for wood furniture manufacturing and shipbuilding/ship repair subject to §115.421(a)(14) and §115.421(a)(15), respectively. Specifically, the EPA recommended inclusion of the following records: identification of the control method to meet the RACT requirement; accounting of the volume of each coating and solvent in storage and in use, and for what purposes; the results of any performance testing; certified product data sheets, including the maximum VOC content data calculated using Test Method 24 or an equivalent alternative; and calculations of the daily usage of the as-applied solvents or coatings.

Section 115.426(a)(1)(A) requires maintenance of records documenting the VOC content of coatings and solvents available for use in surface coating processes sufficient to determine continuous compliance. Section 115.426(a)(1)(B) requires maintenance of coating and solvent usage records sufficient to calculate the applicable weighted average of VOC for all coatings, and §115.426(a)(1)(C) requires maintenance of testing records. The records required by these rules should be sufficient to document continuous compliance. The commission has made no changes in response to the comment.

The EPA commented on §115.426(a) and stated that wood furniture manufacturing operations using the emissions averaging equation of §115.421(a)(14)(A)(iv) should be required to maintain and submit records including the results of Inequalities (1) or (2), daily coating usage, and VOC content of coatings.

The commission agrees that maintenance of these records is necessary and appropriate for demonstrating compliance with the requirements of §115.421(a)(14)(A)(iv), but notes that the actual submission of reports containing these records is unnecessary. Because §115.426(a)(1) already requires

maintenance of these records, with the records to be made available upon request, the commission has made no changes in response to the comment.

However, it has come to the commission's attention that §115.426(a)(1)(B) and §115.426(b)(1)(B) require recordkeeping beyond what is necessary to demonstrate compliance with the emission limitations of §115.421. Specifically, the records required by these subparagraphs do not appear to be necessary if all of an operation's coatings, as delivered to the coating application system, are below the applicable control limits. In order to streamline the recordkeeping requirements, the commission has revised §115.426(a)(1)(B) and §115.426(b)(1)(B) accordingly.

The EPA and an individual commented on §115.427(a)(3)(E), (G), and (H), concerning the exemptions for wood furniture manufacturing (25 TPY) and shipbuilding/ship repair (25 TPY in Houston/Galveston, and 100 TPY in Beaumont/Port Arthur). The individual objected to these exemptions and stated that emission reductions from these sources are necessary if the ozone nonattainment areas are to have a chance of meeting the attainment deadlines. The EPA recommended basing these exemptions on "potential to emit" rather than on actual uncontrolled emissions.

Most sources in these surface coating categories are below the exemption level, regardless of whether the exemption is based upon the "potential to emit" or actual uncontrolled emissions. As noted in the Explanation of Adopted Rules section, the exemption levels for the wood furniture and shipbuilding/ship repair coating rules may need to be lowered in the future in order to generate additional VOC emission reductions needed to maintain progress toward attaining the national ambient air quality standard for ozone. The commission has made no changes in response to the comments.

Dallas and an individual commented on §115.427(a)(3)(I), which established an exemption for aerosol coatings ("spray paint"). Dallas supported the addition of this exemption, while the individual opposed this exemption. The individual stated that emission reductions from spray painting are necessary if the ozone nonattainment areas are to have a chance of meeting the attainment deadlines.

As noted in the Explanation of Adopted Rules section, this exemption is being added because surface coating operations which include use of spray paint typically will limit its use due to cost considerations and switch to more conventional spray guns and coatings if more than a de minimis amount of spray paint is used. In addition, the EPA has published notice of its intent to regulate spray paint under a national consumer and commercial products rule (60 FR 15264, March 23, 1995) as required by FCAA §183(e). Therefore, emissions from spray paint will be regulated in the future at the national level. The commission has made no changes in response to the comments. However, it has come to the commission's attention that a spray paint exemption should also be added to 115.427(b) for Gregg, Nueces, and Victoria Counties for consistency. Consequently, the commission has added an exemption for spray paint in these counties as new §115.427(b)(4). Finally, the commission revised the term "undesignated head" to "division" in §115.427(a)(3)(I) in response to recently revised Texas Register rules (23 TexReg 1289, February 13, 1998).

No comments were received on §115.429. However, the commission has changed the phrase "affected by" to "subject

to" in the first sentence of §115.429(a) for consistency with §115.429(b) and the second sentence of §115.429(a). In addition, the commission revised the term "undesignated head" to "division" in §115.429(b) in response to recently revised Texas Register rules (23 TexReg 1289, February 13, 1998).

Subchapter A. Definitions

30 TAC §115.10

STATUTORY AUTHORITY. The amendment is adopted under the Texas Health and Safety Code (Vernon 1992), the Texas Clean Air Act (TCAA), §382.017, which provides the commission with the authority to adopt rules consistent with the policy and purposes of the TCAA; and TCAA §382.012, which requires the commission to develop plans for protection of the state's air.

This agency hereby certifies that the adoption has been reviewed by legal counsel and found to be a valid exercise of the agency's legal authority.

Filed with the Office of the Secretary of State on March 18, 1998.

TRD-9803987

Kevin McCalla

Director, Legal Division

Texas Natural Resource Conservation Commission

Effective date: April 7, 1998

Proposal publication date: December 19, 1997

For further information, please call: (512) 239-1970



Subchapter E. Solvent-Using Processes

Division 2. Surface Coating Processes

30 TAC §§115.420-115.423, 115.426, 115.427, 115.429

The amendments and new section are adopted under the Texas Health and Safety Code (Vernon 1992), the Texas Clean Air Act (TCAA), §382.017, which provides the commission with the authority to adopt rules consistent with the policy and purposes of the TCAA; and TCAA §382.012, which requires the commission to develop plans for protection of the state's air.

§115.420. *Surface Coating Definitions.*

(a) General surface coating definitions. The following terms, when used in this division (relating to Surface Coating Processes), shall have the following meanings, unless the context clearly indicates otherwise. Additional definitions for terms used in this division are found in §115.10 of this title (relating to Definitions), §101.1 of this title (relating to Definitions), and §3.2 of this title (relating to Definitions).

(1) Coating - A material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealants, adhesives, thinners, diluents, inks, maskants, and temporary protective coatings.

(2) Coating application system - Devices or equipment designed for the purpose of applying a coating material to a surface. The devices may include, but are not limited to, brushes, sprayers, flow coaters, dip tanks, rollers, knife coaters, and extrusion coaters.

(3) Coating line - An operation consisting of a series of one or more coating application systems and including associated

flashoff area(s), drying area(s), and oven(s) wherein a surface coating is applied, dried, or cured.

(4) Coating solids (or solids) - The part of a coating that remains after the coating is dried or cured.

(5) High-volume low-pressure (HVLP) spray guns - Equipment used to apply coatings by means of a spray gun which operates between 0.1 and 10.0 pounds per square inch gauge air pressure.

(6) Normally closed container - A container that is closed unless an operator is actively engaged in activities such as adding or removing material.

(7) Pounds of volatile organic compounds (VOC) per gallon of coating (minus water and exempt solvents) - Basis for emission limits for surface coating processes. Can be calculated by the following equation:

Figure: 30 TAC §115.420(a)(7)

(8) Pounds of VOC per gallon of solids - Basis for emission limits for surface coating process. Can be calculated by the following equation:

Figure: 30 TAC §115.420(a)(8)

(9) Surface coating processes - Operations which utilize a coating application system.

(10) Transfer efficiency - The amount of coating solids deposited onto the surface of a part or product divided by the total amount of coating solids delivered to the coating application system.

(b) Specific surface coating definitions. The following terms, when used in this division (relating to Surface Coating Processes), shall have the following meanings, unless the context clearly indicates otherwise.

(1) Aerospace vehicle or component - Any fabricated part, processed part, assembly of parts, or completed unit, with the exception of electronic components, of any aircraft including but not limited to airplanes, helicopters, missiles, rockets, and space vehicles.

(2) Architectural coating.

(A) Architectural coating - Any protective or decorative coating applied to the interior or exterior of a building or structure, including latex paint, alkyd paints, stains, lacquers, varnishes, and urethanes.

(B) Non-flat architectural coating - Any coating which registers a gloss of 15 or greater on an 85 degree gloss meter or 5 or greater on a 60 degree gloss meter, and which is identified on the label as gloss, semigloss, or eggshell enamel coating.

(3) Can coating - The coating of cans for beverages (including beer), edible products (including meats, fruit, vegetables, and others), tennis balls, motor oil, paints, and other mass-produced cans.

(4) Coil coating - The coating of any flat metal sheet or strip supplied in rolls or coils.

(5) Fabric coating - The application of coatings to fabric, which includes rubber application (rainwear, tents, and industrial products such as gaskets and diaphragms).

(6) Factory surface coating of flat wood paneling - Coating of flat wood paneling products, including hardboard, hardwood plywood, particle board, printed interior paneling, and tile board.

(7) Large appliance coating - The coating of doors, cases, lids, panels, and interior support parts of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dishwashers, trash compactors, air conditioners, and other large appliances.

(8) Metal furniture coating - The coating of metal furniture (tables, chairs, wastebaskets, beds, desks, lockers, benches, shelves, file cabinets, lamps, and other metal furniture products) or the coating of any metal part which will be a part of a nonmetal furniture product.

(9) Mirror backing coating - The application of coatings to the silvered surface of a mirror.

(10) Miscellaneous metal parts and products coating.

(A) Clear coat - A coating which lacks opacity or which is transparent and which may or may not have an undercoat that is used as a reflectant base or undertone color.

(B) Drum (metal) - Any cylindrical metal shipping container with a nominal capacity equal to or greater than 12 gallons (45.4 liters) but equal to or less than 110 gallons (416 liters).

(C) Extreme performance coating - A coating intended for exposure to extreme environmental conditions, such as continuous outdoor exposure; temperatures frequently above 95 degrees Celsius (203 degrees Fahrenheit); detergents; abrasive and scouring agents; solvents; and corrosive solutions, chemicals, or atmospheres.

(D) High-bake coatings - Coatings designed to cure at temperatures above 194 degrees Fahrenheit.

(E) Low-bake coatings - Coatings designed to cure at temperatures of 194 degrees Fahrenheit or less.

(F) Miscellaneous metal parts and products coating - The coating of miscellaneous metal parts and products in the following categories:

(i) large farm machinery (harvesting, fertilizing, and planting machines, tractors, combines, etc.);

(ii) small farm machinery (lawn and garden tractors, lawn mowers, rototillers, etc.);

(iii) small appliances (fans, mixers, blenders, crock pots, dehumidifiers, vacuum cleaners, etc.);

(iv) commercial machinery (computers and auxiliary equipment, typewriters, calculators, vending machines, etc.);

(v) industrial machinery (pumps, compressors, conveyor components, fans, blowers, transformers, etc.);

(vi) fabricated metal products (metal-covered doors, frames, etc.); and

(vii) any other category of coated metal products, except those surface coating processes specified in paragraphs (2) - (9) and (11)-(15) of this subsection, including, but not limited to, those which are included in the Standard Industrial Classification Code major group 33 (primary metal industries), major group 34 (fabricated metal products), major group 35 (nonelectrical machinery), major group 36 (electrical machinery), major group 37 (transportation equipment), major group 38 (miscellaneous instruments), and major group 39 (miscellaneous manufacturing industries).

(G) Pail (metal) - Any cylindrical metal shipping container with a nominal capacity equal to or greater than 1 gallon

(3.8 liters) but less than 12 gallons (45.4 liters) and constructed of 29 gauge or heavier material.

(11) Paper coating - The coating of paper and pressure-sensitive tapes (regardless of substrate and including paper, fabric, and plastic film) and related web coating processes on plastic film (including typewriter ribbons, photographic film, and magnetic tape) and metal foil (including decorative, gift wrap, and packaging).

(12) Marine coatings.

(A) Air flask specialty coating - Any special composition coating applied to interior surfaces of high pressure breathing air flasks to provide corrosion resistance and that is certified safe for use with breathing air supplies.

(B) Antenna specialty coating - Any coating applied to equipment through which electromagnetic signals must pass for reception or transmission.

(C) Antifoulant specialty coating - any coating that is applied to the underwater portion of a vessel to prevent or reduce the attachment of biological organisms and that is registered with the United States Environmental Protection Agency as a pesticide under the Federal Insecticide, Fungicide, and Rodenticide Act.

(D) Batch - The product of an individual production run of a coating manufacturer's process. (A batch may vary in composition from other batches of the same product.)

(E) Bitumens - Black or brown materials that are soluble in carbon disulfide, which consist mainly of hydrocarbons.

(F) Bituminous resin coating - Any coating that incorporates bitumens as a principal component and is formulated primarily to be applied to a substrate or surface to resist ultraviolet radiation and/or water.

(G) Epoxy - Any thermoset coating formed by reaction of an epoxy resin (i.e., a resin containing a reactive epoxide with a curing agent).

(H) General use coating - Any coating that is not a specialty coating.

(I) Heat resistant specialty coating - Any coating that during normal use must withstand a temperature of at least 204 degrees Celsius (400 degrees Fahrenheit).

(J) High-gloss specialty coating - Any coating that achieves at least 85% reflectance on a 60 degree meter when tested by the American Society for Testing and Materials (ASTM) Method D-523.

(K) High-temperature specialty coating - Any coating that during normal use must withstand a temperature of at least 426 degrees Celsius (800 degrees Fahrenheit).

(L) Inorganic zinc (high-build) specialty coating - A coating that contains 960 grams per liter (eight pounds per gallon) or more elemental zinc incorporated into an inorganic silicate binder that is applied to steel to provide galvanic corrosion resistance. (These coatings are typically applied at more than two mil dry film thickness.)

(M) Maximum allowable thinning ratio - The maximum volume of thinner that can be added per volume of coating without exceeding the applicable VOC limit of §115.421(a)(15)(A) of this title (relating to Emission Specifications).

(N) Military exterior specialty coating - Any exterior topcoat applied to military or U.S. Coast Guard vessels that are

subject to specific chemical, biological, and radiological washdown requirements.

(O) Mist specialty coating - Any low viscosity, thin film, epoxy coating applied to an inorganic zinc primer that penetrates the porous zinc primer and allows the occluded air to escape through the paint film prior to curing.

(P) Navigational aids specialty coating - Any coating applied to Coast Guard buoys or other Coast Guard waterway markers when they are recoated aboard ship at their usage site and immediately returned to the water.

(Q) Nonskid specialty coating - Any coating applied to the horizontal surfaces of a marine vessel for the specific purpose of providing slip resistance for personnel, vehicles, or aircraft.

(R) Nonvolatiles (or volume solids) - Substances that do not evaporate readily. This term refers to the film-forming material of a coating.

(S) Nuclear specialty coating - Any protective coating used to seal porous surfaces such as steel (or concrete) that otherwise would be subject to intrusion by radioactive materials. These coatings must be resistant to long-term (service life) cumulative radiation exposure (ASTM D4082-83), relatively easy to decontaminate (ASTM D4256-83), and resistant to various chemicals to which the coatings are likely to be exposed (ASTM 3912-80). (For nuclear coatings, see the general protective requirements outlined by the U.S. Atomic Energy Commission in a report entitled "U.S. Atomic Energy Commission Regulatory Guide 1.54" dated June 1973, available through the Government Printing Office at (202) 512-2249 as document number A74062-00001.)

(T) Organic zinc specialty coating - Any coating derived from zinc dust incorporated into an organic binder that contains more than 960 grams of elemental zinc per liter (eight pounds per gallon) of coating, as applied, and that is used for the expressed purpose of corrosion protection.

(U) Pleasure craft - Any marine or fresh-water vessel used by individuals for noncommercial, nonmilitary, and recreational purposes that is less than 20 meters (65.6 feet) in length. A vessel rented exclusively to, or chartered for, individuals for such purposes shall be considered a pleasure craft.

(V) Pretreatment wash primer specialty coating - Any coating that contains a minimum of 0.5% acid by weight that is applied only to bare metal surfaces to etch the metal surface for corrosion resistance and adhesion of subsequent coatings.

(W) Repair and maintenance of thermoplastic coating of commercial vessels (specialty coating) - Any vinyl, chlorinated rubber, or bituminous resin coating that is applied over the same type of existing coating to perform the partial recoating of any in-use commercial vessel. (This definition does not include coal tar epoxy coatings, which are considered "general use" coatings.)

(X) Rubber camouflage specialty coating - Any specially formulated epoxy coating used as a camouflage topcoat for exterior submarine hulls and sonar domes.

(Y) Sealant for thermal spray aluminum - Any epoxy coating applied to thermal spray aluminum surfaces at a maximum thickness of one dry mil.

(Z) Ship - Any marine or fresh-water vessel, including self-propelled vessels, those propelled by other craft (barges), and navigational aids (buoys). This definition includes, but is not limited to, all military and Coast Guard vessels, commercial cargo and

passenger (cruise) ships, ferries, barges, tankers, container ships, patrol and pilot boats, and dredges. Pleasure craft and offshore oil or gas drilling platforms are not considered ships.

(AA) Shipbuilding and ship repair operations - Any building, repair, repainting, converting, or alteration of ships or offshore oil or gas drilling platforms.

(BB) Special marking specialty coating - Any coating that is used for safety or identification applications, such as ship numbers and markings on flight decks.

(CC) Specialty interior coating - Any coating used on interior surfaces aboard U.S. military vessels pursuant to a coating specification that requires the coating to meet specified fire retardant and low toxicity requirements, in addition to the other applicable military physical and performance requirements.

(DD) Tack coat specialty coating - Any thin film epoxy coating applied at a maximum thickness of two dry mils to prepare an epoxy coating that has dried beyond the time limit specified by the manufacturer for the application of the next coat.

(EE) Undersea weapons systems specialty coating - Any coating applied to any component of a weapons system intended to be launched or fired from under the sea.

(FF) Weld-through preconstruction primer (specialty coating) - A coating that provides corrosion protection for steel during inventory, is typically applied at less than one mil dry film thickness, does not require removal prior to welding, is temperature resistant (burn back from a weld is less than 1.25 centimeters (0.5 inches)), and does not normally require removal before applying film-building coatings, including inorganic zinc high-build coatings. When constructing new vessels, there may be a need to remove areas of weld-through preconstruction primer due to surface damage or contamination prior to application of film-building coatings.

(13) Vehicle coating.

(A) Automobile and light-duty truck manufacturing.

(i) Automobile coating - The assembly-line coating of passenger cars, or passenger car derivatives, capable of seating 12 or fewer passengers.

(ii) Light-duty truck coating - The assembly-line coating of motor vehicles rated at 8,500 pounds (3,855.5 kg) gross vehicle weight or less and designed primarily for the transportation of property, or derivatives such as pickups, vans, and window vans.

(B) Vehicle refinishing (body shops).

(i) Basecoat/clearcoat system - A topcoat system composed of a pigmented basecoat portion and a transparent clearcoat portion. The VOC content of a basecoat (bc)/clearcoat (cc) system shall be calculated according to the following formula:
Figure: 30 TAC §115.420(b)(13)(B)(i)

(ii) Precoat - Any coating that is applied to bare metal to deactivate the metal surface for corrosion resistance to a subsequent water-based primer. This coating is applied to bare metal solely for the prevention of flash rusting.

(iii) Pretreatment - Any coating which contains a minimum of 0.5% acid by weight that is applied directly to bare metal surfaces to etch the metal surface for corrosion resistance and adhesion of subsequent coatings.

(iv) Primer or primer surfacers - Any base coat, sealer, or intermediate coat which is applied prior to colorant or aesthetic coats.

(v) Sealers - Coatings that are formulated with resins which, when dried, are not readily soluble in typical solvents. These coatings act as a shield for surfaces over which they are sprayed by resisting the penetration of solvents which are in the final topcoat.

(vi) Specialty coatings - Coatings or additives which are necessary due to unusual job performance requirements. These coatings or additives prevent the occurrence of surface defects and impart or improve desirable coating properties. These products include, but are not limited to, uniform finish blenders, elastomeric materials for coating of flexible plastic parts, coatings for non-metallic parts, jambing clear coatings, gloss flatteners, and anti-glare/safety coatings.

(vii) Three-stage system - A topcoat system composed of a pigmented basecoat portion, a semitransparent midcoat portion, and a transparent clearcoat portion. The VOC content of a three-stage system shall be calculated according to the following formula:

Figure: 30 TAC §115.420(b)(13)(B)(vii)

(viii) Wipe-down solutions - Any solution used for cleaning and surface preparation.

(ix) Vehicle refinishing (body shops) - The repair and recoating of vehicles, including, but not limited to, motorcycles, passenger cars, vans, light-duty trucks, medium-duty trucks, heavy-duty trucks, buses, and other vehicle body parts, bodies, and cabs by a commercial operation other than the original manufacturer. The repair and recoating of trailers and construction equipment are not included.

(14) Vinyl coating - The use of printing or any decorative or protective topcoat applied over vinyl sheets or vinyl-coated fabric.

(15) Wood parts and products coating.

(A) The following terms apply to wood parts and products coating facilities subject to §115.421(a)(13) of this title.

(i) Clear coat - A coating which lacks opacity or which is transparent and uses the undercoat as a reflectant base or undertone color.

(ii) Clear sealers - Liquids applied over stains, toners, and other coatings to protect these coatings from marring during handling and to limit absorption of succeeding coatings.

(iii) Final repair coat - Liquids applied to correct imperfections or damage to the topcoat.

(iv) Opaque ground coats and enamels - Colored, opaque liquids applied to wood or wood composition substrates which completely hide the color of the substrate in a single coat.

(v) Semitransparent spray stains and toners - Colored liquids applied to wood to change or enhance the surface without concealing the surface, including but not limited to, toners and nongrain-raising stains.

(vi) Semitransparent wiping and glazing stains - Colored liquids applied to wood that require multiple wiping steps to enhance the grain character and to partially fill the porous surface of the wood.

(vii) Shellacs - Coatings formulated solely with the resinous secretions of the lac beetle (*laccifer lacca*), thinned with

alcohol, and formulated to dry by evaporation without a chemical reaction.

(viii) Topcoat - A coating which provides the final protective and aesthetic properties to wood finishes.

(ix) Varnishes - Clear wood finishes formulated with various resins to dry by chemical reaction on exposure to air.

(x) Wash coat - A low-solids clear liquid applied over semitransparent stains and toners to protect the color coats and to set the fibers for subsequent sanding or to separate spray stains from wiping stains to enhance color depth.

(xi) Wood parts and products coating - The coating of wood parts and products, excluding factory surface coating of flat wood paneling.

(B) The following terms apply to wood furniture manufacturing facilities subject to §115.421(a)(14) of this title.

(i) Adhesive - Any chemical substance that is applied for the purpose of bonding two surfaces together other than by mechanical means. Adhesives are not considered to be coatings or finishing materials for wood furniture manufacturing facilities subject to §115.421(a)(14) of this title.

(ii) Basecoat - A coat of colored material, usually opaque, that is applied before graining inks, glazing coats, or other opaque finishing materials and is usually topcoated for protection.

(iii) Cleaning operations - Operations in which organic solvent is used to remove coating materials from equipment used in wood furniture manufacturing operations.

(iv) Continuous coater - A finishing system that continuously applies finishing materials onto furniture parts moving along a conveyor system. Finishing materials that are not transferred to the part are recycled to the finishing material reservoir. Several types of application methods can be used with a continuous coater, including spraying, curtain coating, roll coating, dip coating, and flow coating.

(v) Conventional air spray - A spray coating method in which the coating is atomized by mixing it with compressed air at an air pressure greater than 10 pounds per square inch gauge (psig) at the point of atomization. Airless and air-assisted airless spray technologies are not conventional air spray because the coating is not atomized by mixing it with compressed air. Electrostatic spray technology is also not conventional air spray because an electrostatic charge is employed to attract the coating to the workpiece. In addition, high-volume low-pressure (HVLP) spray technology is not conventional air spray because its pressure is less than 10 psig.

(vi) Finishing application station - The part of a finishing operation where the finishing material is applied (for example, a spray booth).

(vii) Finishing material - A coating used in the wood furniture industry. For the wood furniture manufacturing industry, such materials include, but are not limited to, basecoats, stains, washcoats, sealers, and topcoats.

(viii) Finishing operation - Those activities in which a finishing material is applied to a substrate and is subsequently air-dried, cured in an oven, or cured by radiation.

(ix) Organic solvent - A liquid containing VOCs that is used for dissolving or dispersing constituents in a coating; adjusting the viscosity of a coating; cleaning; or washoff. When

used in a coating, the organic solvent evaporates during drying and does not become a part of the dried film.

(x) *Sealer* - A finishing material used to seal the pores of a wood substrate before additional coats of finishing material are applied. Washcoats, which are used in some finishing systems to optimize aesthetics, are not sealers.

(xi) *Stain* - Any color coat having a solids content of no more than 8.0% by weight that is applied in single or multiple coats directly to the substrate. Includes, but is not limited to, nongrain raising stains, equalizer stains, sap stains, body stains, no-wipe stains, penetrating stains, and toners.

(xii) *Strippable booth coating* - A coating that is applied to a booth wall to provide a protective film to receive overspray during finishing operations; is subsequently peeled off and disposed; and reduces or eliminates the need to use organic solvents to clean booth walls.

(xiii) *Topcoat* - The last film-building finishing material applied in a finishing system. A material such as a wax, polish, nonoxidizing oil, or similar substance that must be periodically reapplied to a surface over its lifetime to maintain or restore the reapplied material's intended effect is not considered to be a topcoat.

(xiv) *Touch-up and repair* - The application of finishing materials to cover minor finishing imperfections.

(xv) *Washcoat* - A transparent special purpose coating having a solids content of 12% by weight or less. Washcoats are applied over initial stains to protect and control color and to stiffen the wood fibers in order to aid sanding.

(xvi) *Washoff operations* - Those operations in which organic solvent is used to remove coating from a substrate.

(xvii) *Wood furniture* - Any product made of wood, a wood product such as rattan or wicker, or an engineered wood product such as particleboard that is manufactured under any of the following standard industrial classification codes: 2434 (wood kitchen cabinets), 2511 (wood household furniture, except upholstered), 2512 (wood household furniture, upholstered), 2517 (wood television, radios, phonograph and sewing machine cabinets), 2519 (household furniture not elsewhere classified), 2521 (wood office furniture), 2531 (public building and related furniture), 2541 (wood office and store fixtures, partitions, shelving and lockers), 2599 (furniture and fixtures not elsewhere classified), or 5712 (custom kitchen cabinets).

(xviii) *Wood furniture component* - Any part that is used in the manufacture of wood furniture. Examples include, but are not limited to, drawer sides, cabinet doors, seat cushions, and laminated tops. However, foam seat cushions manufactured and fabricated at a facility that does not engage in any other wood furniture or wood furniture component manufacturing operation are excluded from this definition.

(xix) *Wood furniture manufacturing operations* - The finishing, cleaning, and washoff operations associated with the production of wood furniture or wood furniture components.

§115.421. *Emission Specifications.*

(a) No person in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas as defined in §115.10 of this title (relating to Definitions) may cause, suffer, allow, or permit volatile organic compound (VOC) emissions from the surface coating processes affected by paragraphs (1)-(15) of this subsection to exceed the specified emission limits. These limitations are based on the daily weighted average of all coatings delivered to each coating line, except

for those in paragraph (10) of this subsection which are based on paneling surface area, those in paragraph (11) of this subsection which are based on the VOC content of architectural coatings sold or offered for sale, and those in paragraph (14) of this subsection which, if using an averaging approach, must use one of the daily averaging equations within that paragraph. For the purposes of this division (relating to Surface Coating Processes), daily weighted average means the total weight of VOC emissions from all coatings, divided by the total volume of all coatings (minus water and exempt solvent) delivered to the application system each day.

(1)-(7) (No change.)

(8) *Vehicle coating.*

(A) (No change.)

(B) VOC emissions from the coatings or solvents used in vehicle refinishing (body shops) shall not exceed the following limits, as delivered to the application system:

(i) 5.0 pounds per gallon (0.60 kg/liter) of coating (minus water and exempt solvent) for primers or primer surfacers;

(ii) 5.5 pounds per gallon (0.66 kg/liter) of coating (minus water and exempt solvent) for precoat;

(iii) 6.5 pounds per gallon (0.78 kg/liter) of coating (minus water and exempt solvent) for pretreatment;

(iv) 5.0 pounds per gallon (0.60 kg/liter) of coating (minus water and exempt solvent) for single-stage topcoats;

(v) 5.0 pounds per gallon (0.60 kg/liter) of coating (minus water and exempt solvent) for basecoat/clearcoat systems;

(vi) 5.2 pounds per gallon (0.62 kg/liter) of coating (minus water and exempt solvent) for three-stage systems;

(vii) 7.0 pounds per gallon (0.84 kg/liter) of coating (minus water and exempt solvent) for specialty coatings;

(viii) 6.0 pounds per gallon (0.72 kg/liter) of coating (minus water and exempt solvent) for sealers; and

(ix) 1.4 pounds per gallon (0.17 kg/liter) of wipe-down solutions.

(C) (No change.)

(9)-(12) (No change.)

(13) *Surface coating of wood parts and products.*

(A) In the Dallas/Fort Worth, El Paso, and Houston/Galveston areas, VOC emissions from the coating of wood parts and products shall not exceed the following limits, as delivered to the application system, for each surface coating type:

(i) 5.9 pounds per gallon (0.71 kg/liter) of coating (minus water and exempt solvent) for clear topcoats;

(ii) 6.5 pounds per gallon (0.78 kg/liter) of coating (minus water and exempt solvent) for wash coats;

(iii) 6.0 pounds per gallon (0.72 kg/liter) of coating (minus water and exempt solvent) for final repair coats;

(iv) 6.6 pounds per gallon (0.79 kg/liter) of coating (minus water and exempt solvent) for semitransparent wiping and glazing stains;

(v) 6.9 pounds per gallon (0.83 kg/liter) of coating (minus water and exempt solvent) for semitransparent spray stains and toners;

(vi) 5.5 pounds per gallon (0.66 kg/liter) of coating (minus water and exempt solvent) for opaque ground coats and enamels;

(vii) 6.2 pounds per gallon (0.74 kg/liter) of coating (minus water and exempt solvent) for clear sealers;

(viii) for shellac:

(I)-(II) (No change.)

(ix) 5.0 pounds per gallon (0.60 kg/liter) of coating (minus water and exempt solvent) for varnish; and

(x) (No change.)

(B)-(C) (No change.)

(14) Surface coating at wood furniture manufacturing facilities. After December 31, 1999, the following requirements apply to wood furniture manufacturing facilities in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas. For facilities which are subject to this paragraph, adhesives are not considered to be coatings or finishing materials.

(A) VOC emissions from finishing operations shall be limited by:

(i) Using topcoats with a VOC content no greater than 0.8 kilograms of VOC per kilogram of solids (0.8 pounds of VOC per pound of solids), as delivered to the application system; or

(ii) Using a finishing system of sealers with a VOC content no greater than 1.9 kilograms of VOC per kilogram of solids (1.9 pounds of VOC per pound of solids), as applied, and topcoats with a VOC content no greater than 1.8 kilograms of VOC per kilogram of solids (1.8 pounds of VOC per pound of solids), as delivered to the application system; or

(iii) For wood furniture manufacturing facilities using acid-cured alkyd amino vinyl sealers or acid-cured alkyd amino conversion varnish topcoats, using sealers and topcoats which meet the following criteria.

(I) If the wood furniture manufacturing facility uses acid-cured alkyd amino vinyl sealers and acid-cured alkyd amino conversion varnish topcoats, the sealer shall contain no more than 2.3 kilograms of VOC per kilogram of solids (2.3 pounds of VOC per pound of solids), as applied, and the topcoat shall contain no more than 2.0 kilograms of VOC per kilogram of solids (2.0 pounds of VOC per pound of solids), as delivered to the application system; or

(II) If the wood furniture manufacturing facility uses a sealer other than an acid-cured alkyd amino vinyl sealer and acid-cured alkyd amino conversion varnish topcoats, the sealer shall contain no more than 1.9 kilograms of VOC per kilogram of solids (1.9 pounds of VOC per pound of solids), as applied, and the topcoat shall contain no more than 2.0 kilograms of VOC per kilogram of solids (2.0 pounds of VOC per pound of solids), as delivered to the application system; or

(III) If the wood furniture manufacturing facility uses an acid-cured alkyd amino vinyl sealer and a topcoat other than an acid-cured alkyd amino conversion varnish topcoat, the sealer shall contain no more than 2.3 kilograms of VOC per kilogram of solids (2.3 pounds of VOC per pound of solids), as applied, and the topcoat shall contain no more than 1.8 kilograms of VOC per kilogram of solids (1.8 pounds of VOC per pound of solids), as delivered to the application system; or

(iv) Using an averaging approach and demonstrating that actual daily emissions from the wood furniture manufacturing facility are less than or equal to the lower of the actual versus allowable emissions using one of the following inequalities:
Figure: 30 TAC §115.421(a)(14)(A)(iv)

(v) Using a vapor recovery system that will achieve an equivalent reduction in emissions as the requirements of clauses (i) or (ii) of this subparagraph. If this option is used, the requirements of §115.423(a)(3) of this title (relating to Alternate Control Requirements) do not apply; or

(vi) Using a combination of the methods presented in clauses (i), (ii), (iii), (iv), and (v) of this subparagraph.

(B) Strippable booth coatings used in cleaning operations shall contain no more than 0.8 kilograms of VOC per kilogram of solids (0.8 pounds of VOC per pound of solids), as delivered to the application system.

(15) Marine coatings. After December 31, 1999, the following requirements apply to shipbuilding and ship repair operations in the Beaumont/Port Arthur and Houston/Galveston areas.

(A) The following VOC emission limits apply to the surface coating of ships and offshore oil or gas drilling platforms at shipbuilding and ship repair operations, and are based upon the VOC content of the coatings as delivered to the application system:
Figure: 30 TAC §115.421(a)(15)(A)

(B) For a coating to which thinning solvent is routinely or sometimes added, the owner or operator shall determine the VOC content as follows.

(i) Prior to the first application of each batch, designate a single thinner for the coating and calculate the maximum allowable thinning ratio (or ratios, if the shipbuilding and ship repair operation complies with the cold-weather limits in addition to the other limits specified in subparagraph (A) of this paragraph) for each batch as follows:
Figure: 30 TAC §115.421(a)(15)(B)(i)

(ii) If V_c is not supplied directly by the coating manufacturer, the owner or operator shall determine V_c as follows:
Figure: 30 TAC §115.421(a)(15)(B)(ii)

(b) No person in Gregg, Nueces, and Victoria Counties may cause, suffer, allow, or permit VOC emissions from the surface coating processes affected by paragraphs (1)-(9) of this subsection to exceed the specified emission limits. These limitations are based on the daily weighted average of all coatings delivered to each coating line, except for those in paragraph (9) of this subsection which are based on paneling surface area. For the purposes of this division (relating to Surface Coating Processes), daily weighted average means the total weight of VOC emissions from all coatings, divided by the total volume of all coatings (minus water and exempt solvent) delivered to the application system each day.

(1)-(9) (No change.)

§115.423. *Alternate Control Requirements.*

(a) For all affected persons in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas, the following alternate control requirements may apply.

(1) Emission calculations for surface coating operations performed to satisfy the conditions of §101.23 of this title (relating to Alternate Emission Reduction "Bubble" Policy), §115.910 of this title (relating to Availability of Alternate Means of Control), or other demonstrations of equivalency with the specified emission limits in

this division (relating to Surface Coating Processes) shall be based on the pounds of volatile organic compounds (VOC) per gallon of solids for all affected coatings. The following equation shall be used to convert emission limits from pounds of VOC per gallon of coating to pounds of VOC per gallon of solids:

Figure: 30 TAC §115.423(a)(1)

(2) Any alternate methods of demonstrating and documenting continuous compliance with the applicable control requirements or exemption criteria in this division, such as use of improved transfer efficiency, may be approved by the executive director in accordance with §115.910 of this title if emission reductions are demonstrated to be substantially equivalent.

(3)-(4) (No change.)

(b) For all affected persons in Gregg, Nueces, and Victoria Counties, the following alternate control requirements may apply:

(1) Emission calculations for surface coating operations performed to satisfy the conditions of §101.23 of this title, §115.910 of this title, or other demonstrations of equivalency with the specified emission limits in this division (relating to Surface Coating Processes) shall be based on the pounds of VOC per gallon of solids for all affected coatings. The following equation shall be used to convert emission limits from pounds of VOC per gallon of coating to pounds of VOC per gallon of solids:

Figure: 30 TAC §115.423(b)(1)

(2) Any alternate methods of demonstrating and documenting continuous compliance with the applicable control requirements or exemption criteria in this division, such as use of improved transfer efficiency, may be approved by the executive director in accordance with §115.910 of this title if emission reductions are demonstrated to be substantially equivalent.

(3)-(4) (No change.)

§115.426. *Monitoring and Recordkeeping Requirements.*

(a) For the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas, the following recordkeeping requirements shall apply:

(1) Any person affected by §115.421(a) of this title (relating to Emission Specifications) shall satisfy the following recordkeeping requirements.

(A) (No change.)

(B) Records shall be maintained of the quantity and type of each coating and solvent consumed during the specified averaging period if any of the coatings, as delivered to the coating application system, exceed the applicable control limits. Such records shall be sufficient to calculate the applicable weighted average of VOC for all coatings.

(i) As an alternative to the recordkeeping requirements of this subparagraph, any vehicle refinishing (body shop) operation subject to §115.421(a)(8)(B) of this title may substitute the recordkeeping requirements specified in §106.436 of this title (relating to Auto Body Refinishing Facility (Previously Standard Exemption 124)) provided that all coatings and solvents meet the emission limits of §115.421(a)(8)(B) of this title. If a vehicle refinishing (body shop) operation uses any coating(s) or solvent(s) which exceeds the limits of §115.421(a)(8)(B) of this title, then that vehicle refinishing (body shop) operation shall maintain daily records of the quantity and type of each coating and solvent consumed in sufficient detail to calculate the daily weighted average of VOC for all coatings and solvents.

(ii) As an alternative to the recordkeeping requirements of this subparagraph, any wood parts and products coating operation subject to §115.421(a)(13) of this title may substitute the recordkeeping requirements specified in §106.231 of this title (relating to Manufacturing, Refinishing, and Restoring Wood Products) provided that all coatings and solvents meet the emission limits of §115.421(a)(13) of this title. If a wood parts and products coating operation uses any coating(s) or solvent(s) which exceeds the limits of §115.421(a)(13) of this title, then that wood parts and products coating operation shall maintain daily records of the quantity and type of each coating and solvent consumed in sufficient detail to calculate the daily weighted average of VOC for all coatings and solvents.

(C)-(D) (No change.)

(2) The owner or operator of any surface coating facility which utilizes a vapor recovery system approved by the executive director in accordance with §115.423(a)(3) of this title (relating to Alternate Control Requirements) shall:

(A) install and maintain monitors to accurately measure and record operational parameters of all required control devices, as necessary, to ensure the proper functioning of those devices in accordance with design specifications, including:

(i) continuous monitoring of the exhaust gas temperature immediately downstream of direct-flame incinerators and/or the gas temperature immediately upstream and downstream of any catalyst bed;

(ii)-(iv) (No change.)

(B)-(C) (No change.)

(3)-(4) (No change.)

(b) For Gregg, Nueces, and Victoria Counties, the following recordkeeping requirements shall apply:

(1) Any person affected by §115.421(b) of this title shall satisfy the following recordkeeping requirements.

(A) (No change.)

(B) Records shall be maintained of the quantity and type of each coating and solvent consumed during the specified averaging period if any of the coatings, as delivered to the coating application system, exceed the applicable control limits. Such records shall be sufficient to calculate the applicable weighted average of VOC for all coatings.

(C)-(D) (No change.)

(2) The owner or operator of any surface coating facility which utilizes a vapor recovery system approved by the executive director in accordance with §115.423(b)(3) of this title shall:

(A) install and maintain monitors to accurately measure and record operational parameters of all required control devices as necessary to ensure the proper functioning of those devices in accordance with design specifications; including

(i) continuous monitoring of the exhaust gas temperature immediately downstream of direct-flame incinerators and/or the gas temperature immediately upstream and downstream of any catalyst bed;

(ii)-(iv) (No change.)

(B)-(C) (No change.)

(3) (No change.)

§115.427. Exemptions.

(a) For the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas, the following exemptions shall apply:

(1) The following coating operations are exempt from the application of §115.421(a)(9) of this title (relating to Emission Specifications):

(A) (No change.)

(B) vehicle refinishing (body shops), except as required by §115.421(a)(8)(B) and (C) of this title; and

(C) ships and offshore oil or gas drilling platforms, except as required by §115.421(a)(15) of this title.

(2) (No change.)

(3) The following exemptions shall apply to surface coating operations, except for aircraft prime coating controlled by §115.421(a)(9)(A)(v) of this title and vehicle refinishing (body shops) controlled by §115.421(a)(8)(B) and (C) of this title.

(A) Surface coating operations on a property which, when uncontrolled, will emit a combined weight of VOC of less than 3 pounds per hour and 15 pounds in any consecutive 24-hour period shall be exempt from the provisions of §115.421(a) of this title and §115.423(a) of this title (relating to Alternate Control Requirements).

(B) Surface coating operations on a property which, when uncontrolled, will emit a combined weight of VOC of less than 100 pounds in any consecutive 24-hour period shall be exempt from the provisions of §115.421(a) and §115.423(a) of this title if documentation is provided to and approved by both the executive director and the EPA to demonstrate that necessary coating performance criteria cannot be achieved with coatings which satisfy applicable emission specifications and that control equipment is not technically or economically feasible.

(C) (No change.)

(D) Wood furniture manufacturing facilities which are subject to and are complying with the requirements of §115.421(a)(14) of this title and §115.422(3) of this title (relating to Control Requirements) are exempt from the requirements of §115.421(a)(13) of this title. These wood furniture manufacturing facilities shall continue to comply with the requirements of §115.421(a)(13) of this title until these facilities are in compliance with the requirements of §115.421(a)(14) and §115.422(3) of this title.

(E) Wood furniture manufacturing facilities which, when uncontrolled, emit a combined weight of VOC from wood furniture manufacturing operations less than 25 tons per year are exempt from the requirements of §115.421(a)(14) and §115.422(3) of this title.

(F) Wood parts and products coating facilities in Hardin, Jefferson, and Orange Counties are exempt from the requirements of §115.421(a)(13) of this title.

(G) Shipbuilding and ship repair operations in Hardin, Jefferson, and Orange Counties which, when uncontrolled, emit a combined weight of VOC from ship and offshore oil or gas drilling platform surface coating operations less than 100 tons per year are exempt from the requirements of §115.421(a)(15) and §115.422(4) of this title.

(H) Shipbuilding and ship repair operations in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery,

and Waller Counties which, when uncontrolled, emit a combined weight of VOC from ship and offshore oil or gas drilling platform surface coating operations less than 25 tons per year are exempt from the requirements of §115.421(a)(15) and §115.422(4) of this title.

(I) Coatings applied with hand-held, nonrefillable, aerosol containers ("spray paint") are exempt from the requirements of this division (relating to Surface Coating Processes).

(4)-(6) (No change.)

(b) For Gregg, Nueces, and Victoria Counties, the following exemptions shall apply:

(1)-(3) (No change.)

(4) Coatings applied with hand-held, nonrefillable, aerosol containers ("spray paint") are exempt from the requirements of this division (relating to Surface Coating Processes).

§115.429. Counties and Compliance Schedules.

(a) All wood furniture manufacturing facilities subject to §115.421(a)(14) of this title (relating to Emission Specifications) in Brazoria, Chambers, Collin, Dallas, Denton, El Paso, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, Tarrant, and Waller Counties shall be in compliance with §115.421(a)(14) of this title and §115.422(3) of this title (relating to Control Requirements) as soon as practicable, but no later than December 31, 1999. All wood furniture manufacturing facilities subject to §115.421(a)(14) of this title in Brazoria, Chambers, Collin, Dallas, Denton, El Paso, Fort Bend, Galveston, Harris, Liberty, Montgomery, Tarrant, and Waller Counties shall continue to comply with the requirements of §115.421(a)(13) of this title until these coating operations are in compliance with the requirements of §115.421(a)(14) and §115.422(3) of this title.

(b) All shipbuilding and ship repair surface coating facilities subject to §115.421(a)(15) of this title in Brazoria, Chambers, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, and Waller Counties shall be in compliance with this division (relating to Surface Coating Processes) as soon as practicable, but no later than December 31, 1999.

This agency hereby certifies that the adoption has been reviewed by legal counsel and found to be a valid exercise of the agency's legal authority.

Filed with the Office of the Secretary of State on March 18, 1998.

TRD-9803986

Kevin McCalla

Director, Legal Division

Texas Natural Resource Conservation Commission

Effective date: April 7, 1998

Proposal publication date: December 19, 1997

For further information, please call: (512) 239-1970



Chapter 116. Control of Air Pollution by Permits for New Construction or Modification

The Texas Natural Resource Conservation Commission (commission) adopts amendments to §116.12, concerning Nonattainment Review Definitions, §116.150, concerning New Major Source or Major Modification in Ozone Nonattainment Area, and §116.151, concerning New Major Source or Major Modification in Nonattainment Area Other than Ozone. The sections are

Figure 30 TAC §115.420(a)(7)

$$\text{Pounds of VOC per gallon of coating (minus water and exempt solvents)} = \frac{W_v}{V_m - V_w - V_{ex}}$$

Where:

- W_v = weight of VOC, in pounds, contained in V_m gallons of coating
- V_m = volume of coating, generally assumed to be one gallon
- V_w = volume of water, in gallons, contained in V_m gallons of coating
- V_{ex} = volume of exempt solvents, in gallons, contained in V_m gallons of coating

Figure 30 TAC §115.420(a)(8)

$$\text{Pounds of VOC per gallon of solids} = \frac{W_v}{V_m - V_v - V_w - V_{ex}}$$

Where:

- W_v = weight of VOC, in pounds, contained in V_m gallons of coating
- V_m = volume of coating, generally assumed to be one gallon
- V_v = volume of VOC, in gallons, contained in V_m gallons of coating
- V_w = volume of water, in gallons, contained in V_m gallons of coating
- V_{ex} = volume of exempt solvents, in gallons, contained in V_m gallons of coating

Figure 30 TAC §115.420(b)(13)(B)(i)

$$\text{VOC } T_{bc/cc} = \frac{\text{VOC}_{bc} + (2 \times \text{VOC}_{cc})}{3}$$

where:

$\text{VOC } T_{bc/cc}$ is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, in the basecoat/clearcoat system;

VOC_{bc} is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, of any given basecoat; and

VOC_{cc} is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, of any given clearcoat.

Figure 30 TAC §115.420(b)(13)(B)(vii)

$$\text{VOC } T_{3\text{-stage}} = \frac{\text{VOC}_{bc} + \text{VOC}_{mc} + (2 \times \text{VOC}_{cc})}{4}$$

where:

$\text{VOC } T_{3\text{-stage}}$ is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, in the three-stage system;

VOC_{bc} is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, of any given basecoat;

VOC_{mc} is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, of any given midcoat; and

VOC_{cc} is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, of any given clearcoat.

Figure 30 TAC §115.421(a)(14)(A)(iv)

$$0.9 (0.8 (TC_1 + TC_2 + \dots)) \geq (ER_{TC1}) (TC_1) + (ER_{TC2}) (TC_2) + \dots \quad (\text{Inequality 1})$$

$$0.9 \{ [1.8 (TC_1 + TC_2 + \dots)] + [1.9 (SE_1 + SE_2 + \dots)] + \dots \} \geq \dots \quad (\text{Inequality 2})$$

$$[9.0 (WC_1 + WC_2 + \dots)] + [1.2 (BC_1 + BC_2 + \dots)] +$$

$$[0.791 (ST_1 + ST_2 + \dots)] \geq [ER_{TC1} (TC_1) + ER_{TC2} (TC_2) + \dots] +$$

$$[ER_{SE1} (SE_1) + ER_{SE2} (SE_2) + \dots] + [ER_{WC1} (WC_1) + ER_{WC2} (WC_2) + \dots] +$$

$$[ER_{BC1} (BC_1) + ER_{BC2} (BC_2) + \dots] + [ER_{ST1} (ST_1) + ER_{ST2} (ST_2) + \dots]$$

where:

TC_i = kilograms of solids of topcoat "i" used;

SE_i = kilograms of solids of sealer "i" used;

WC_i = kilograms of solids of washcoat "i" used;

BC_i = kilograms of solids of basecoat "i" used;

ST_i = liters of stain "i" used;

ER_{TCi} = VOC content of topcoat "i" in kilograms of VOC per kilogram of solids, as delivered to the application system;

ER_{SEi} = VOC content of sealer "i" in kilograms of VOC per kilogram of solids, as delivered to the application system;

ER_{WCi} = VOC content of washcoat "i" in kilograms of VOC per kilogram of solids, as delivered to the application system;

ER_{BCi} = VOC content of basecoat "i" in kilograms of VOC per kilogram of solids, as delivered to the application system; and

ER_{STi} = VOC content of stain "i" in kilograms of VOC per kilogram of solids, as delivered to the application system.

In inequalities (1) and (2) the facility must use the actual VOC content of the finishing materials used before they were subject to this paragraph if the VOC content is less than the allowed VOC content. For example, if the facility was using topcoats with a VOC content of 1.7 kilograms of VOC per kilogram of solids (1.7 pounds of VOC per pound of solids) before being subject to this paragraph, they must use that value in Inequality (2) rather than 1.8; or

Figure 3: 30 TAC §115.421(a)(15)(A)

Coating Category	VOC limits ^{a, b}			
	Grams/liter coating (minus water and exempt solvent)	Pounds/gallon coating (minus water and exempt solvent)	Grams/liter solids ^c	
			t ≥ 4.5°C (40°F)	t < 4.5°C (40°F) ^d
General use	340	2.83	571	728
Specialty:				
Air flask	340	2.83	571	728
Antenna	530	4.42	1,439	----
Antifoulant	400	3.33	765	971
Heat resistant	420	3.50	841	1,069
High-gloss	420	3.50	841	1,069
High-temperature	500	4.17	1,237	1,597
Inorganic zinc high-build	340	2.83	571	728
Military exterior	340	2.83	571	728
Mist	610	5.08	2,235	----
Navigational aids	550	4.58	1,597	----
Nonskid	340	2.83	571	728
Nuclear	420	3.50	841	1,069
Organic zinc	360	3.00	630	802
Pretreatment wash primer	780	6.50	11,095	----
Repair and maintenance of thermoplastics	550	4.58	1,597	----
Rubber camouflage	340	2.83	571	728
Sealant for thermal spray aluminum	610	5.08	2,235	----
Special marking	490	4.08	1,178	----
Specialty interior	340	2.83	571	728
Tack coat	610	5.08	2,235	----
Undersea weapons systems	340	2.83	571	728
Weld-through preconstruction primer	650	5.42	2,885	----

^aThe limits are expressed in two sets of equivalent units: grams per liter of coating (minus water and exempt solvent); and grams per liter of solids. Either set of limits may be used to demonstrate compliance.

^bTo convert from grams/liter to pounds/gallon, multiply by (3.785 liters/gallon)(pound/453.6 grams) or 1/120. For compliance purposes, metric units define the standards.

^cVOC limits expressed in units of mass of VOC per volume of solids were derived from the VOC limits expressed in units of mass of VOC per volume of coating assuming the coatings contain no water or exempt compounds and that the volumes of all components within a coating are additive.

^dThese limits apply during cold-weather time periods (i.e., temperatures below 4.5 degrees Celsius (40 degrees Fahrenheit)). Cold-weather allowances are not given to coatings in categories that permit less than 40% solids nonvolatiles) content by volume. Such coatings are subject to the same limits regardless of weather conditions.

Figure - 30 TAC §115.421(a)(15)(B)(i)

$$R = \frac{(V_s)(\text{VOC limit}) - m_{\text{VOC}}}{D_{\text{th}}} \quad (\text{Equation 1})$$

where:

R = Maximum allowable thinning ratio for a given batch (liters of thinner per liter of coating as supplied);

V_s = Volume fraction of solids in the batch as supplied (liter of solids per liter of coating as supplied);

VOC limit = Maximum allowable as-applied VOC content of the coating (grams of VOC per liter of solids);

m_{VOC} = VOC content of the batch as supplied (grams of VOC per liter of coating as supplied); and

D_{th} = Density of the thinner (grams per liter).

Figure - 30 TAC §115.421(a)(15)(B)(ii)

$$V_s = \frac{1 - (m_{\text{volatiles}})}{D_{\text{avg}}} \quad (\text{Equation 2})$$

where:

m_{volatiles} = Total volatiles in the batch, including VOC, water, and exempt compounds (grams per liter of coating); and

D_{avg} = Average density of volatiles in the batch (grams per liter).

Figure 1: 30 TAC §115.423(a)(1)

$$S = C / (1 - (C / D))$$

where:

S = the applicable emission limit from §115.421(a) of this title (relating to Emission Specifications) expressed on a pounds of VOC per gallon of solids basis

C = the applicable emission limit from §115.421(a) of this title expressed on a pounds of VOC per gallon of coating basis

D = an assumed solvent density of 7.36 pounds of VOC per gallon

Figure 2: 30 TAC §115.423(b)(1)

$$S = C / (1 - (C / D))$$

where:

S = the applicable emission limit from §115.421(b) of this title expressed on a pounds of VOC per gallon of solids basis

C = the applicable emission limit from §115.421(b) of this title expressed on a pounds of VOC per gallon of coating basis

D = an assumed solvent density of 7.36 pounds of VOC per gallon