

# **Potential Approaches to New Consumer and Commercial Product Regulations in Texas**

**Project H-54**

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**PCA Services, Inc.**

## **Table of Contents**

<b>1. <u>Introduction</u></b>	<b>3</b>
<b>2. <u>Recent History of CCP Regulations in the United States</u></b>	<b>4</b>
<b>3. <u>Development of Options</u></b>	<b>5</b>
<b>4. <u>Total Emissions Reductions Expected</u></b>	<b>6</b>
<b>5. <u>Cost Estimate</u></b>	<b>7</b>
<b>6. <u>Conclusion</u></b>	<b>7</b>
<b>7. <u>Appendix</u></b>	<b>8</b>
<b>a. <u>Table 1: CCP Products Worksheet</u></b>	<b>9</b>

## Potential Approach to New Consumer and Commercial Product Regulations in Texas

### Introduction

The United States Environmental Protection Agency (EPA) has recently designated a 9-county area in the Dallas-Fort Worth (DFW) region of Texas as a “Moderate” nonattainment area for the new 8-hour ozone standards. As a result, the Texas Commission on Environmental Quality (TCEQ) is required to develop a new State Implementation Plan (SIP) that includes a plan for a 15% reduction in emissions of Volatile Organic Compounds (VOC) in the next 6 years. One potential target for reductions is the area emissions from the solvent utilization categories, which fall generally under the 24\*\*\*\*\* Source Classification Codes (SCC). The SCC’s include seven categories that fall collectively under the general classification of “Consumer and Commercial Products” (CCP).

Consumer products are generally products used by retail customers for personal, household or automotive use. Commercial products in this context are products used in commercial/institutional settings such as schools, hospitals and small businesses. Collectively, the Consumer and Commercial Products category encompasses literally hundreds of products in the seven categories listed below.

- 2460100000 Personal Care Products
- 2460200000 Household Products
- 2460400000 Automotive Aftermarket Products
- 2460500000 Coatings and Related Products
- 2460600000 Adhesives and Sealants Products
- 2460800000 FIFRA Related Products
- 2460900000 Miscellaneous Products

PCA Services, Inc. was asked to identify potential regulatory approaches to reducing VOC emissions from these categories. This paper gives a brief summary of other relevant Federal and state regulatory activity for these categories, and develops a regulatory option for TCEQ’s consideration, along with estimated VOC emissions reductions that would be expected from that option.

## **Recent History of CCP Regulations in the United States**

As might be expected because of their substantial ozone nonattainment problems, the California Air Resources Board (CARB) was a leader in developing the early regulations affecting CCP. (The CARB, rather than the Air Quality Management Districts, has jurisdiction over CCP in California.) Between 1989 and 2000, the CARB adopted several iterations of CCP regulations (<http://www.arb.ca.gov/consprod/regs/toc.pdf>):

- Antiperspirants and Deodorants 1989
- Consumer Products (General) 1990
  - “Phase I” Amendments 1993
  - “Phase II” Amendments 1996
  - “Midterm Measures” Amendments I 1997
  - “Midterm Measures” Amendments II 2000
- Alternative Control Plan 1994
- Aerosol Coatings 1995
- Hairspray Credit Program 1997
- Reactivity-based Aerosol Coatings 2000

Most of the regulations listed above have also had one or more interim amendments, leading to a complex and sometimes confusing array of regulations. Contributing to the complexity is that there is little consensus as to how CCP should be subcategorized. These CARB regulations include VOC limits on over 140 subcategories of CCP, including 34 subcategories of aerosol coatings; however, many of the subcategories are quite small in volume, contributing minimal amounts of VOC emissions to the total. (This is not to say that they are insignificant in the context of California’s nonattainment problems; rather that they may be less significant to other states in different circumstances.)

A few other states adopted isolated regulations limiting VOC content for various individual subcategories of CCP products. Texas’ Windshield Washer Fluid Regulation, adopted in 1994, which limits the VOC content of windshield washer fluids to 23.5%, is one example.

In 1998, the Environmental Protection Agency (EPA) promulgated the *National Volatile Organic Compound Emission Standards for Consumer Products* (Federal Register / Vol. 63, No. 176, September 11, 1998), which set VOC limits on 43 subcategories of CCP (Table 1, Column B), representing slightly less than half of the total CCP VOC emissions inventory. Commonly referred to as the National (or Federal) Consumer Products Rule, this rule became effective nationwide in September of 1998, and is the basic regulation governing VOC emissions from CCP in Texas as well as most other states.

In 2000, the Ozone Transport Commission (OTC) adopted a “Model Rule”, which was based on rules adopted by the CARB (<http://www.otcair.org/interest.asp?fview=stationary#>). (The OTC is a multi-state organization created under the Clean Air Act (CAA) that is responsible for advising EPA on transport issues and for developing and implementing regional solutions to the ground-level ozone problem in the Northeast and Mid-Atlantic regions.) This model rule was developed by the Ozone Transport Commission (OTC) as part of a regional effort to

attain and maintain the one-hour ozone standard, address emission reduction shortfalls that were identified by the U.S. Environmental Protection Agency in specific States' plans to attain the one-hour ozone standard, and reduce eight-hour ozone levels. As of June 2005, Delaware, the District of Columbia, Maine, Maryland, New Jersey, New York, Pennsylvania, and Virginia had adopted versions of this model rule. Three other states, Massachusetts, New Hampshire, and Rhode Island, had declared their intention to do so, and the other two were "considering" the issue.

### **Development of Options**

Table 1, entitled Consumer and Commercial Products Worksheet (*See Appendix*), summarizes the following Consumer and Commercial Products rules:

- CARB CCP Regulations (as of Dec. 2005)
- National CCP Rule
- OTC Model Rule for CCPs

It is readily apparent that the CARB rules are far more extensive in coverage of product subcategories than the National Rule or the OTC Rule, which is a condensed version of the CARB rules covering 83 subcategories compared to the 110 or so in the CARB list (not counting Aerosol Coatings subcategories, which will be covered in a separate report). However, the OTC Model Rule includes 24 duplications of National Rule Limits, so it actually sets new limits for 59 subcategories.

Column A of the Table lists the various subcategories that are included in one or more of the principal CCP rules of interest (National Rule, CARB Rules, OTC Model Rule). There is some duplication based on differences in terminology and/or methods of classification of the subcategories among the various rules.

Column B gives the VOC limits in the National Consumer Products Rule (*Federal Register / Vol. 63, No. 176 / Friday, September 11, 1998*). Except for the Windshield Washer Fluid category, these represent the prevailing VOC limits in Texas that were used to calculate the Emissions Inventory baseline against which subsequent emissions reductions will be measured.

Column C gives a current summary of the CARB CCP regulatory limits (in weight percent VOC) taken from three different CARB CCP regulations (<http://www.arb.ca.gov/consprod/regs/regs.htm>).

Column D gives the VOC limits in the OTC Model Rule for CCP (<http://www.otcair.org/interest.asp?fview=stationary#>), which is designated Option 1. It is important to note that the CCP industry, represented by the Consumer Specialty Products Association and other smaller groups, has made a conscious and public decision to accept the OTC Model Rule, and not to oppose the adoption of identical rules within the OTC member states. We believe that decision will also apply beyond the bounds of the OTC, and that the industry would not actively oppose such a rule in Texas or elsewhere. That is not to say that there won't be isolated companies or niche groups that oppose one or a few given subcategory limits.

**Option 1, then, is for Texas to adopt a rule identical to the OTC Model Rule.**

Column E gives a second, though quite similar option, **Option 2, which is to adopt a rule similar to the OTC Model Rule, but omitting all limits that duplicate limits in the National CCP Rule.** This has the virtue of reducing the number of categories with limits, along with their associated definitions and explanations.

Options 1 and 2 will result in the same VOC emissions reductions.

### **Total Emissions Reductions Expected**

There is no perfect way to calculate the change in emissions to be expected from a regulatory change in VOC limits. Because product efficacy issues are paramount, each reformulation of a product is unique. Even though CCP product VOC limits are calculated on a weight-percent VOC basis, making it relatively easy to calculate changes within a narrowly-defined product subcategory, the wide diversity of products, product forms, and product subcategories make it quite difficult to calculate an overall VOC reduction from a rule.

The OTC calculated that the OTC CCP Model Rule would reduce VOC emissions by 14.2% from the National Consumer Products Rule baseline (*Control Measure Development Support Analysis of Ozone Transport Commission Model Rules*, E.H. Pechan & Associates, Inc., March 31, 2001). This value was calculated “based on information in the ARB staff report and surveys” ([www.arb.ca.gov/consprod/consprod.htm](http://www.arb.ca.gov/consprod/consprod.htm)), and has thus far apparently been accepted by the various states that have subsequently adopted the OTC Model Rule, and the EPA in approving the states’ SIP plans that include those rules. It is therefore suggested that Texas follow precedent and assume the same VOC emissions reductions (from the 2002 baseline). However, because Texas already has a more restrictive limit of 23.5% for the windshield washer fluids subcategory (vs. 35% for both the National Rule and the OTC Model Rule), the Texas total emissions inventory baseline for these product categories is lower, and thus the emissions reductions (which do not include reductions in the WW Fluid subcategory) from adopting the OTC Model Rule limits would be slightly higher. The difference can be calculated as follows:

The EPA-recommended total Emissions Factor (EF) for all CCP categories is 7.213 lb/p/yr (March 2005 version of 2002 NEI Documentation), which includes 0.611 lb/p/yr for WW fluids; however, Texas’ inventory includes only 0.410 lb/p/yr for WW fluids. Therefore the total EF for Texas’ 2002 baseline emission for the CCP categories is:

$$\text{Texas' Baseline EF} = 7.213 - 0.611 + 0.410 = 7.012 \text{ lb/p/yr}$$

For the OTC Model Rule, the “standard” VOC emissions reduction is:

$$14.2\% \text{ of } 7.213 = 1.024 \text{ lb/p/yr reduction from the National baseline}$$

However, these same reductions are a larger proportion of the smaller Texas baseline:

$$1.024/7.012 = 14.6\% \text{ of the Texas baseline EI}$$

Since Options 1 and 2 both include the same reductions in VOC limits, it is suggested that in either case, Texas consider claiming a 14.6% reduction from the total 2002 baseline emissions for the CCP categories, adjusted for population. Because the Control Efficiency (CE=14.6%) already accounts for the percentage of affected products, the Rule Penetration (RP) value can be assumed to be 100%; and because compliance is by way of product reformulation, the Rule Effectiveness (RE) can also be assumed to be 100%. Thus the VOC emissions reductions from adoption of either Option 1 or 2 would be calculated as follows:

$$\text{VOC Emissions reductions} = (\text{Pre-rule EF})(\text{CE}*\text{RP}*\text{RE}) = \\ (7.012 \text{ lb/p/yr})(.146*1*1) = 1.024 \text{ lb/p/yr}$$

And: 
$$\text{Post-rule EF} = [\text{Pre-rule EF}][1-(\text{CE}*\text{RP}*\text{RE})] = \\ [7.012 \text{ lb/p/yr}][1-(0.146)(1)(1)] = 5.988 \text{ lb/p/yr}$$

If desired, we can work with the TCEQ Emissions Inventory specialists to determine an appropriate allocation of these reductions among the seven CCP categories in the Inventory.

### **Cost Estimate**

A cost of about \$800/ton of VOC reduction was estimated by CARB for their CCP “mid-term measures” (<http://www.arb.ca.gov/regact/midterm2/isor.pdf>), which are analogous to the reductions contained in the OTC Model Rule. The OTC analysis of costs (*Control Measure Development Support Analysis of Ozone Transport Commission Model Rules*, E.H. Pechan & Associates, Inc., March 31, 2001) concluded, “...because compliance costs are spread over a larger portion of sales in the OTC than in California, costs incurred by manufacturers are expected to be lower than \$800”. Furthermore, because many of the large CCP producers already have experience with reformulating to the OTC limits, the costs in Texas will also likely be less than \$800/ton.

### **Conclusion**

Option 1, then, is for Texas to adopt a rule identical to the Ozone Transport Commission (OTC) Model Rule. Option 2 is to adopt a rule similar to the OTC Model Rule, but omitting all limits that duplicate limits in the National CCP Rule. This has the virtue of reducing the number of categories with limits, along with their associated definitions and explanations. Options 1 and 2 will result in the same VOC emissions reductions. For either Option 1 or Option 2, Texas may claim a 14.6% reduction from the total 2002 baseline emissions for the CCP categories, adjusted for population. The cost of emissions reductions with either option should be less than \$800/ton.

# APPENDIX

Table 1: Consumer and Commercial Products Worksheet

A	B	C	D	E
<b>Consumer Products Category</b> (VOC content limit value expressed as weight percent VOC)	Federal U. S. EPA 63FR176	State CARB Reg	<b>Option 1</b> State OTC Recommended (2001)	<b>Option 2</b> State OTC recommended, less Nat'l rule matches
Rule adopted	Sept 98	Various		
Rule Amended	Eff. 9-98	Jun-00		
Adhesive remover, floor or wall covering		5		
Adhesive Remover, gasket or thread locking		50		
Adhesive remover, general purpose		20		
Adhesive remover, specialty		70		
Adhesives, Aerosol	75	75		
Adhesives, Mist spray		65	65	65
Adhesives, Web spray		65	65	65
Adhesives, Construction and panel	40			
Adhesives, Construction, panel and floor covering		40/15*	15	15
Adhesives, Contact	80	80	80	
Adhesives, Contact, General purpose		55		
Adhesives, Contact, Special purpose		80		
Adhesives, General purpose	10	10	10	
Adhesives, Special purpose spray adhesives, Mounting automotive engine compartment and flexible vinyl		70	70	70
Adhesives, Special purpose spray adhesives, Polystyrene foam and automotive headliner		65	65	65
Adhesives, Special purpose spray adhesives, Polyolefin and laminate repair/edgebanding		60	60	60
Adhesives, Structural waterproof	15		15	
Air fresheners, single phase	70	70/30*	30	30
Air fresheners double phase	70	70/30*	25	25

\*Shows where CARB set more than one limit in decreasing levels.

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Rule adopted	Sept 98	Various		
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Air fresheners, dual purpose and disinfectant aerosols		60		
Air fresheners, liquids/pump sprays	18	18	18	
Air fresheners, Solids/gels	3	3	3	
Anti-static products, Aerosol		80		
Anti-static product, Non-aerosol		11		
Automotive brake cleaners		55/45*	45	45
Automotive rubbing or polishing compound		17	17	17
Automotive wax, polish, sealant or glaze, Hard paste wax		45	45	45
Automotive wax, polish, sealant or glaze, Instant detailers		3	3	3
Automotive wax, polish, sealant or glaze, All other forms		15	15	15
Automotive windshield washer fluid	35		35	
Automotive windshield washer fluid: Type "A" Areas		35		
Automotive windshield washer fluid: All other Areas		10/1*		
Bathroom and tile cleaners, Aerosols	7	7	7	
Bathroom and tile cleaners, All other forms	5	5	5	
Bug and tar remover		40	40	40
Carburetor and choke cleaners	75			
Carburetor or fuel-injection air intake cleaners		75/45*	45	45
Carpet and upholstery cleaners, Aerosols		7	7	7

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Rule adopted	Sept 98	Various		
Rule Amended	Eff. 9-98	Jun-00		
Carpet and upholstery cleaners, Non-aerosols (dilutables)		0.1	0.1	0.1
Carpet and upholstery cleaners, Non-aerosols (ready to use)		3	3	3
Charcoal lighter material		See sect. 94509(h) **	See 3(e)**	See sub- division (e)**
Cooking sprays – aerosols	18	18	18	
Dusting aids, Aerosols	35	35/25*	25	25
Dusting aids, all other forms	7	7	7	
Electrical cleaner		45		
Electronic cleaner		45		
Engine degreasers	75	75/50*		
Engine degreasers, Aerosols		35	35	35
Engine degreasers, Non- aerosols		5	5	5
Fabric protectants	75	75/60*	60	60
Fabric refresher, Aerosol		15		
Fabric refresher, Non-aerosol		6		
Floor polishes/waxes, Products for flexible flooring materials	7	7	7	
Floor polishes/waxes, Products for non-resilient flooring	10	10	10	
Floor polishes/waxes, Wood floor wax	90	90	90	
Floor wax strippers, Non- aerosol		See sect. 94509(j) **	See 3(g)**	See sub- division (g)**
Footwear or leather care product, Aerosol		75		
Footwear or leather care product, Solid		55		

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\*\* These notes refer to specific and extensive requirements regarding charcoal lighter fluids and/or floor wax strippers that are not particularly relevant to the VOC content, per se. Please refer to the original Rules for details.

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Rule adopted	Sept 98	Various		
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Footwear or leather care product, All other forms		15		
Furniture maintenance products, Aerosol	25	25/17*	17	17
Furniture maintenance products, all other forms except solid or paste		7	7	7
General purpose cleaners	10			
General purpose cleaners, Aerosol		10	10	
General purpose cleaners, Non- aerosol		4	4	4
General purpose degreasers, Aerosols		50	50	50
General purpose degreasers, Non-aerosols		4	4	4
Glass cleaners, Aerosols	12	12	12	
Glass cleaners, all other forms	8	8/6/4*	4	4
Graffiti removers, Aerosol		50		
Graffiti removers, Non-aerosol		30		
Hair shines		55		
Hair sprays	80	80/55*	55	55
Hair mousses	16	16/6*	6	6
Hair styling gels	6	6	6	
Hair styling products, Aerosols and pump sprays		6		
Hair styling products, all other forms		2		
Heavy-duty hand cleaner or soap		8		
Insecticides, Crawling bug	4	40/20*		
Insecticides, Crawling bug, Aerosol		25	15	15
Insecticides, Crawling bug (all other forms)			20	20

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Rule adopted	Sept 98	Various		
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Insecticides, Flea and tick	25	25	25	
Insecticides, Flying bugs	35	35		
Insecticides, Flying bugs, Aerosol		25	25	25
Insecticides, Flying bugs, All other forms			35	35
Insecticides, Foggers	45	45	45	
Insecticides, Lawn and garden	20	20		
Insecticides, Lawn and garden, all forms			20	
Insecticides, Lawn and garden, Non-aerosols		3	3	3
Insecticides, Wasp and hornet		40	40	40
Laundry prewash, Aerosols/solids	22	22	22	
Laundry prewash, All other forms	5	5	5	
Laundry starch products	5	5	5	
Metal polishes/cleaners		30	30	30
Multi-purpose lubricant (excluding solid or semi-solid products)		50	50	50
Nail polish removers	85	85/70/0*	75	75
Non-selective terrestrial herbicide, Non-aerosols		3	3	3
Oven cleaners, Aerosols/pump	8	8	8	
Oven cleaners, Liquids	5	5	5	
Paint remover or strippers		50	50	50
Personal fragrance products, Products with <20% fragrance		80/75*		
Personal fragrance products, Products with >20% fragrance		70/65*		
Penetrants		50	50	50
Rubber and vinyl protectants, Non-aerosols		3	3	3

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Rule adopted	Sept 98	Various		
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Rubber and vinyl protectants, Aerosols		10	10	10
Sealants and caulking compounds		4	4	4
Shaving creams	5	5	5	
Silicone-based multi-purpose lubricants (excluding solid or semi-solid)		60	60	60
Spot removers, Aerosols		25	25	25
Spot removers, Non-aerosols		8	8	8
Tire sealants and inflators		20	20	20
Undercoatings, Aerosols		40	40	40
Toilet/urinal care product, Aerosol		10		
Toilet/urinal care product, Non-aerosol		3		
Underarm anti-perspirants, Aerosol	60	40HVOC/ 10MVOC	40HVOC/ 10MVOC	40HVOC/ 10MVOC
Underarm anti-perspirants, Non-aerosol			0 HVOC/ 0 MVOC	0 HVOC/ 0 MVOC
Underarm deodorants, Aerosol	20	0 HVOC/ 10 MVOC	0 HVOC/ 10 MVOC	0 HVOC/ 10 MVOC
Underarm deodorants, Non-Aerosol			0 HVOC/ 0 MVOC	0 HVOC/ 0 MVOC
Wood cleaner, Aerosol		17		
Wood cleaner, Non-aerosol		4		

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