

Control of Hazardous Air Pollutants from Mobile Sources

Summary and Analysis of Comments

Chapter 5 Portable Fuel Containers

Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

**SUMMARY AND ANALYSIS OF COMMENTS:
CHAPTER 5
PORTABLE FUEL CONTAINERS**

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5. PORTABLE FUEL CONTAINERS

What We Proposed:

The comments in this section correspond to Section VIII of the NPRM, and therefore deal with our proposed regulations for portable fuel containers (PFCs). A summary of the comments received, as well as our response to those comments, are located below. For the full text of comments summarized here, please refer to the public record for this rulemaking.

5.1 Standards

General Support for Standards

What Commenters Said:

We received several comments in strong support of our proposed gas can program.

The Portable Fuel Container Manufacturers Association (PFCMA) commented that several states have adopted California's program. They commented that they "welcome and support a national standard as proposed by the EPA" and look forward to having a national conformity to the standards. DSD International (DSD) also expressed support for the new standards.

The Alaska Department of Environmental Conservation (ADEC) commented that it agrees that the gas can provision has potential to improve air quality for those who store gasoline in or near a living space. This situation is prevalent in Alaska; particularly in village homes where residents keep fuel indoors to keep fuel from gelling in the extreme winter cold. Fuel costs in rural Alaska are the highest in the country. Thus, gas can technologies will save money over a 5 year life span by reducing volatilization and loss of product. ADEC further stated that the gas can provisions will assist their efforts to reduce exposures to benzene.

The New York Department of Environmental Conservation (NYDEC) commented that it generally approves of EPA's proposed portable fuel container standards. Volatile Organic Compound (VOC) emissions from this source category continue to be a significant concern to the NYDEC. New York adopted portable fuel container standards effective October 4, 2002 based on the then current California standards. EPA's proposed standards are mostly based on revised California standards and are a welcome improvement over existing standards.

STAPPA and ALAPCO commented that their associations agree with EPA's assessment that emissions from portable gasoline containers contribute significantly to personal exposure to mobile source air toxics and with the agency's proposal to limit gas can hydrocarbon emissions from these containers nationally, consistent with California's revised program. In their hearing testimony, STAPPA and ALAPCO commented that they are pleased that the Agency has

acknowledged that emissions from gasoline containers are significant contributors to levels of mobile source air toxics. NESCAUM also expressed support for the new standards.

The Illinois Environmental Protection Agency (IL EPA) commented that it supports the inclusion of portable gasoline containers within the MSAT proposal. IL EPA also stated that it has long considered these containers to be significant sources of emissions, and it believes that a national rule dealing with this consumer product to be the most effective and efficient way to address this source. Wisconsin Department of Natural Resources, Bureau of Air (WDNR) also commented that it is very pleased that federal fuel container standards are being proposed and that EPA has harmonized its proposal with the latest California gas can standards to a great extent.

Letters:

Alaska Department of Environmental Conservation (ADEC) OAR-2005-0036-0975
American Lung Association (ALA) OAR-2005-0036-0365 (Hearing testimony)
DSD International Inc. OAR-2005-0036-0377
Illinois Environmental Protection Agency (IL EPA) OAR-2005-0036-0830
New Jersey Department of Environmental Protection, Division of Air Quality (NJ DEP) OAR-2005-0036-0829
New York Department of Environmental Conservation (NYDEC) OAR-2005-0036-0722
NESCAUM OAR-2005-0036-0993
State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials (STAPPA/ALAPCO) OAR-2005-0036-0836
Wisconsin Department of Natural Resources, Bureau of Air (WDNR) OAR-2005-0036-0828
Portable Fuel Container Manufacturers Association (PFCMA) OAR-2005-0036-0365 (hearing testimony)
Portable Fuel Container Manufacturers Association (PFCMA), OAR-2005-0036-0819

Our Response:

We appreciate the comments in support of including PFCs in the program. We continue to believe that PFCs are a significant source of VOC emissions (including air toxics). These emissions also can significantly contribute to elevated indoor exposure. We also concur with comments that reducing emissions from PFCs will result in fuel savings. Finally, as commenters suggested, we have maintained our proposed approach to the standards and other provisions which are similar to those contained in the recently revised California program.

Support for Including Diesel and Kerosene Containers and Utility Jugs

What Commenters Said:

Several commenters supported including diesel and kerosene containers and utility jugs in the program, similar to the recently modified California Air Resources Board (CARB) standard. The NYDEC commented that it is concerned that EPA's current proposal does not

reflect the full scope of the modified CARB rules which would regulate kerosene containers and utility jugs in addition to traditional gasoline cans; CARB noted in its adoption of the revised Portable Fuel Container Standards that there is evidence of consumers using these alternative containers to circumvent the rule, so CARB expanded the scope of its rule. We did not receive any non-supportive comments on including these additional containers in the program.

Letters:

DSD International Inc. OAR-2005-0036-0377

New Jersey Department of Environmental Protection, Division of Air Quality (NJ DEP) OAR-2005-0036-0829

New York Department of Environmental Conservation (NYDEC) OAR-2005-0036-0722

NESCAUM OAR-2005-0036-0993

STAPPA/ALAPCO OAR-2005-0036-0836

Our Response:

In the final rule, we have decided to apply the new standards to diesel and kerosene containers in addition to gasoline containers. In the proposal, we specifically requested comment on applying the emissions control requirements being proposed for gasoline containers to diesel and kerosene containers. California included diesel and kerosene cans in their regulations largely due to the concern that they would be purchased as substitutes for gasoline containers.

We recognize that using uncontrolled diesel and kerosene containers as a substitute for gasoline containers would result in a forgone emissions reductions. California collected limited survey data which indicated that about 60 percent of kerosene containers were being used for gasoline. In addition, keeping gasoline in containers marked for other fuels could lead to misfueling of equipment and possible safety issues. Finally, as indicated by the comments above, not including these containers would be viewed as a gap in EPA's program, which would likely lead to states adopting or retaining their own emissions control program for PFCs. We believe this would hamper the ability of manufacturers to have a 50-state product line, as they desire. For these reasons, we agree with commenters and have included diesel and kerosene containers in the program.

Commenters also supported including utility jugs in the program. We are clarifying that utility jugs are considered to be gasoline containers under the rule and therefore are subject to the requirements of the program. Utility jugs are designed and marketed for use with gasoline, often to fuel recreational equipment such as all-terrain vehicles and personal watercraft. California, which similarly defines PFCs to include these containers, recently issued a clarification that these containers are covered by their program, after some utility jug manufacturers failed to meet the existing California requirements.

5.2 Timing

What Commenters Said:

We received several comments recommending that the container requirements take effect on January 1, 2008 rather than EPA's proposed date of January 1, 2009. NESCAUM commented that many states have already adopted California's program and that EPA should require introduction of the PFC standards beginning in 2008, rather than the proposed implementation year of 2009. IL EPA commented that the technology is currently available, so they recommend that the program begin on January 1, 2008 rather than 2009.

Letters:

Illinois Environmental Protection Agency (IL EPA) OAR-2005-0036-0830

NESCAUM OAR-2005-0036-0993

STAPPA/ALAPCO OAR-2005-0036-0836

Our Response:

We must provide lead time to manufacturers to review the final rule, finalize their product designs, and perform the EPA emissions certification process (which is likely to take about 6 months for testing, submittal to EPA, and approval). We also must provide manufacturers with time to ramp up production for a nationwide program. We believe a January 1, 2008 start date recommended by commenters would not provide enough lead time and could result in some products not being available to consumers. Therefore, we are retaining the January 1, 2009 start date as proposed.

5.3 Certification and Test Procedures

Testing With Ethanol-based Fuels

What Commenters Said:

The WDNR commented that the portable fuel containers need to be tested with ethanol-based fuels in order to ensure that the permeation and evaporation rates do not increase with the use of ethanol fuels and that the materials used in these gas cans are not adversely affected.

Letters:

Wisconsin Department of Natural Resources, Bureau of Air Management (WDNR) OAR-2005-0036-0828

Our Response:

We are finalizing, as proposed, requirements to conduct testing using gasoline containing 10 percent ethanol in order to ensure in-use emissions control and materials compatibility with ethanol.

Spout Testing

What Commenters Said:

DSD commented that 400 spout actuation cycles on a product in a short time period does not represent real-world use. Many consumers will have their containers for at least 15 to 25 years. DSD further commented that the only way this would be adequate would be if EPA required manufacturers to inscribe a date on which consumers would have to dispose of their container and there was an obligation for consumers to destroy containers after 5 years. The commenter noted that they personally have had gasoline containers last for more than 30 years. They also commented that they have run their spout through an endurance test of 5,000 complete cycles with gasoline, and that after dismantling the spout, they found no visual changes. Further, they expect their spouts to live for over 250,000 complete cycles. DSD commented that if consumers spend more money for a very good product, it will last 15 to 25 years without leakage or evaporation, and it would be a win-win situation for consumers as well as the environment.

Letters:

DSD International Inc. OAR-2005-0036-0377

Our Response:

In response to DSD comments concerning spout durability testing, we understand that 5 years is an estimate of the typical life and that some containers will be used longer than 5 years, as is indicated by the commenter's experience. However, we continue to believe that the approach we are finalizing is reasonable. This provision is meant to help ensure that spouts are made of quality materials so that the emissions performance will not deteriorate during normal use. The provision also helps to ensure that spouts will not break easily or stick open during normal use, and helps to identify these issues during the certification process prior to sale. We believe the test will further encourage the use of robust designs, consistent with the use of "best available control." In addition, this approach balances the need to ensure quality designs with the manufacturers' need to be able to conduct certification testing in a reasonable amount of time. This type of "accelerated aging" of components is a necessary part of many of EPA's mobile source emissions control programs.

The 5-year time-frame is based on available data which indicates that 5 years is the typical life of containers. We understand that spouts can be designed to function beyond the 5 year time frame. However, DSD indicates that their spouts have been tested to 5,000 actuations and are expected to last 250,000 actuations. If used daily, which would be a high rate of use for most residential applications, 5,000 actuations equates to 13.7 years of use and 250,000 actuations equates to 685 years of use. This is well beyond what we would consider to be normal product usage and life cycles, based on available data. It is not the purpose of our regulations to force manufacturers to design products that last longer than they last today in typical use.

DSD suggests that in order for this testing to be adequate, we would need to require consumers to discard their containers after 5 years. As discussed above, we disagree with the assertion that the testing being required is inadequate. In addition, we do not have the authority to require consumers to turn in products.

Third-party Testing

What Commenters Said:

The PFCMA commented that it recommends that EPA develop these standards in conjunction with an American Society of Testing and Materials (ASTM) standard. The use of an ASTM standard will allow the manufacturers to use third party testing to ensure compliance with the EPA regulations. Third party testing will provide consumers and retailers with an unbiased evaluation of the products and an assurance of compliance with the regulation as well as product safety and performance.

Letters:

Portable Fuel Container Manufacturers Association (PFCMA) OAR-2005-0036-0819

Our Response:

We are willing to work with PFCMA on incorporating the new test procedures into an ASTM standard if it helps with third party testing or product acceptance. In order to be certified, however, the test procedures and program requirements contained in EPA's final rule must be followed regardless of who conducts the testing, and results must demonstrate compliance with the new emissions standard.

5.4 Spout Requirements/Spillage Control

5.4.1 Spout Requirements

What Commenters Said:

DSD commented that it believes that too many errors were made in 1999 by California in establishing requirements for new spouts. DSD noted that if you try the end valve spout models, all of them will splash in many cases. DSD commented that some spout models can be damaged easily, and provided the following example: O-rings can be damaged during normal usage resulting of leakage and evaporation; this can create child death by inhalation, explosion, fire etc. DSD commented that all states that followed California's legislations did so by necessity, not because the legislation was sound (did so only because they did not have the budget, personnel and capacities to do otherwise).

DSD commented that it is also not convinced that the new California law removing fill height, flow rate, and spill proof spout requirements, and allowing a second opening will result in

better spouts. DSD asks “What type of spout will be accepted?” and comments that if fuel flow is too slow, consumers will remove spouts and pour fuel with no spout, or with funnels.

DSD commented that its company has developed a spout they call the angled tip spill proof spout, with the following features:

- Angled tip: the small angled tip guides the flow preventing splash and allows users to see liquid level in the refilling tank preventing over flow (users can easily reduce flow and stop manually).
- Spill proof spout: works well and will stop flowing on over 95% of applications.
- Child resistant features: prevention of accidental spillage, inhalation, explosion and fire (causing death).

DSD noted that it guarantees the angled tip spill-proof spout that it will reduce overfill by more than 95 % and evaporation by close to 100%. The commenter also noted that its spout always functioned well for over 6.5 years in testing and in the field.

DSD also commented that spouts must fit on every application, or the manufacturer must clearly indicate on what applications the spout can be used, and an evaluation must be made by EPA to prevent the possibility of incorrect usage. Spouts designed for CARB’s original program did not work on many applications. All containers and spouts must fit on engine motor tanks without using funnels, because funnels can easily create overflows. DSD commented that it has developed the spout after establishing a complete study on fuel tank geometries. The commenter did not rely on the inappropriate CARB test fixtures. DSD noted that the CD contains (which was submitted with their public comments) many pictures and drawings of different gasoline tank necks on many different types of machinery. (*The CD to which the commenter refers, is docket number OAR-2005-0036-0383, and is available at the EPA Docket Center in Washington, DC.*)

Letters:

DSD International Inc, OAR-2005-0036-0377

Our Response:

DSD comments noted several issues with spouts designed to meet the original California program. We understand that several spouts designed to meet these requirements did not work well in-use. Even when used properly, they resulted in increased spillage and consumer complaints. As noted by DSD, some also had problems with o-ring failures and spout breakage. In response to these issues, CARB redesigned their program. The spillage issues were the result of design requirements for spill-proof spouts. Manufacturers were limited in the spout designs, resulting in spout designs that did not work well with many types of equipment. CARB removed these design requirements for spouts. This will allow manufacturers to design spouts that work well in-use. In addition, CARB’s original program did not require any certification or durability demonstrations, which led to materials issues and spout breakage. CARB has addressed these issues by requiring certification and durability demonstrations.

We have taken a very similar approach to CARB's new program. We have not included any design-based requirements that would interfere with product designs, so manufacturers will be able to design spouts that work well. We are also requiring up-front certification prior to the sale of products. In addition, we are requiring durability testing to "age" components prior to testing. This includes exposing components to fuel and durability testing for spouts. These durability tests will provide incentive for robust designs in addition to helping to identify design issues. We have included requirements for a one-year warranty period for consumers so that defective containers can be returned. Finally, we can track warranty claims and in-use performance over the useful life of containers and consider these factors in the future certification of products. This type of program design (i.e., durability demonstration, testing, certification, warranty requirements, and in-use requirements) has been successfully implemented for several mobile source sectors including light-duty vehicles and nonroad equipment. Also, we also believe that the marketplace will provide manufacturers with significant incentive to design products that work well and are durable.

DSD commented that their spout design relies in some cases on providing consumers with a line of sight so they can stop the flow of fuel before overfill occurs. They provided comment that their spout works very well on a variety of equipment types to prevent spillage and that they have not received consumer complaints on their spout design. We concur that line-of-sight is an important feature of spout design which was not available with some of the spouts designed to meet CARB automatic shut-off requirements. Some spouts designed to meet CARB's automatic shut-off requirements prevented a clear view into the fuel tank. This led to spillage in cases where the automatic shut-off failed and consumers could not see into the tank to prevent spills. We are not including any automatic shut-off design requirements, consistent with CARB's new program. Not having automatic shut-off requirements will allow container manufacturers to design spouts with narrower tips, allowing consumers to view the fuel in the receiving tank. We believe this is an important feature that, when combined with an automatically closing spout mechanism, will reduce spillage. Consumers will be able to view the fuel rising in the receiving tank and use the automatic closure to stop the flow of fuel to prevent spillage. We also concur with DSD's comments that the new containers will improve safety by reducing spills and remaining sealed when not in use.

DSD comments that they "are not convinced" that CARB's new program removing fill height, flow rate, and spill-proof spout requirements, and allowing the possibility of adding a second opening, will result in better spouts. They comment that if fuel flow is too slow, consumers will remove spouts and spout fuel without the spouts, or with funnels. For all the reasons noted in the previous paragraphs, we believe that it is appropriate to provide flexibility to manufacturers in designing their spouts and containers so long as emissions standards are met. Manufacturers will need to use automatic closure mechanisms to seal containers in order to meet the new emissions standards. We believe it is appropriate to allow manufacturers flexibility in their spout designs in order for them to optimize the performance and consumer acceptability of their products. Also, this approach allows for novel designs and future improvements which could be prohibited if we were to include design requirements.

5.4.2 Spillage Control

What Commenters Said:

NESCAUM asked that EPA evaluate regulations for controlling spillage from portable containers. Anchorage commented that the use of gasoline containers for fueling equipment, and householder reports of spillage during this fueling, were factors associated with higher in-home benzene levels in studies performed in Anchorage. They also commented that they support research to develop design standards for cans which minimize spillage.

Letters:

NESCAUM OAR-2005-0036-0993

Municipality of Anchorage, Department of Health and Human Services (Anchorage) OAR-2005-0036-0976

Our Response:

We believe that the new automatically closing spouts will help reduce spillage because they provide consumers with more control when using the containers to refuel equipment. By not placing design requirements on manufacturers, manufacturers will have flexibility to design products with good line-of-sight, so consumers can see the fuel in the tank and can stop the flow of fuel using the automatic closure before overflow occurs. Also, with no design requirements, manufacturers will be able to design spouts that work on a wide array of equipment and vehicles. This is consistent with CARB's findings and approach. We currently do not know of a feasible way to require automatic shut-off that would work well on all types of equipment, due to the large variation in equipment fuel tank geometries. We believe that it is not appropriate to require automatic shut-off as part of certification when we know there will be some cases in the field where it will not work. We believe this would lead to confusion and consumer dissatisfaction, as it did in California. If new technology is developed making automatic shut-off feasible, and spillage remains a concern even with the new automatically closing containers, we could consider revising the requirements for PFCs.

5.4.3 Other

What Commenters Said:

DSD commented they believe that if good instructions are not provided for users, it will complicate usage of the product. DSD commented that procedures must be established and EPA must evaluate instructions in a way to protect the consumers. Evaluations must be made by educated personnel as per manufacturer instructions to prevent wrong interpretations.

Letters:

DSD International Inc. OAR-2005-0036-0377

Our Response:

We are requiring manufacturers to provide instructions to consumers with the new PFCs. Manufacturers must provide these instructions to EPA for review as part of the certification process, which must be completed prior to introduction into commerce. It is also in the best interest of the manufacturers to provide clear instructions in order to help maintain consumer satisfaction and minimize product returns.

5.5 Emission Reduction Estimates

What Commenters Said:

The WDNR questioned how ethanol-based fuels would affect estimates of emission reductions (e.g., ethanol-based fuels may have higher Reid vapor pressures).

The New Jersey Department of Environmental Protection (NJ DEP) noted that CARB's research and calculations show that the emission reductions are greater than the 61 percent estimated for the proposed rule.

Letters:

New Jersey Department of Environmental Protection, Division of Air Quality (NJ DEP) OAR-2005-0036-0829

Wisconsin Department of Natural Resources, Bureau of Air (WDNR) OAR-2005-0036-0828

Our Response:

We have adjusted our emissions inventory estimates for PFCs to account for ethanol in the fuel (see section 2.1 of the RIA). These adjustments are based on our estimate of how much E10 (90% gasoline, 10% ethanol mixture) will be used across the country in the future in response to EPA's new Renewable Fuels Standards. As proposed, we are also requiring containers to be tested with E10 fuel in order to ensure that container materials are compatible with E10 and emissions performance is maintained.

In response to NJ DEP's comment about our estimated 61% overall HC reduction, our nationwide emissions reduction estimates include several states that already have adopted emissions controls for PFCs. This results in national percentage reduction estimates that are lower than for states with no existing program. We estimate the overall HC reduction in states that do not have emissions control programs is about 73 percent. In addition, our inventories include factors that are not affected by the new controls, such as vapor displacement and spillage when the container is refilled at the pump. For factors that are reduced by the new standards, including evaporation, permeation and spillage, we estimate the HC reductions to be about 85 percent in states with no program.

5.6 Other

What Commenters Said:

DSD recommended educating the public on suggested motor manufacturer gas tank filling levels to prevent fuel evaporation.

DSD also commented that the new containers could be used to protect the environment from many other liquids such as insecticides, chemicals, chlorine, etc.

Letters:

DSD International Inc. OAR-2005-0036-0377

Our Response:

DSD is concerned about evaporation from equipment fuel tanks in cases where the tank is overfilled (but not to the point of overflowing and spilling). It is our understanding that engine/equipment manufacturers currently provide consumers with refueling instructions including recommended maximum fill level in the owner's manual.

We understand and appreciate that the container technology could be used for other liquids to reduce unintended releases. This rule is focused on reducing VOCs and we included PFCs due to their close relationship to mobile sources and their significant contribution to VOCs and VOC-based toxics emissions. We did not analyze or otherwise consider any other uses for the container technology (nor is it clear that section 183 authority would reach some of these applications, since section 183 directs VOC control as a means of reducing emissions of ozone precursors). Therefore, any other uses of the technology would need to be considered as part of a future rulemaking focused on the particular pollutant of concern.