

addition of fins, or the use of cooling fans, should be able to increase the heat transfer away from the duct sufficiently to allow the systems to comply with this requirement even when testing larger engines. The Agency also does not agree that a limit on the average temperature would be more appropriate. While it is true that controlling the average temperature would account for the length of time that the exhaust is exposed to the higher temperatures, it would allow the exhaust to be exposed to very high temperatures. Therefore, EPA has decided that a limit on the maximum temperature is appropriate at this time, especially given the increased complexity of determining the average temperature of the duct instead of only the maximum temperature.

Final Action

The Agency has changed its regulatory focus from specifying the temperature requirement, to allowing manufacturers to determine the most appropriate temperatures for their own individual systems. However, EPA is establishing a lower limit of 5 °F above the maximum dew point of the exhaust mixture, instead of the maximum dew point as was proposed. The previously established maximum upper temperature of 250 °F remains in effect. Although these limits provide slightly less additional flexibility than was proposed, the Agency believes that they allow for a sufficiently wide range of temperatures. This revision is not intended to imply that the Agency no longer believes that the appropriate temperature range for most systems is 220–250 °F, but rather it is intended only to allow the manufacturers more flexibility. Manufacturers must demonstrate that their systems will prevent condensation from occurring, and will be allowed to do so using engineering analyses, such as dew point data from testing under some worst case conditions (e.g., with a large engine during a period of high ambient humidity).

EPA is also revising the regulations to allow heavy-duty engine manufacturers to use longer unheated ducts to transfer the exhaust from the engine to the dilution tunnel. The Agency will allow transfer ducts up to 32 feet in length, but will require that the maximum duct temperature not exceed 315 °C. EPA recommends that steps be taken to minimize the temperature increase in the transfer duct to reduce the possibility of the methanol and formaldehyde reacting on the walls of the transfer duct.

Today's rule also specifically allows heating and dehumidifying the dilution

air, with some minor restrictions. Allowing such pretreatment of the dilution air may help to eliminate some of the condensation problems associated with methanol-fueled vehicles, and may allow the use of lower system temperatures as discussed above. The restrictions limit the maximum temperature and affect how the dilution air flow rate is calculated.

5. CVS and SHED Calibration and Retention Tests

Proposal

The regulations promulgated in 1989 required that, in addition to tests previously required for propane, tests also be performed to ensure that there are no losses of methanol in the CVS or SHED. The regulations specified injecting a known quantity of methanol or propane into the CVS or SHED, collecting a sample and comparing the amount calculated from the measured value to the amount injected. The regulations required, for methanol, that the measured value be within two percent of injected value. However, actual testing experience by both EPA and industry has shown that consistently obtaining results within two percent can be problematic given the current state of development of methanol test procedures. Therefore, EPA proposed to establish wider limits (± 6 percent) for methanol recoveries during the calendar years 1992–1995. For SHED testing, these wider limits were to apply to both agreement between the amount injected and the initial measured amounts (recovery tests) and between the initial and final (after four hours) measured amounts (retention tests). EPA requested comments regarding whether it was sufficient to widen the tolerances through 1995, or if a longer period were required.

The Agency also proposed to require the use of a correction factor that would be derived from the four-hour retention test. This was to be a means of accounting for potential losses without increasing the testing burden.

Public Comments

AAMA supported permanently widening the tolerances for CVS and SHED recovery and retention tests for methanol to ± 6 percent. They stated in their comments that they “do not believe that a 2 percent limit will be achievable in the near future.” EPA recognizes that, at this time, complying with a 2 percent tolerance is not possible without an unreasonable test burden. This is due in large part to the imprecision of the GC analysis, which

AAMA estimated at ± 5 percent. This imprecision could be reduced by performing multiple GC analyses, although this would lead to a significant increase in costs. When the vehicles are tested for compliance with a carbon equivalence-based standard, however, the accuracy of the methanol measurement becomes less important. Since the test procedure determines the emissions of non-oxygenated HC by subtracting the methanol FID response from the total FID response, an undermeasurement of methanol will lead to an overmeasurement of HC, and vice versa. Thus the net impact of the accuracy of the methanol measurement on the accuracy of the calculated THCE emission rate is reduced. However, EPA continues to believe that the 2 percent tolerance will ultimately be achievable, and that this level of accuracy is appropriate. Therefore, the Agency will maintain this specification, but will allow manufacturers to request a waiver from the required 2 percent tolerance after 1995, as described below.

AAMA opposed the use of correction factors for SHED testing. They argued that correction factors are not necessary, and would be “inconsistent with previous test requirements.” EPA recognizes AAMA's concerns. More importantly, however, the Agency believes that the potential for losses can be addressed under the waiver provisions being established today (see Final Action section below). Therefore, EPA is not finalizing the proposed correction factor requirements.

Final Action

EPA is establishing a wider tolerance of ± 6 percent for methanol recovery and retention during the calendar years 1992–1995, as was proposed. After 1995, the Agency will allow manufacturers to request a waiver from the required tolerance (e.g., ± 2 percent), provided that:

(1) The Administrator determines that compliance with the specified tolerance is not practically feasible, and

(2) The manufacturer makes information available to the Administrator which indicates that the calibration tests and their results are consistent with good laboratory practice, and that the results are consistent with the results of calibration testing conducted by the Administrator, and

(3) The manufacturer complies with higher tolerances (up to ± 6 percent for recoveries and ± 8 for retention), as specified by the Administrator.

In deciding whether to grant the waiver, and what the tolerances should be under the waiver, EPA will be