non-ethanol containing gasolines downstream of the refinery (e.g., in vehicle fuel tanks) can result in an additional vapor pressure increase across the in-use pool of gasoline. This RVP increase caused by fuel mixing is what is referred to as the commingling effect.

EPA's analysis of the commingling effect shows that commingling can significantly increase VOC emissions in some instances. The effect increases as ethanol's share of the reformulated gasoline oxygenate market increases, up to a maximum ethanol market share of approximately 50%. However, after examination of the commingling analysis, EPA believes that there may be a commingling benefit associated with today's proposal. Due to the non-linear nature of the RVP boost curve for ethanol, the commingling impact should be less with the use of higher concentrations of ethanol (e.g., 10 vol%) ethanol, roughly 4.0 wt% oxygen) in fewer gallons of gasoline than would occur with the use of a lower concentration (e.g., 7.8 vol% ethanol, roughly 2.7 wt% oxygen) added to more gallons of gasoline. Thus, from a national perspective there may be a slight commingling benefit associated with today's rule.

To the extent today's proposal would cause a slight increase in the amount of ethanol used throughout the reformulated gasoline program, or cause a shift in ethanol use from states which maintain the current cap to states which do not restrict oxygen content, or cause a shift from conventional gasoline to reformulated gasoline, comminglingrelated VOC emissions will also be shifted. The overall impact of commingling on the states in which ethanol use increases would depend on the magnitude of the increase. If total ethanol volume in a state remains the same and the use of 10 vol% ethanol blends increases, then there will be a beneficial effect as a result of commingling because of the reduced number of ethanol-containing gallons of reformulated gasoline available in the marketplace. Any comments or additional data on this issue are requested.

C. Toxics Emissions Impact

The Complex Model indicates that some oxygenates, such as ethanol, provide smaller air toxic benefits than others (e.g., MTBE) when used at identical oxygen levels. However, today's proposal does not alter the toxics performance standards under the Simple Model. Hence, refiners will still be required to comply with the toxics standards regardless of the type of oxygenate or volume of oxygen used.

D. Impacts of Dilution Under the Simple Model

As discussed above in section IV, under the Simple Model there is no provision actually requiring the expected impact of dilution on the other gasoline components (fuel parameters or fuel qualities). The concerns which led EPA to retain the oxygen cap of 2.7 wt% in the final rule for reformulated gasoline centered not around the impact of oxygen itself on NO_X, but on the impact of other fuel parameters, which are impacted by the addition of oxygenates, on NO_X. This concern prompted EPA to retain the cap on oxygen, thus limiting the volumes of oxygenates used in reformulated gasoline, in the final rule.

If the refiner makes no other changes to the gasoline production process, the addition of an oxygenate will dilute the concentration of other fuel components. While most dilution impacts are beneficial, some may be detrimental (e.g., the E200 effect on NO_x previously discussed). Because NO_X emissions are only affected by dilution effects (NO_X emissions do not increase solely due to an oxygen content change) and because it is highly unlikely that an increase in E200 will occur absent the other dilution effects, NO_X emissions are not expected to increase with increased oxygenate volumes (which accompany higher oxygen contents). Furthermore, EPA believes that while in any given gallon the theoretical combination of fuel effects may be detrimental, it is highly unlikely that this would be the case, especially when the average of all reformulated gasoline sold in a given area is considered. As a result, EPA now believes that the previous concern that uncontrolled variations in the other fuel parameters could increase NO_X emissions is too unlikely to occur to warrant continuing the cap on oxygen content. Increasing the cap from 2.7% to a higher level should not increase in any way the likelihood that refiners will certify batches of reformulated gasoline that have increased NO_X levels over the baseline gasoline.

However, from an overall perspective, there may be a slight shift toward ethanol from MTBE in states which do not limit the higher oxygen content proposed today. The average oxygen level within that state should theoretically remain at minimum average 2.1 wt% as a result of the oxygen averaging and trading provisions of the reformulated gasoline program. Hence, it is reasonable to assume that if more ethanol is used to produce higher oxygen content blends (e.g., 10 vol% ethanol yielding roughly 3.5–4.0 wt% oxygen), the MTBE-containing reformulated gasoline used in that area would contain somewhat less than 2.1 wt% oxygen. Since ethanol has a higher oxygen content per volume of oxygenate than MTBE, it takes less ethanol than MTBE to achieve the same oxygen content. (For example, to create an reformulated gasoline containing 2.7 wt% oxygen, it takes about 7.8 volume percent (vol%) ethanol but almost 15 vol% MTBE.) Even when ethanol is blended at 10 vol% levels (roughly 3.5-4.0 wt% oxygen), it displaces less gasoline than MTBE blended to reach $\overline{2}.7$ wt%. As a result, a shift towards ethanol would result in a lower volume of total oxygenates blended in an reformulated gasoline area, and potentially an overall reduction in the amount of dilution that would occur. While the Complex Model shows that less NO_X reductions could occur with less dilution from an increased amount of ethanol in the reformulated gasoline oxygenate pool, the change in NO_X reductions is very small, no more than 1 percent.

EPA expects, for a number of reasons, that any air quality effects resulting from such differences as a result of a change in the oxygen cap would be minimal. First of all, any increase in ethanol use resulting from today's proposal is expected to be small. Second, the change in emissions due to the differences in dilution between ethanol and MTBE predicted by the Complex Model is fairly small. Third, reformulated gasoline producers are required under the Simple Model not to exceed their 1990 baseline levels of sulfur, T90, and olefins. These caps limit the impact of any air quality effects related to differences in dilution between oxygenates. The Agency requests comments on the issue of the potential environmental impacts resulting from changes in dilution as a result of today's proposal.

E. Non-Air Quality Impacts

The Agency is concerned about other environmental impacts of an action that might alter the relative amounts of oxygenates used under the reformulated gasoline program. In response to the proposed renewable oxygenate requirement (58 FR 68343), EPA received many comments identifying some of the negative environmental impacts which allegedly could occur from an increase in production of ethanol. Most of these comments focused on the water and soil quality implications of increased corn farming for ethanol production. Given that EPA