future profits if acetone is no longer regarded as a VOC and, therefore, no longer restricted in use.

Response: The EPA recognizes that some companies which have developed low solvent products may find that their products face increased competition when acetone is deregulated. It is true that companies which have spent funds in developing these products may not gain the expected financial return if these products are not able to compete successfully against acetone. However, these products are not prohibited by this action and may still compete in the market place. The EPA does not think it is good public policy to continue to restrict acetone use as an ozone precursor when current evidence indicates that it is of negligible photochemically reactivity. Acetone is a useful substance and a wide cross section of American industry stands to benefit from removal of restrictions on its use.

Comment: Some commenters assert that the scientific evidence presented in the docket for this action does not support the contention that acetone is of comparable reactivity to ethane, which is already regarded as negligibly photochemically reactive. One commenter, for example, cited a paper written by Dr. William P. L. Carter, who is the author of much of the background material in the docket. The July 1994 paper entitled ''Development of Ozone Reactivity Scales for Volatile Organic Compounds'' was published in the Journal of the Air and Waste Management Association. Table III in this paper gives a list of organic compounds ranked by a maximum incremental reactivity (MIR) scale. This scale shows that ethane has a MIR value of 0.25 while acetone has a value of 0.56. These values are expressed in units of grams of ozone per gram of test compound added. Since the higher value would indicate higher ozone formation potential, the commenter concluded that this is evidence that acetone is more reactive than ethane.

Response: The MIR values of 0.25 for ethane and 0.56 for acetone are also given in Table 4 in ''An Experimental and Modeling Study of the Photochemical Ozone Reactivity of Acetone'' by Dr. Carter, et al., which is included in the docket for this action. This journal article explains that the MIR scale is based on a scenario derived by adjusting the nitrogen oxide (NO_X) emissions in a base case scenario to yield the highest incremental reactivity of the base reactive organic gas (ROG) mixture. Ozone yield for a VOC depends significantly on the conditions within the polluted atmosphere in which it reacts, such as VOC to NO_X ratio, VOC composition, and sunlight intensity. The MIR value presented in these studies relies on a set of conditions adjusted for maximum ozone incremental reactivity.

In addition to calculating this value, Dr. Carter also calculated values for conditions actually occurring in 39 cities in the United States. His calculations showed that the reactivity of acetone, relative to that of ethane, varied widely with conditions, ranging from substantially higher to substantially lower than that of ethane, although the 39-city study indicated that on average acetone is less reactive on a weight basis that ethane for conditions found in these cities. In the face of such variation, Dr. Carter reasonably concluded that his results did not support a higher acetone reactivity relative to that of ethane. After examining these data, EPA continues to believe that, based on currently existing evidence, a ''negligibly reactive'' rating for acetone is justified.

Comment: One commenter stated that general principles of organic photochemistry support the conclusion that acetone will be more reactive that ethane. Two commenters point out that acetone undergoes photolysis to form free radicals which would cause an increase in photochemical reactivity of acetone as compared to ethane.

Response: It has been recognized that acetone, unlike ethane, undergoes photodecomposition, or photolysis, in the atmosphere to form radicals which tend to cause increased rates of ozone formation. Total reactivity of acetone, considering both reactivity rate constant with hydroxyl radicals and photolysis, was the subject of a study (Carter, W.P.L., et al., ''An Experimental and Modeling Study of the Photochemical Ozone Reactivity of Acetone,'' December 10, 1993) which is included in the docket for this action. The findings of this report take into account the potential for acetone to undergo photolysis, and this information has been included in comparisons of acetone with ethane. The 39-city study which is included in this report shows that acetone reactivity is on average lower than that of ethane for the conditions in these cities. This study indicates that situations represented by conditions typically found in these cities do not support the contentions made in the comments. Therefore, although acetone may undergo photolysis, in these conditions, its reactivity is not dissimilar to ethane's.

Comment: One commenter stated that some experimental values reported in ''An Experimental and Modeling Study of the Photochemical Ozone Reactivity of Acetone'' indicate that the incremental photochemical reactivity of acetone is up to 10 times that of ethane.

Response: The referenced data are in Table 2 of that report, ''Summary of Conditions and Results of the Incremental Reactivity and Direct Reactivity Comparison Experiments,'' in the column labeled IR for incremental reactivity. One value of 0.059 is given for acetone and a value of 0.006 for ethane. The units of these values are moles of ozone per mole of test compound added. A mole of acetone weighs almost twice as much as a mole of ethane. If the results are reported on a basis of grams of ozone per gram of test compound added, the difference between the two values is about half the difference indicated above. The EPA has chosen to use the weight basis rather than a mole basis for comparing results since emissions are regulated on a weight basis.

In addition, the report adds that it should be emphasized that since incremental reactivities are dependent on environmental conditions and since it is not practical to duplicate in the chamber all the environmental factors which might affect magnitudes of incremental reactivities, incremental reactivities measured in chamber experiments should not be assumed to be quantitatively the same as incremental reactivities in the atmosphere. According to the report, the latter can only be estimated using computer airshed model calculations. The 39-city study is such a study which predicts that acetone will be less reactive on a weight basis than ethane for most conditions found in these cities. Averages from this 39-city study give a reactivity value (in grams of ozone/gram of VOC) for ethane of 0.166 and for acetone of 0.126. The value for a typical urban mix of reactive organic gases is 1.13. These values are reported in Table 5 of the report.

Comment: One commenter stated that the photochemical reactivity of acetone was as much as 48 percent of the photochemical reactivity of other VOC.

Response: The commenter reported that he derived the value based on calculations he performed using the data in Table 2 of the report referred to in the previous comment. He did not submit the calculation, however. The EPA calculations using these data have not yielded as high a value. It should be noted that, as reported before, the data in Table 2 are in moles of ozone per mole of test compound. The report also compares acetone reactivity with the base ROG mixture on a gram of ozone per gram of test compound basis. Page