

naturally. It is emitted from various evergreen trees and has been identified as a natural component of several foods.

We concur with the petition that inhalation is the principal route of non-occupational exposures to MEK emissions. The absorption of MEK through the skin at the estimated ambient levels is likely to be insignificant compared to inhalation. In addition, its relatively rapid volatilization and rapid biodegradation in water indicates that humans are unlikely to be exposed to significant amounts of MEK in drinking water.

To determine the adequacy of the petition's exposure assessment, we first evaluated the emissions inventory and the petition's source characterization. We then evaluated the dispersion modeling in terms of the methods and application of the models.

To evaluate the emissions inventory, we compared the petition's list of MEK emission sources to EPA's 1996 National Toxics Inventory (NTI). We determined that the petition correctly identified the largest sources of MEK emissions, and that the quantity of emissions for each identified source was comparable to the NTI. There was an overall lack of agreement, however, between the total count of MEK emission sources listed in the NTI and in the petition's inventory. We determined that this resulted from a general weakness in the ability of the petitioner's approach to identify facilities emitting less than 25 tpy of MEK. However, after reviewing both the inventory and the petitioner's tiered modeling approach, we determined that these discrepancies are not material to the subsequent exposure analysis, and agreed that we would consider the characterization of the maximum concentrations from the medium and large sources to account for the reasonable worst-case exposure scenario. Therefore, we have concluded that the petitioner's emissions inventory provides an adequate basis for the dispersion modeling and exposure assessment presented in the petition.

To evaluate the petition's characterization of sources (e.g., stack heights, plume rise, distance to the nearest fence line and meteorology), we considered the petitioner's use of the TRI database and acquired a subset of the parameters the petitioner used in the more site-specific (tier 3) assessments. We determined that the petitioner appropriately used TRI as a basis for characterizing sources. We examined the source parameters the petitioner used in the tier 3 analyses and determined, based on our engineering knowledge of the types of sources

included in the analyses, that the parameters are reasonable.

Our evaluation of the petition's dispersion modeling approach initially focused on the petitioner's use of the EPA models in the tiered analyses. We evaluated the petition's modeling approach for both annual average concentrations and for 24-hour concentrations. Our evaluation verified that the petitioner applied appropriate EPA guidelines in the modeling effort, and that the data inputs used in the models are appropriately conservative.

We first evaluated the petition's modeling of long-term averages. To develop a more detailed evaluation of the petition's dispersion analyses, we acquired from the petitioner electronic copies of the raw data inputs and the model runs for seven of the largest emissions sources. This represents a subset of the sources which emit over 200 tpy. The EPA selected these sources for scrutiny from the tier 3 analysis set which the petitioner modeled using EPA's ISCST3 model. Based on a detailed review of the data inputs and the ISCST3 model runs, we confirmed that a conservative estimate (i.e., more likely to be over predicted than under predicted) of the highest maximum annual average concentration of MEK for all the facilities modeled is approximately 1.2 mg/m³. We agree with the petitioner's assertion that this concentration occurred at the entrance to an industrial facility adjacent to a relatively large MEK emission source in an industrial park. The maximum annual average concentration for the remaining emissions sources were all less than 0.9 mg/m³.

We confirmed that for this subset of emission sources, the maximum predicted annual concentration of MEK declined below 0.5 mg/m³ within 175 meters of the facility fence lines. Therefore, we concur with the petitioner that the predicted concentrations decline rapidly as the distance from the emission source increases. That is, within the relatively short distance of 175 meters, the maximum annual concentrations of MEK are likely to be at least a factor of two lower than the maximum predicted ISCST3 values for all sources in this subset.

We evaluated the petitioner's modeling analyses for sources emitting less than 200 tpy of MEK. The petitioner used a tier 2 analysis to predict maximum annual average concentrations for a series of worst-case emission scenarios for this subset of sources. After a detailed evaluation of the model parameters and input data, we determined that the petitioner's analyses of these emission sources also

followed the appropriate EPA dispersion model guidelines.

Based on our review, we have concluded that the predicted maximum annual average concentration for those sources emitting less than 200 tpy of MEK is less than 0.7 mg/m³. These predicted concentration levels are conservative estimates which are also expected to decline rapidly as distance from the facility increases.

During the review, we questioned the petitioner's designation of "large emission sources" as those sources emitting more than 200 tpy of MEK. We requested that they conduct a more detailed analysis on sources emitting less than 200 tpy. We suggested that the petitioner use a minimum emission rate that could theoretically result in an exceedance of the petition's own specified health criterion of 3.3 mg/m³. The petitioner would then assess the impact of this new "threshold of significance" on the number and identity of sources in the "large emission sources" category and, if appropriate, reassess the impacts of this change on concentrations of ambient MEK.

To accomplish this, the petitioner used very conservative assumptions of stack height, plume rise, meteorology, and distance to fence line to define a worst-case facility. Using this worst-case emission scenario coupled with EPA's SCREEN3 model, the petitioner demonstrated that sources emitting less than 90 tpy could not reasonably be expected to exceed the petition's proposed criterion of 3.3 mg/m³. The petitioner then updated the emissions inventory using the 1996 TRI to identify those sources emitting between 90 and 200 tpy of MEK.

The petitioner then revised the "threshold of significance" to reflect the use of the 1992 IRIS RfC of 1 mg/m³ as a decision criterion. To derive the new threshold, the petitioner decreased some of the conservatism in the tier 1 parameters and remodeled a new worst-case scenario. The petitioner determined that with this new set of assumptions, emissions greater than 145 tpy would be necessary to exceed a 1 mg/m³ criterion. However, rather than restrict the new analysis to only those sources emitting between 145 and 200 tpy, the petitioner chose to evaluate the larger range of emission sources. Consequently, the revised dispersion modeling analysis focused on those sources emitting between 90 and 200 tpy of MEK. The petitioner submitted that analysis to EPA as an addendum to the original petition.

The petitioner's approach in the revised modeling analysis was to limit