

conduction). Also, the study did not specify the experimental procedures that it applied, including whether the subjects were tested at the same location and time as the exposed workers, or whether the examiners were aware of the exposure status of the subjects at the time of testing. Importantly, the study did not address the control of temperature, a critical factor in nerve conduction studies, and the reported pattern of nerve conduction results is not entirely consistent with the reported peripheral neuropathy.

Of primary importance in EPA's review was the consideration of the extent to which the study's findings are supported by the existing scientific literature. In this regard, we conclude that the study cited in the comment is inconsistent with a large volume of high quality neurotoxicological scientific evidence. In fact, animal models of the reported condition are excellent predictors of human neuropathy. MEK has been well tested for the reported condition and is convincingly negative.

Comment. The EPA received a comment expressing concern over MEK's role in potentiating the effect of other substances. The comment stated that given the "ubiquitous" ambient concentration of certain pollutants and general lack of understanding of the mechanisms of potentiation, it would be inappropriate for the Agency to allow an increase in ambient concentrations of MEK.

Response. As described in this preamble, MEK has been shown to potentiate neurotoxicity of other solvents in experiments with laboratory animals when both are present in high concentrations. The lower limits of MEK exposure that may result in potentiation with other solvents have not been well established in animals, and the potential of MEK in this regard remains a concern, although a minor one.

H. Other Issues

Since the receipt of the petition, MEK has been measured in the blood of the general population as reported from the National Health and Nutrition Examination Survey (NHANES) database. The NHANES database reports median blood levels of 5.4 parts per billion (ppb) and levels at the 95th percentile of 16.9 ppb. The EPA estimates that it would take continuous exposures at ambient concentrations near 1 mg/m³ of MEK to result in the reported median blood level.

However, based on the available information, EPA believes it is reasonable to expect that the reported blood levels did not result from an air exposure to MEK at the prospective RfC.

Primarily, this is because concentrations of MEK found in the immediate vicinity of large MEK emissions sources are below the RfC, and as previously stated in today's action, typical ambient background concentrations of MEK are several orders of magnitude lower than the prospective RfC.

In addition, although MEK has been shown in animal studies to be readily absorbed, it is also rapidly metabolized, mostly in the liver. The excretion half-life of MEK is quite short, on the order of minutes to hours (Liira *et al.*, 1988), and is nearly quantitatively complete in both animals and in humans. The data indicate that internal doses following experimental air exposures to MEK consist mostly of metabolites that are cleared quickly. Therefore, tissue and blood levels of MEK would become minimal shortly after termination of experimental air exposures due to kinetics and solubility of MEK. Likewise, for those persons exposed to relatively high concentrations of MEK, blood levels would fall relatively quickly to pre-exposure levels following the termination of exposure.

Consequently, it is the judgment of scientists from both the Centers for Disease Control (CDC), who compiled the NHANES database, and EPA that the data are not representative of atmospheric exposure of national proportions. These authors also state that blood levels of both MEK and acetone are highly variable as a result of their physiologic metabolism and do not reflect environmental exposures very well (Churchill *et al.*, 2001). Thus, it is more likely that the reported MEK in human blood is a by-product of normal human metabolism.

Another issue we addressed in today's action is that of MEK as an ozone precursor. The EPA recognizes that MEK is an ozone precursor, but after considering this issue, we determined that it is inappropriate to include a substance on the HAP list under CAA section 112(b) due entirely to its tendency to form ozone. Section 112(b) provides that no air pollutant which is listed under CAA section 108(a), such as ozone, may be added to the HAP list. It further provides that a pollutant that is a precursor to a pollutant listed under section 108(a), such as MEK, may not be included on the HAP list unless it independently meets the HAP list criteria. As explained in today's action, we believe that the petitioner has demonstrated that MEK does not independently meet the criteria for listing as a HAP under section 112 of the CAA.

The Agency has previously determined that MEK could not be

removed from the list of pollutants under section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA) (63 FR 15195). However, the EPCRA list serves a very different purpose than the list of HAP under section 112(b) of the CAA. Specifically, the EPCRA—which is intended to provide information regarding the emissions of air pollutants generally—deals collectively with HAP, VOC, and other air and water pollutants under section 313 by providing for the listing of any pollutant that may reasonably be anticipated to cause adverse effects to human health or the environment. The CAA, on the other hand, establishes requirements for reducing the emissions of air pollutants and deals separately with HAP (which are to be listed and regulated under section 112) and criteria air pollutants (which are to be listed under section 108 and regulated under various other sections of the CAA). The EPA is required to regulate precursors to criteria air pollutants, such as VOC, for their contributions to ambient levels of criteria pollutants under statutory provisions that do not apply to HAP. This dual structure would lose its significance if EPA were to include substances on the HAP list solely as a result of their contribution to concentrations of criteria air pollutants.

The decision to grant the petition and issue a proposed rule to delist MEK removes MEK from regulatory consideration under section 112(d) of the CAA. Section 112 requires the development of maximum achievable control technology (MACT) standards to reduce routine emissions of listed toxic air pollutants. The proposed rule does not affect MEK's status under the CAA as a VOC, and EPA will continue to regulate it as such. In ozone nonattainment areas, sources of MEK emissions must continue to meet applicable standards identified in State implementation plans (SIP).

In addition, the proposed rule does not impact any MEK reporting requirements under the TRI (EPCRA, section 313). Recognizing that MEK is one of the largest sources listed in the TRI, the Agency will continue to track emissions of MEK. Further, under the CAA, the Agency has the option to add MEK back onto the HAP list and will do so should a need arise.

I. Discussion and Conclusion

Uncertainty is an inherent part of risk assessment. It arises because risk assessment is a complex process, requiring the integration of multiple factors. In the analysis, uncertainty arises for the following reasons. The