

## Substituted Diphenylamines Category – Comments of Environmental Defense

(Submitted via Internet 5/15/02)

Environmental Defense appreciates this opportunity to submit comments on the robust summary/test plan for the Substituted Diphenylamines Category.

In its Test Plan for the substituted diphenylamine category, the Rubber and Plastic Additives (RAPA) Panel of the American Chemical Council proposes that a number of antioxidants based on diphenylamine be considered as a Category. Chemicals in the proposed category are formed by reductive alkylation of the base molecule, diphenylamine, with various olefins or combinations of olefins. Both the starting materials and their reaction products appear to have minimal toxicity. The resulting reaction products are excellent antioxidants, but are otherwise appear relatively chemically and biologically inert.

RAPA provides a clear, well-organized case for considering these chemicals as a category. Because chemicals in this group share most structural, chemical and biological properties, we agree that they should be considered together as a category. Of the chemicals addressed in this Test Plan/Robust Summary, data describing the biological properties of diphenylamine are most complete. However, diphenylamine is not a member of the category and is considered only for bridging purposes. Data describing most other members of the category are minimal. Nevertheless, we agree that available data indicate an apparent lack of biological activity of all members of the category tested. Most notably the base chemical and the various substituted diphenylamines tested have low toxicity and have been negative in mutagenicity tests. Further, all chemicals in the proposed category rapidly degrade in light and thus are unlikely to persist in the environment. Thus, we believe that available data and bridged data provide a sufficient basis for establishing these chemicals as a category for HPV purposes. We have only the following minor comments.

1. In a couple of places in the Test Plan, the subject chemicals are referred to as diamines. Since they contain only a single amine group and two phenyl groups, it would appear that they would more appropriately be referred to as diphenylamines.
2. Another minor point is our observation that some of the data in tables presented in the Test Plan are not consistent with the units given in the column headings. See for example, Table 2 "Water Solubility" and Table 3 "Photodegradation."
3. In the Test Plan the low toxicity of these compounds is attributed to their lack of water solubility. We believe that this is not the case as numerous "water insoluble" chemicals, e.g., 2,3,7,8-tetrachlorodioxin, are quite toxic. Rather, the low toxicity of chemicals in this category should more appropriately be attributed to the fact that they are excellent antioxidants that do not degrade to toxic compounds. That is, they are likely to degrade on contact with biological material and other media containing oxygen and their breakdown products are not toxic.

Thank you for this opportunity to comment.

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