

Usually, both H's are very reactive. So OMH-1 delivers high yields with a wide variety of functional groups.

- The C₂H₅ groups do not appear to participate in reactions.

Letters

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on one statement of this editorial, namely "that American corporations, via licensing agreements, foreign plant construction and other multinational arrangements have given away . . . this advanced technology and with it, the jobs it created."

I do not argue the point that licensing agreements result in advanced technology and contribute to improved productivity. However, they constitute only one factor in the struggle for competitive position. In the case of many products this factor hardly exists. It certainly does not explain why we used so many Christmas cards that were printed abroad, why the market in quality photographic equipment is dominated by Japanese products and why, until the President's price- and wage-freeze policy (including the surtax), foreign automobiles gained ever increasing acceptance.

One of the basic American industries that has been hurt severely in recent years is the steel industry. Since many grades of steel can now be imported more cheaply than they can be produced in the U.S.A., the industry has had to put up with imports of about one sixth of the total U.S. market.

The deterioration in the competitive position of the steel industry has taken place in spite of licensing agreements granted by European to U.S. firms. As it happens, many of the recent advances in steel technology have come from Europe, among them the basic oxygen process, the fairly new Q-BOP process, and continuous casting. They have all contributed to a rise in productivity. Their effect, however, has not been enough to overcome rise in labor costs.

There can be no question that in recent years union demands have contributed to price increases which, in turn, have resulted in rising imports and loss of jobs for American workers.

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SIRS: . . . [Mr. Brenner] blames our willingness to permit the continued unrestricted technology drain through multinational corporation licenses to give away that American technology created at public expense for the 5 or 10% profit represented by the license fee. This, as the return on invested capital abroad results in unemployment plus balance of payments problems . . . The foreign producer has not had to invest in the education, research and development, or the wages which support the American system.

That 5 or 10% profit creation, a genius of the mind, is attained not only through

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The menace of Pb in the air

SIRS: There have been several recent articles regarding the environmental hazard posed by lead. Our laboratory group has worked in this area for a number of years and would like to bring up three points which do not seem adequately discussed.

The first of these points concerns the unit used in reporting lead concentrations. This concentration is usually expressed in $\mu\text{g}/\text{m}^3$ of air. This unit does not tell the whole story, and fails to ex-

press adequately to the general reader the astonishingly large amount of lead present in the atmospheric dirt in our large metropolitan areas. A more appropriate way of expressing the concentration is in terms of per cent lead in the atmospheric fallout, that is, the dirt that actually is breathed or that "salts" your food supply and dirties your curtains and household appliances. In a large metropolitan area, the lead concentrations may be as high as 6 or more $\mu\text{g}/\text{m}^3$, but the total particulate may be only 200 $\mu\text{g}/\text{m}^3$. Therefore, the dust which settles out would contain somewhere between 3 and 6% lead by weight. Since toxic materials are usually expressed in p.p.m., this value would be between 30,000 and 60,000 p.p.m. This is far in excess of any known permissible standard for lead. In fact, the Chicago Metropolitan Sanitary District permits only 0.5 p.p.m. to enter its sewage system.

The second of these points concerns the perhaps simplistic hypothesis of lead poisoning being caused in children as a result of eating paint and plaster. This may be one possible source. However, cases of lead poisoning are being reported among children who are unlikely to be exposed to chipped paint and plaster. This suggests that we are overlooking other sources of lead poisoning, for example, the atmospheric lead.

The third of these points concerns the matter of responsibility. The question of lead toxicity is under hot debate. However, the fact remains that we have virtually saturated our large metropolitan areas with lead fallout, principally from automotive exhaust. This fact raises a serious question of scientific responsibility. Every chemist is taught from his earliest courses that lead salts are toxic. Every chemist is aware that tetraethyllead is added to gasoline. Every chemist knows that lead in some form is emitted in automotive exhaust.

Why then have we allowed this situation to develop? Whose moral responsibility was it to make sure that we were not doing irrevocable damage to the environment? This is a question posed to every chemist, not just the petroleum and automotive industries. It may instead turn out that lead is not as dangerous as some fear. If this is the case, we will have been lucky. Wouldn't it have been more pleasant to report that as a profession we had the social responsibility to thoroughly investigate the effects of lead on the quality of our life before we added one or two grams of lead to every gallon of our gasoline?

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