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# Reply

We are very pleased to hear that the complete mineralization to $CO_2$ and HCl of chlorobenzene was achieved via heterogeneous photocatalysis (*1*). The likely differences between Matthews results and ours (*2*) may well be caused by $TiO_2$ differences as Matthews suggests, or because we worked at fairly low dissolved oxygen levels where partial rather than total oxidation may have been unknowingly favored.

The potential for heterogeneous photocatalysis in water purification and decontamination was greatly expanded by the demonstration of Barbeni *et al.* (*3*) that chlorophenol could be completely mineralized photocatalytically with $TiO_2$, as I noted earlier (*4*). Very recently, Pelizzetti *et al.* (*5, 6*) extended this potential by demonstrating photocatalytic mineralization of 4-chlorophenol, 3,4-dichlorophenol, 2,4,5-trichlorophenol, pentachlorophenol, sodium pentachlorophenate, chlorobenzene, 1,2,4-trichlorobenzene, 2,4,5-trichlorophenoxyacetic acid, 4,4′-dichlorodiphenyl trichloroethane, 3,3′-dichlorobiphenyl, and 2,7-dichlorodibenzo-*p*-dioxin.

Thus heterogeneous photocatalysis has demonstrated cleanly the total destruction of the most common halocarbon contaminants of water, including haloalkanes and haloalkenes (*4*), and haloaromatics (*1, 3, 5, 6*). Now the challenge will be to demonstrate economic, as well as technical, feasibility.

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