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SOURCES OF DIOXINS IN THE ENVIRONMENT: A STUDY OF
PCDDs AND PCDFs IN ANCIENT, FROZEN ESKIMO TISSUE

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ABSTRACT

According to the trace chemistries of fire theory, small amounts of polychlorodibenzodioxins (PCDDs), including the most toxic 2,3,7,8-tetrachlorodibenzodioxin, and polychlorodibenzofurans (PCDFs) are generated from combustion of natural products. The implication is that PCDDs and PCDFs have existed in nature prior to the large scale manufacture of chemicals that has occurred during the past few decades. However, on the basis of Hites' et al. studies of lake sediment, it has been concluded that nearly all PCDDs and PCDFs are either synthetic in origin, or arise from the incomplete combustion of synthetic chemicals. In the present work, few if any PCDDs and PCDFs were found in human tissue samples and other samples that have been preserved for greater than 400 years. The samples were from a Barrow, Alaska, Inupiat Eskimo household that was destroyed by an ice overflow, trapping two women. The analytical chemistry evidence is consistent with the Czuczwa and Hites' conclusion that the majority of PCDD/Fs in the environment today are of anthropogenic origin.

INTRODUCTION

Polychlorodibenzodioxins (PCDDs) and polychlorodibenzofurans are highly toxic chemicals which are persistent in the environment. Relatively recently, it was proposed that the PCDDs and PCDFs including the highly toxic 2,3,7,8-TCDD are produced in small or trace amounts by combustion of natural,