

Reddy, C.M., Xu, L., O'Neil, G.W., Nelson, R.K., Eglinton, T.I., Faulkner, D.J., Norstrom, R., Ross, P.S., Tittlemier, S.A., *Radiocarbon evidence for a naturally-produced, bioaccumulating halogenated organic compound*, *Env. Sci. and Technol.*, 2004; v38, 1992-1997

Halogenated org. compds. (HOCs) such as 1,1'-dimethyl-3,3',4,4'-tetrabromo-5,5'-dichloro-2,2'-bipyrrole (DBP-Br<sub>4</sub>Cl<sub>2</sub>) and heptachloro-1'-methyl-1,2'-bipyrrole (Q1) have been detected worldwide, sometimes at high levels in Antarctic air, seabird eggs, the blubber of marine mammals, and, most notably, even human milk. To date, it has been difficult to det. whether these compds. are natural products or derived from industrial synthesis. Mol.-level <sup>14</sup>C anal. of these compds. is particularly appealing because most industrial compds. are manufd. from petrochems. (<sup>14</sup>C-free) and natural compds. should have "modern" or "contemporary" <sup>14</sup>C levels. To investigate the source of DBP-Br<sub>4</sub>Cl<sub>2</sub>, the authors isolated 600 mg of this compd. (150 mg of carbon) from marine animal exts. by employing gel permeation chromatog., Florisil column chromatog., and two-dimensional preparative capillary gas chromatog. The purified DBP-Br<sub>4</sub>Cl<sub>2</sub> was split into two samples (75 mg of carbon each) and analyzed by accelerator mass spectrometry for <sup>14</sup>C content. The D<sup>14</sup>C values were -449.ppermill. and -467.ppermill., corresponding to conventional <sup>14</sup>C ages of 4740 and 5000 yr before present (BP), resp. The presence of detectable <sup>14</sup>C in the DBP-Br<sub>4</sub>Cl<sub>2</sub> strongly points to at least a natural or biogenic source. However, these D<sup>14</sup>C values for DBP-Br<sub>4</sub>Cl<sub>2</sub> are more depleted than expected for a recently synthesized natural product. Several explanations are discussed, but addnl. samples from discrete locations need to be analyzed before a clear understanding of the source (or sources) of this compd. (and other unknown HOCs) is fully detd.