



## Certified Reference Materials Program

# CS-1, HS-1, HS-2

## Marine Sediment Reference Materials for Polychlorinated Biphenyls

CS-1, HS-1 and HS-2 are natural marine sediment reference materials for determinations of polychlorinated biphenyls (PCBs).

CS-1 is a coastal sediment collected in the Laurentian Channel midway between Nova Scotia and Newfoundland; the two sediments HS-1 and HS-2 were collected from Nova Scotia harbours.

This suite of samples provides a range of PCB levels from below 2 ppb in CS-1 to 112 ppb in HS-2. The matrix varies from a clean carbonaceous clay to an organic and sulfur rich material from a commercially active harbour.

The materials have been freeze-dried, homogenized in a modified cement mixer and sub-sampled into solvent-rinsed pint-sized steel cans. Each can contains about 200 grams of material.

Determinations have been carried out on CS-1, HS-1 and HS-2 using packed column gas chromatography and electron capture detection. Aroclor 1254 has been used as the standard PCB mixture for determinations of total PCB. The results (mg PCB/kg dried sediment) are summarized below :

CS-1:	1.15	±0.60 µg/kg
HS-1:	21.8	±1.1 µg/kg
HS-2:	111.8	±2.5 µg/kg

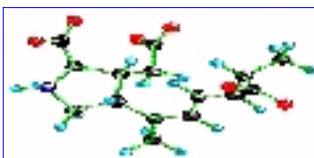
Uncertainties are expressed as ± one standard deviation for results based on a minimum of 32 extractions of each sediment. Homogeneity tests and determinations of PCBs in CS-1, HS-1 and HS-2 were carried out using 35 gram samples of sediments.

Typical data from capillary column gas chromatography using electron capture detection for HS-1 and HS-2 will be supplied with these marine sediments.

Quantitative data for individual PCB compounds are as follows:

<b>Polychlorinated Biphenyl Concentrations (micrograms/kilogram of dry sediment)</b>		
IUPAC#	HS-1	HS-2
101	1.62 ± 0.21	5.42 ± 0.34

138	1.98 ± 0.28	6.92 ± 0.52
151	0.48 ± 0.08	1.37 ± 0.07
153	2.27 ± 0.28	6.15 ± 0.67
170	0.27 ± 0.05	1.07 ± 0.15
180	1.17 ± 0.15	3.70 ± 0.33
194	0.23 ± 0.04	0.61 ± 0.07
196	0.45 ± 0.04	1.13 ± 0.12
199	0.57 ± 0.07	1.39 ± 0.09
209	0.33 ± 0.10	0.90 ± 0.14



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