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Titolo	Studio di adsorbenti innovativi finalizzati alla determinazione di microinquinanti organici in matrici ambientali. Study of innovative adsorbents aimed at investigating organic micropollutants in atmospheric matrices [Tesi di dottorato]
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Sommario	The following PhD study is aim to understand how the Activated Carbon Fiber adsorbent ca be used in analytical chemistry world for the study of Persistent Organic Pollutants. After a deep bibliography research, comes to light the importance of choosing an ACF typology depending on its raw material, industrial process and chemical physical properties. This was the starting point for establish the suitability of ACF-F-2000 as the best adsorbent for this purpose after physical chemical characterization and extraction tests. For a study of POPs in the atmosphere, due to their persistence, is mandatory to consider their distribution in both the gaseous phase and the depositions, dry and wet (rain and snow). For this reason, the study took into consideration both the air and water matrix, the latter as rain and snow. Thanks to its versatility, the ACF is well suited to be used in several currently existing sampling methods. The work presents the validation tests of ACF-F-2000 through isotopically labelled standards for the sampling in air of PeCB, HCB according to the criteria of the EPA TO4A reference standard method. The material was also validated as a passive adsorbent in water for PCDD / Fs and PCBs according to EPA standard methods 1613B and 1668B.

The work led to the definition of a sampling method for snow and the extraction of POPs from melted snow. This extraction method, which uses ACF-F-2000 as the adsorbent, has been validated for PCDD/Fs, PCB, PeCB, HCB, &#945;-BHC, &#947;-BHC, p,p&apos;-DDE, o,p-DDT, according to EPA 1668B, 1613B, TO-4A, 1699. Both the sampling and extraction systems were applied in the field on real samples carried out in the Svalbard Islands, in the Arctic region. The ACF-F-2000 was finally used for the simultaneous and parallel sampling of ambient air and snow of PCDD / F, PCB, &#945;-BHC, &#947;-BHC, p, p&apos;-DDE, o, p-DDT, HCB and PeCB, sampling at Terminillo Mount, Italy. The real samples allowed to perform analyses by GC-Orbitrap for the determination of the above analytes and for the study of the scavenged effect. Furthermore, it allowed to start a research on non-target compounds to understand to which classes of environmental interest to extend the use of ACF-F-2000 in the future.

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