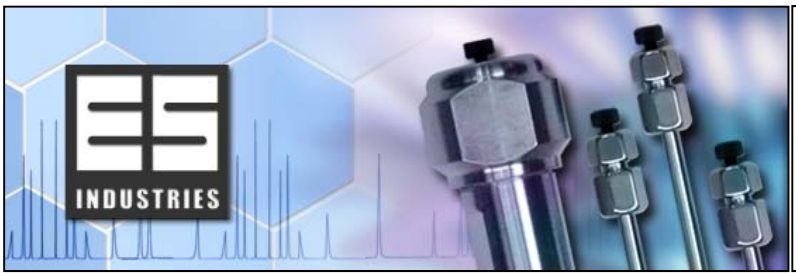
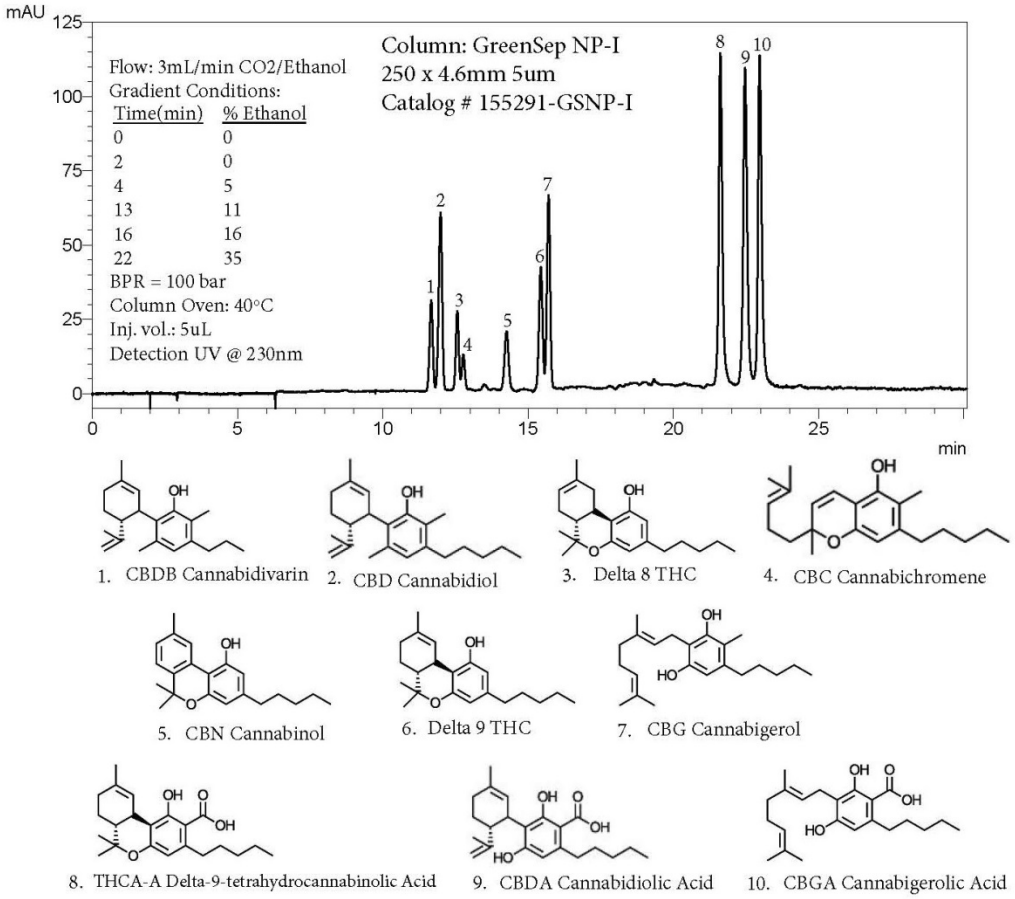


APPLICATION NEWS

Separation of Cannabinoids using GreenSep NP-I

Supercritical fluid chromatography (SFC) is a powerful chromatographic technique for the separation of complex mixtures. It has been useful in the areas of preparative chromatography and rapid analysis chromatography. Many SFC separations have been forced to utilize older types of stationary phases from “normal phase” HPLC such as unmodified silica, diol, amino and cyano. These phases are poorly adapted to SFC and present a number of limitations for SFC separations. Limitations include: low capacity, poor selectivity, and poor peak shape for SFC separations.

At ES Industries we have developed a new coated phase for SFC separations of natural products (NP). The GreenSep NP-I has been specifically optimized for the separation of 10 different Cannabinoids. This stationary phase has proven superior to conventional stationary phases (such as diol, cyano etc...) in the areas of separation selectivity and peak shape. The chromatogram shown below is a prime example of the superior peak shape performance and separation capacity obtainable with the GreenSep NP-I column with SFC for a high resolution separation of a mixture of Cannabinoids.



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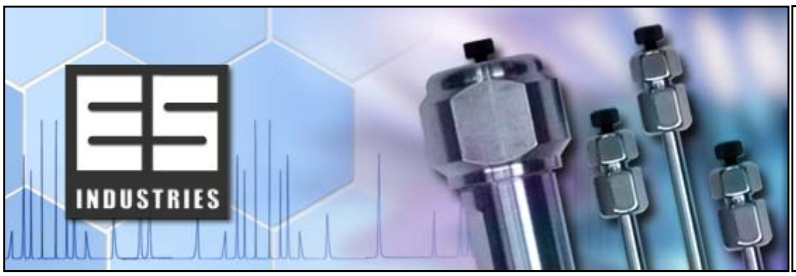
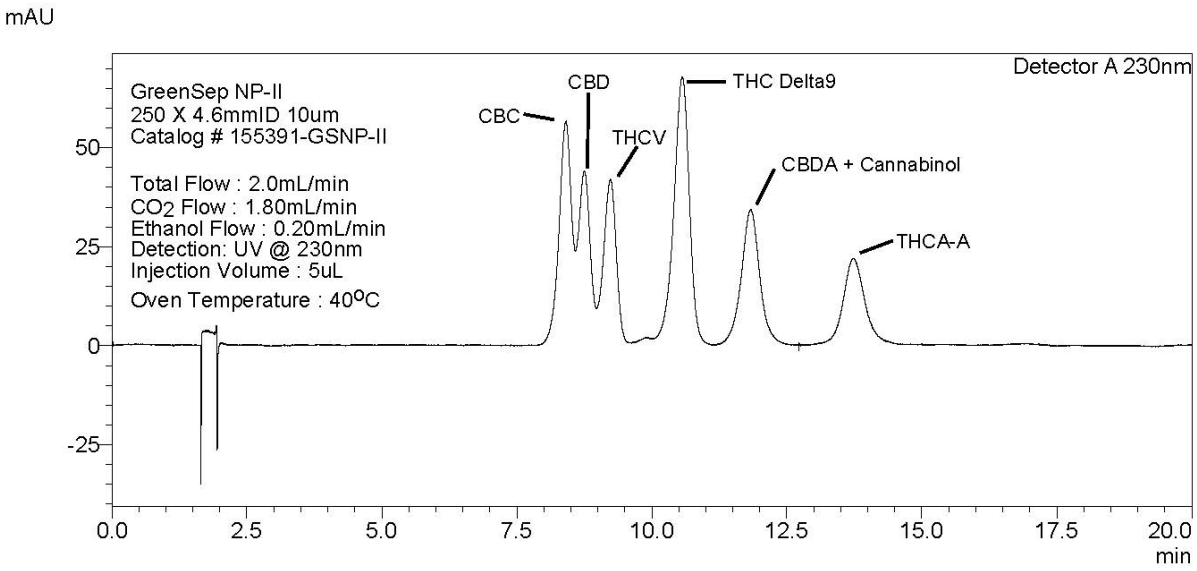


APPLICATION NEWS

SFC Isolation of
THC-Delta 9 and THCV in Cannabis
using GreenSep NP-II

Supercritical fluid chromatography (SFC) is a powerful chromatographic technique for the separation of complex mixtures. It has been useful in the areas of preparative chromatography and rapid analysis chromatography. Many SFC separations have been forced to utilize older types of stationary phases from "normal phase" HPLC such as unmodified silica, diol, amino and cyano. These phases are poorly adapted to SFC and present a number of limitations for SFC separations. Limitations include: low capacity, poor selectivity, and poor peak shape for SFC separations.

GreenSep NP-II is the product of ES Industries column research efforts to develop products that are specifically designed to tackle the separation of complex natural product samples. GreenSep NP-II has been specifically optimized for the separation and isolation of THC and THCV from cannabis. The chromatogram shown below highlights the optimized separation of both THC-Delta 9 and THCV. GreenSep NP-II is a bonded phase that is available in 5um and 10um particle sizes and column formats from analytical sizes to preparative columns up to 100mm ID as well as bulk materials.



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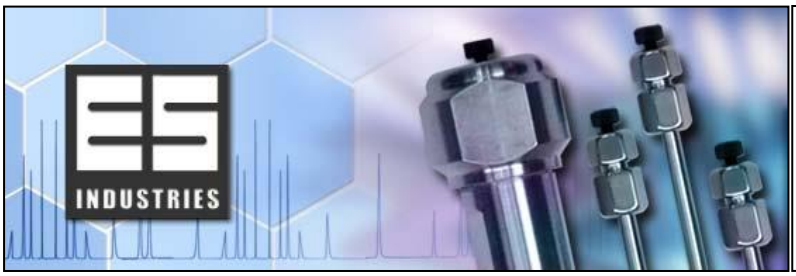
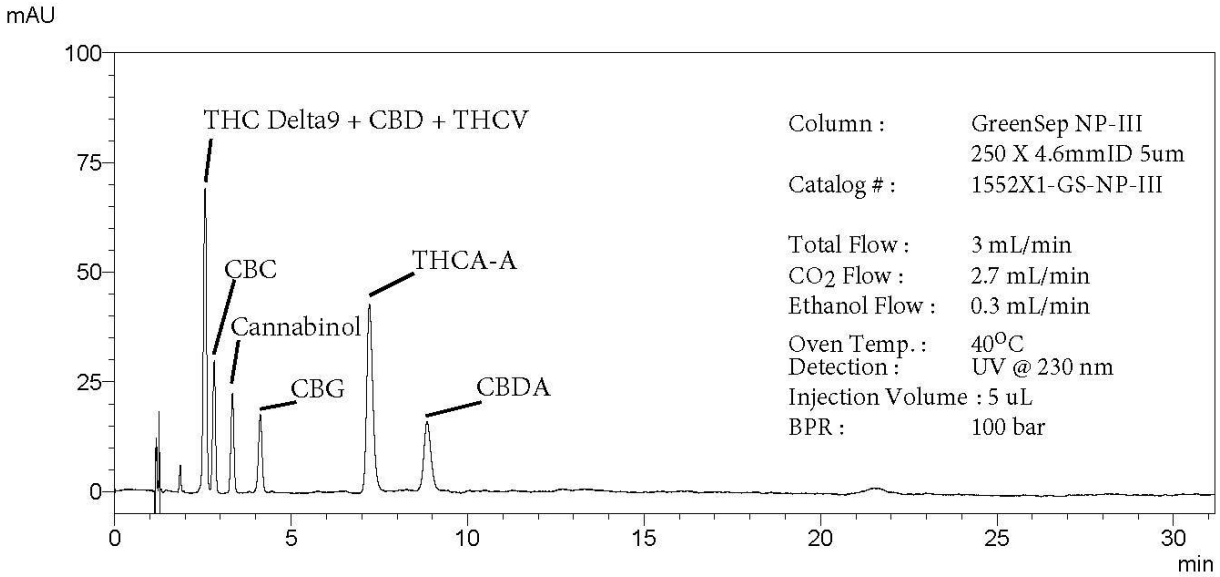


APPLICATION NEWS

SFC Isolation of
CBDA and THCA in Cannabis
using GreenSep NP-III

Supercritical fluid chromatography (SFC) is a powerful chromatographic technique for the separation of complex mixtures. It has been useful in the areas of preparative chromatography and rapid analysis chromatography. Many SFC separations have been forced to utilize older types of stationary phases from “normal phase” HPLC such as unmodified silica, diol, amino and cyano. These phases are poorly adapted to SFC and present a number of limitations for SFC separations. Limitations include: low capacity, poor selectivity, and poor peak shape for SFC separations.

GreenSep NP-III is the product of ES Industries column research effort to develop products that are specifically designed to tackle the separation of complex natural product samples. GreenSep NP-III has been specifically optimized for the separation and isolation of CBDA and THCA from cannabis. The chromatogram shown below highlights the optimized separation of both CBDA and THCA. GreenSep NP-III is a bonded phase that is available in 5 and 10 um particle sizes and column formats from analytical sizes to preparative columns up to 100mm ID as well as bulk materials.



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