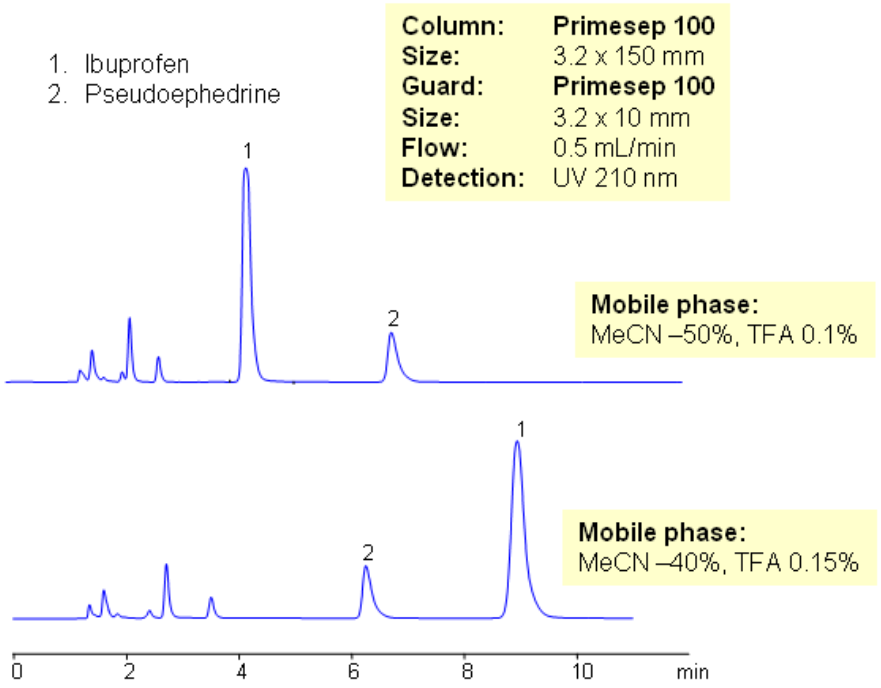
HPLC Analysis of Motrin Cough & Cold Composition



Motrin is cough and cold composition manufactured by McNeil PPC. It contains ibuprofen as non-steroidal anti-inflammatory drug (N-SAID) and pseudoephedrine as decongestant. Ibuprofen is hydrophobic acidic molecule and pseudoephedrine hydrophilic molecule. Pseudoephedrine does not retained well in reversed phase chromatography and requires the use of ion-pairing reagent. In the absence of ion-pairing reagent pseudoephedrine comes close to the void of the column even at low concentrations of acetonitrile, while ibuprofen shows strong retention by reversed-phase mechanism. Different properties of these two molecules require gradient elution and consequent equilibration of the column. In contrast when mixed-mode HPLC column, like Primesep 100, is used, the method can be isocratic, very short with no equilibration of the column. Ibuprofen is retained by strong reversed-phase mechanism and pseudoephedrine is retained by weak reversed-phase and strong cation-exchange mechanisms on Primesep 100 column. Retention time of hydrophobic molecule is controlled by amount of acetonitrile, and retention of hydrophilic basic molecule is controlled by the amount of buffer and buffer pH. Method can be UV, ELSD and LC/MS compatible with various additives to the mobile phase (TFA, ammonium formate or acetate, sulphate or phosphate buffers at various pH). This mixed-mode column can be used for analysis of other OTC drugs including mixtures of basic, acidic and hydrophobic compounds.

Method Parameters

Detection	ELSD Detection

Quelle: https://sielc.com/Application-HPLC-Analysis-of-Motrin-Cough-Amp-Cold-Composition