

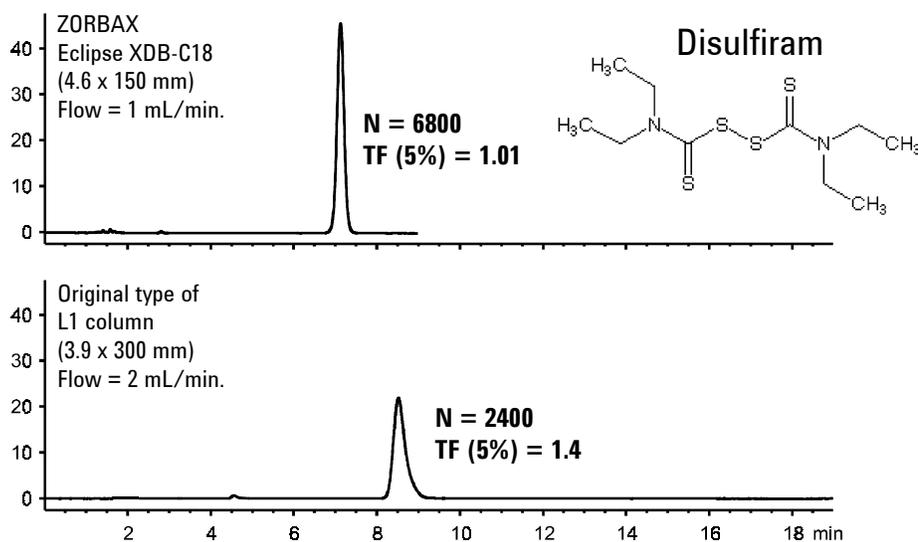
USP Method for HPLC Analysis of Disulfiram

Application
Pharmaceutical
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According to the United States Pharmacopeia (USP), L1 column packing is defined as "octadecyl silane chemically bonded to porous silica or ceramic micro-particles, 3 to 10 μm in diameter". Some USP methods specifying an L1 column use intermediate pH, and many of these methods were done on 10 μm , 3.9 x 300 mm columns. Until recently there was no modern alternative to the older 10 μm C18 column for intermediate pH-range applications.

Now, ZORBAX Eclipse XDB-C18 is available as a state of the art L1 alternative, available in 3.5 and 5 μm particle sizes and various column dimensions.

Below is a comparison of the USP method for disulfiram performed on the original brand of L1 column and on a modern L1 column, ZORBAX Eclipse XDB-C18. Therapeutically, disulfiram is an alcohol deterrent. It is also a fungicide, seed disinfectant and used in the manufacture of rubber. The USP Method uses a pH 7.0 methanol: phosphate buffer (70:30) mobile phase and a flow rate of 2.0 ml/min. Intermediate pH imparts a negative charge on the stationary phase which may be detrimental to peak shape. The 2.0 ml/min. flow rate is standard on the older 3.9 x 300 mm columns. On 150 mm columns, flow rate is typically 1.0 ml/min.



Conditions: LC: Hewlett Packard Series II 1090
Column: ZORBAX Eclipse XDB-C18, Agilent Part No. 963967-902
Mobile Phase: MeOH : 50 mM KH_2PO_4 (pH 7.0) (70:30)
UV: 250 nm; Temp: 23°C; Inj Vol: 20 μL (0.02 μg / μL)

Highlights

- Improved peak shape using ZORBAX Eclipse XDB-C18.
- Higher efficiency of ZORBAX Eclipse XDB-C18.
- Using ZORBAX Eclipse XDB-C18 as a state of the art L1 column offers:
 - Greater sensitivity
 - Reduced back pressure
 - Reduced analysis time
 - Shorter length offers reduced solvent use per analysis
- USP performance is easily surpassed with ZORBAX Eclipse XDB-C18.
 - The number of theoretical plates (N) is over 4.5 times greater than the number USP deemed necessary on the original L1 brand.
 - USP tailing factor is much closer to the ideal 1.0 value on the ZORBAX Eclipse XDB-C18, than to USP's requirement of less than 2.0.



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