FD&C Colors

Application

Food Analysis

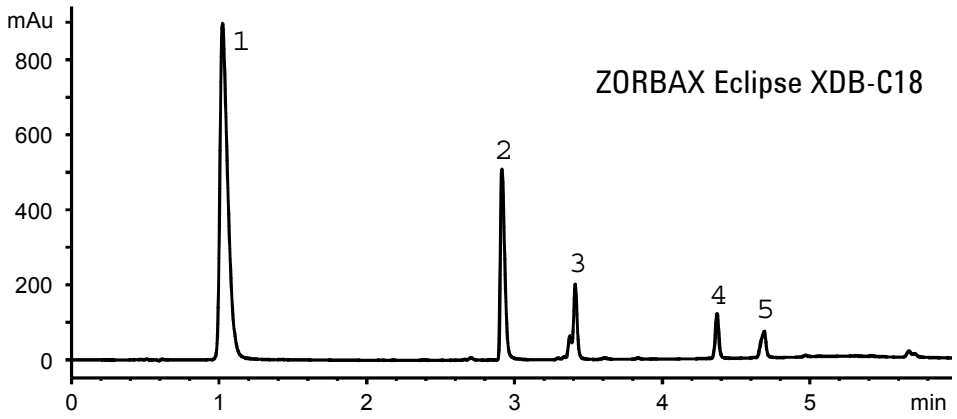
Robert Ricker

FD&C colorants are commonly used in foods and cosmetics. Propylparaben is a preservative found in the mixture of food colorings used for this analysis. Green food coloring is comprised of yellow # 5 and blue # 1. A combination of ion-pairing and gradient HPLC is used because of the wide chemical differences of compounds. Note the molecular formulas.

Operating Conditions:

HPLC System:	Agilent 1100 with quaternary pump
Column:	ZORBAX Eclipse XDB-C18 Rapid-Resolution (3.5 µm), 4.6 x 50 mm Agilent Part No. 935967-902
Mobile Phase:	A: 0.1% TFA, pH to 4.4 with TEA, B: MeOH
Gradient:	17 to 100% B / 4 min
Detection:	UV 254 nm
Flow:	1 mL/ min.
Temperature:	ambient

1. Yellow # 5	$C_{16}H_9N_4Na_3O_9S_2$	MW= 534
2. Red # 40	$C_{18}H_{14}N_2Na_2O_8S_2$	MW= 496
3. Blue # 1	$C_{37}H_{34}N_2Na_2O_9S_3$	MW= 760
4. Propylparaben	$C_{10}H_{12}O_3$	MW= 180
5. Red # 3	$C_{20}H_4I_4Na_2O_5$	MW= 878



Highlights

- *ZORBAX Eclipse-XDB is designed for extended column life at intermediate pH.*
- *Reducing column length and particle size simultaneously can:*
  - *Reduce analysis time*
  - *Maintain resolution*
  - *Reduce solvent use*

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