

Flow Solution™ FS 3700 Automated Chemistry Analyzer

Total Alkaloids (As Nicotine) in Tobacco by Segmented Flow Analysis Cartridge Part Number 331656CT

Scope and Application

This method is used for the determination of total alkaloids (as nicotine) in tobacco extracts. The Method Detection Limit (MDL) of this method is 1.19 mg/L. The applicable range of the method is 5.0 - 200 mg/L. The range may be extended to analyze higher concentrations by sample dilution.

Method Performance

Range	5.0 - 200 mg/L
Rate	40 samples/hour
Precision	<2% RSD at mid-point range
Method Detection Limit (MDL)	1.19 mg/L

Summary of Method

- The aqueous extract of tobacco is reacted with buffered sulfanilic acid and cyanogen chloride to form a polymethine dye. The cyanogen chloride is generated online by combining potassium cyanide and chloramine-T. The resulting color is measured at 460 nm.¹
- The quality of the analysis is assured through reproducible calibration and testing of the Segmented Flow Analysis (SFA) system.
- A general flow diagram of the SFA system is shown in Figure 1.

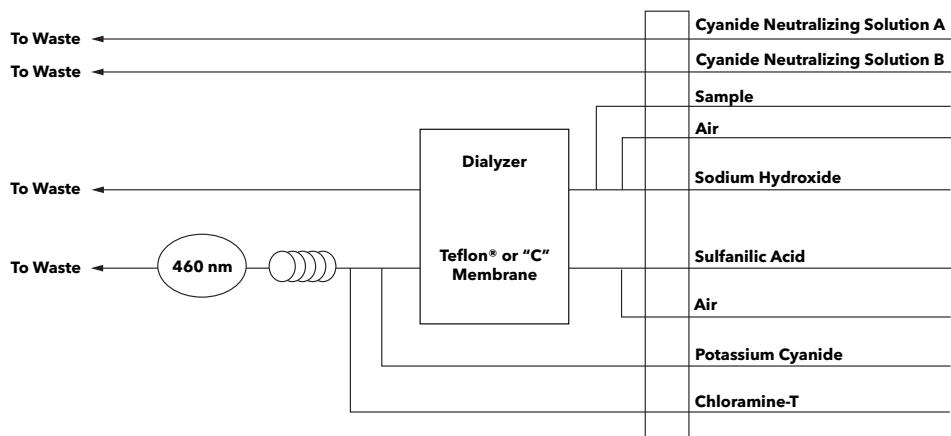


Figure 1.

Reagents and Calibrants

Chemical Name	CAS#	Chemical Formula	Part Number	Used in Prep Guide
Acetic Acid, glacial	64-19-7	CH ₃ COOH		Appendix A
Brij®-35, (21% Solution)	9002-92-0		326126	Appendix A
Chloramine-T Trihydrate	7080-50-4	CH ₃ C ₆ H ₄ SO ₂ NNaCl•3H		Appendix A
Citric Acid, anhydrous	77-92-9	H ₃ C ₆ H ₅ O ₇		
Citric Acid Monohydrate	5949-29-1	H ₃ C ₆ H ₅ O ₇ •H ₂ O		Appendix A
Deionized Water (ASTM Type I or II)				Appendix A
Iron (II) Sulfate Heptahydrate	7782-63-0	FeSO ₄ •7H ₂ O		Appendix A
Nicotine	54-11-5	C ₁₀ H ₁₄ N ₂		Appendix A
Potassium Cyanide	151-50-8	KCN		Appendix A
Sodium Carbonate, anhydrous	497-19-8	Na ₂ CO ₃		Appendix A
Sodium Hydroxide	1310-73-2	NaOH		Appendix A
Sodium Phosphate Dibasic	7558-79-4	Na ₂ HPO ₄		Appendix A
Sulfanilic Acid	121-57-3	H ₂ NC ₆ H ₄ SO ₃ H		Appendix A

Interferences

- No chemical interferences are known.



Figure 2. Total Alkalids (As Nicotine) in Tobacco by SFA Calibration Series

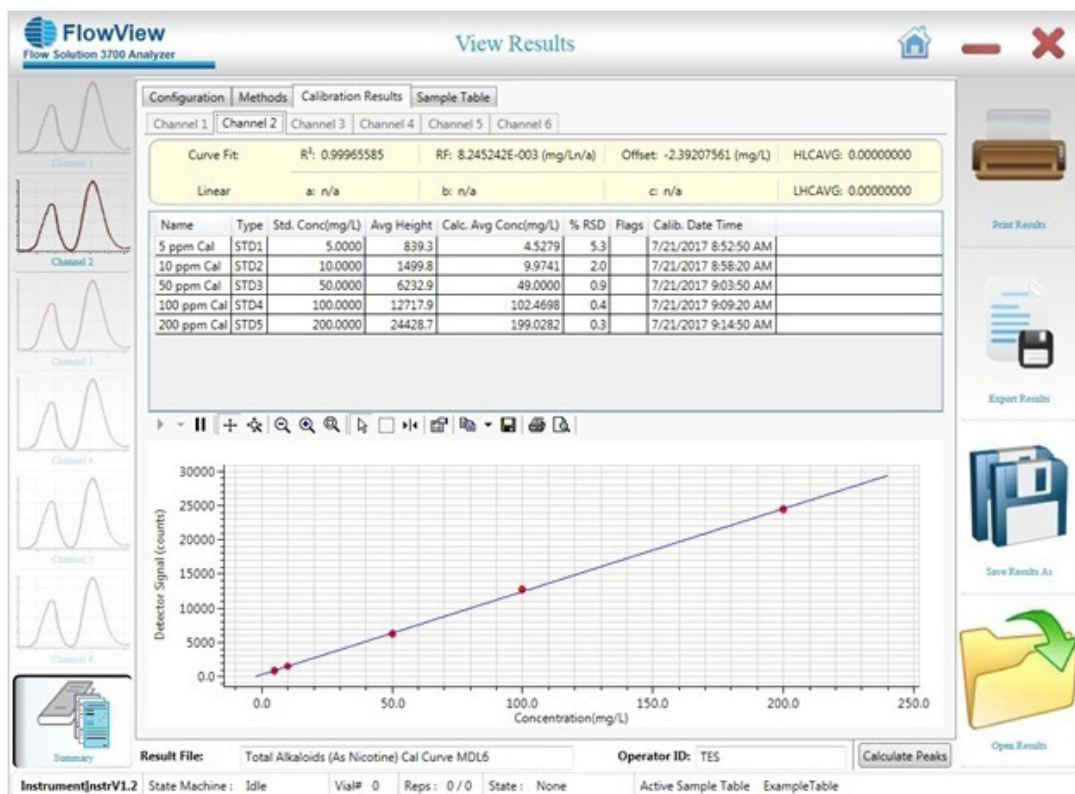


Figure 3. Total Alkaloids (As Nicotine) in Tobacco Calibration Curve and Statistics

Brij® is a registered trademark of Croda International.

Flow Solution™ and FlowView™ are trademarks of OI Analytical.

OI Analytical® is registered trademark of Xylem Inc. or one of its subsidiaries.



151 Graham Road
 P.O. Box 9010
 College Station, Texas
 77842-9010

(979) 690-1711
 (800) 653-1711 USA/Canada
 (979) 690-0440 Fax

www.oico.com
 E-mail: oi-info@xylem-inc.com