

**Summary:** Use this method to analyze reducing sugars only or both reducing and nonreducing sugars combined (total sugars). To measure total sugars, acidify the sample with 1 M hydrochloric acid, then heat to 95°C to hydrolyze the nonreducing sugars into monosaccharides (reducing sugars). When measuring only reducing sugars, dilute the sample with reagent water containing Brij®-35 and maintain the temperature at 25°C. Reducing sugars then react with *p*-hydroxybenzoic acid hydrazide (PAHBAH) in an alkaline environment to form a yellow-colored complex. Enhance color development with calcium. Measure the absorbance at 410 nm.

**Interferences:** No chemical interferences known.

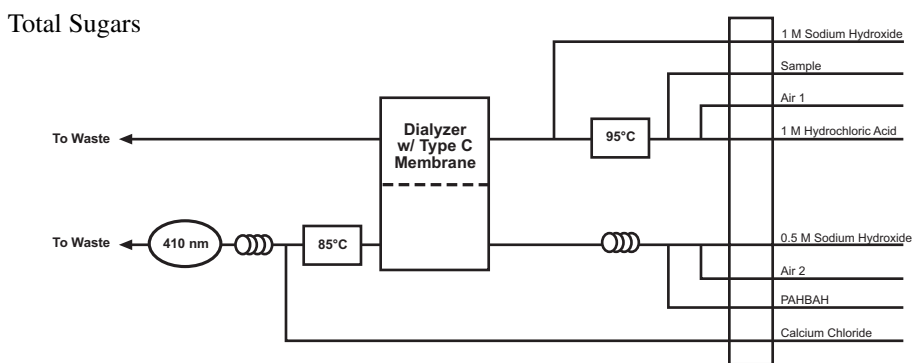
**Performance Specifications:**

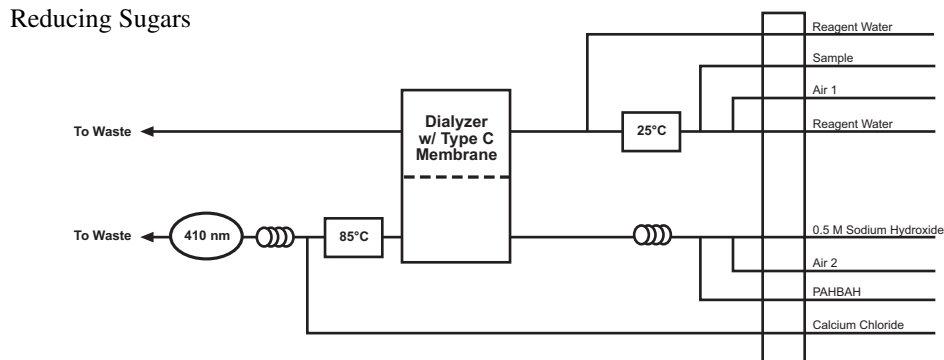
Parameter	Total Sugars	Reducing Sugars
Range:	100–3,000 mg/L	100–3,000 mg/L
Throughput:	31 samples/hour	31 samples/hour
Precision at 100 mg/L:	<5% RSD	<5% RSD
1,500 mg/L:	<3% RSD	<3% RSD
3,000 mg/L:	<3% RSD	<3% RSD
High Tobacco Extract Precision:	<3% RSD	<3% RSD
Low Tobacco Extract Precision:	<3% RSD	<3% RSD
Method Detection Limit (MDL):	14.0 mg/L	12.0 mg/L

**Chemicals:**

Acetic Acid, glacial, CH <sub>3</sub> CO <sub>2</sub> H	Hydrochloric Acid, concentrated, HCl
Brij-35®, 30% w/v (OI Analytical PN A21-0110-33)	<i>p</i> -Hydroxybenzoic Acid Hydrazide (PAHBAH), HOC <sub>6</sub> H <sub>4</sub> CONHNH <sub>2</sub>
Calcium Chloride Hexahydrate, CaCl <sub>2</sub> •6H <sub>2</sub> O	Sodium Hydroxide, NaOH
Citric Acid Monohydrate, H <sub>3</sub> C <sub>6</sub> H <sub>5</sub> O <sub>7</sub> •H <sub>2</sub> O	Sucrose, C <sub>12</sub> H <sub>22</sub> O <sub>11</sub>
D-Glucose, C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>	

**Basic Flow Diagrams:**





**Selected References:**

Ferraro, J.J.; Caccavo, F.A.; Saifer, A. *p*-Hydroxybenzoic Acid Hydrazine Procedure for Serum Glucose Adapted to the Technicon Method SMA-2/60 and Compared with Other Glucose Methods. *Clin. Chem.* **1976**, 22 (2), 263–266.

CORESTA Recommended Method No. 38. Determination of Reducing Carbohydrates in Tobacco by Continuous Flow Analysis. November **1994**.

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