

## Total SO<sub>2</sub> determination in dried apricots by BUCHI method

*MultiDist and BasicDist with BUCHI SO<sub>2</sub> glass set:*

*Determination of total sulfur dioxide in dried apricot mousse as a reference sample, bio-apricots & a reference standard sodium metabisulfite by the patented BUCHI Method with iodometric titration*

### 1. Introduction

Sulfites are widely used as a preservatives and antioxidants in foods and beverages. Exposure to high levels of sulfites can cause an allergic reaction. Regulations have set the maximum amount of sulfites used and required labelling practice to indicate the presence of sulfites. The BUCHI method is based on acidification and steam distillation of the samples with ortho-phosphoric acid to release SO<sub>2</sub>.

### 2. Experiment

**Sample:**

Apricot mousse

**Equipment:**

MultiDist (11K36532011), SO<sub>2</sub> absorption glass set (11073599), Metrohm Eco Titrator (11072748)

**Procedure:**

The Sample is distilled and collected in a receiver. After the distillation a redox titration with the Metrohm Eco Titrator is followed.

Table 1. Distillation parameters on MultiDist.

Parameters	Settings
Reaction Time	5 s
Distillation Time	600 s
<b>Separate redox titration on Metrohm</b>	
EcoTitrator	
Sensor type	Redox (Pt)



### 3. Results

The results of SO<sub>2</sub> determination and recovery for the distillations are presented in Table 2.

Table 2. Results Reference substance and sample apricot mousse and dried bio-apricots (n= 3 Sodium-metabisulfite, n= 5 samples)

Sample	SO <sub>2</sub> concentration declared	Ø SO <sub>2</sub> concentration	Ø Recovery [%]	RSD [%]
Sodium-metabisulfite	10.15 ± - mg	8.71 mg	87.12	1.49
Dried apricot mousse LVU 19-3B	2080.4 ± 102.97 ppm	1941.24 ppm	-	4.60
Dried Bio-Apricots	<10 ± - ppm	5.26 ppm	-	23.90

### 4. Conclusion

The recoveries for reference standard sodium metabisulfite were above 85 %. The obtained SO<sub>2</sub> concentrations match the declared SO<sub>2</sub> content on Apricot mousse reference samples from LVU very well. BUCHI method for total SO<sub>2</sub> determination is recommended especially in presence of volatile acids in the sample with low SO<sub>2</sub> concentrations. For further information please download the full application note from the website.

### 5. References

Application Note No.760/2021: Total SO<sub>2</sub> determination in dried apricots by BUCHI method

Operation Manual of MultiDist/BasicDist

AOAC Official Method 990.28, Sulfites in Foods, Optimized Monier-Williams Method

European Patent EP 2 515 098 A1, Verfahren und Vorrichtung zur SO<sub>2</sub>-Gehaltsbestimmung in Getränken und Lebensmitteln, Büchi Labortechnik AG.

Compendium of International Methods of Analysis –OIV, Sulfur dioxide, Method OIV-MA-AS323-04A