COEI-2-HMF Determination of 5-(hydroxymethyl) furfural

1. Principle

The 5-(hydroxymethyl)furfural (HMF) is determined by HPLC (sharing liquid chromatography in reverse phase).

2. Apparatus and solutions

2.1. Instrumental parameters (for example)

- Chromatograph in liquid phase
- UV/visible detector
- column: octadecyl type grafted silica (C18), (length: 20 cm; internal diameter: 4.6 mm; granulometry of phase: 5 µm)
- mobile phase: ultra filtered demineralised water - methanol - acetic acid (80, 10, 3: v/v/v)
- flow: 0.5 ml/mn
- detection wave length: 280 nm
- injected volume: 20 µl

2. Preparation of calibration solutions

Solution HMF at 20 mg/l:

- In a 100 ml graduated flask, introduce 20 mg of HMF weighed within 0.1 mg and complete to the graduated line with ultra filtered demineralised water,
- introduce 10 ml of this solution in a 100ml graduated flask and complete with ultra filtered demineralised water;
- the solution HMF at 20 mg/l is to be prepared each day.

3. Preparation of samples

The samples and the calibration solution HMF are injected after filtration on a 0.45 µm membrane.

4. Procedure

The chromatographic column is stabilised with the mobile phase for about 30 min.

Calculate the concentration of HMF of the sample from the peak surfaces.