

## Quantitative UV HPLC Analysis of Citric Acid in Solution

### Equipment

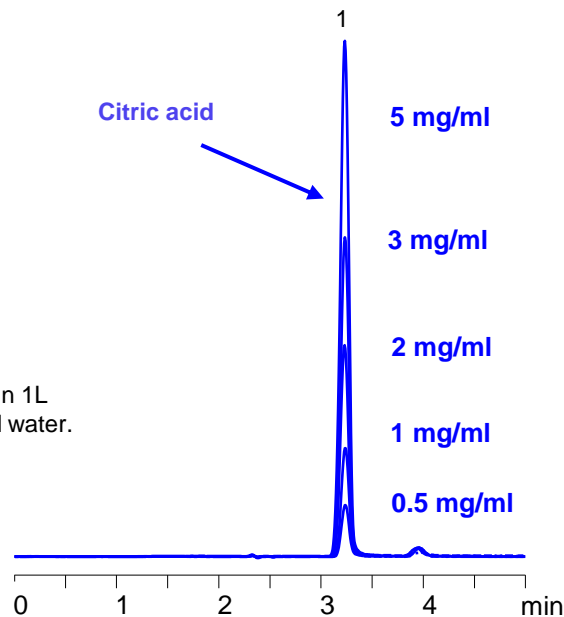
Agilent 1100 HPLC system with DAD  
Analytical Balance  
HPLC Column: Heritage MA, 4.6x150 mm, 3 um, 100A

### Materials:

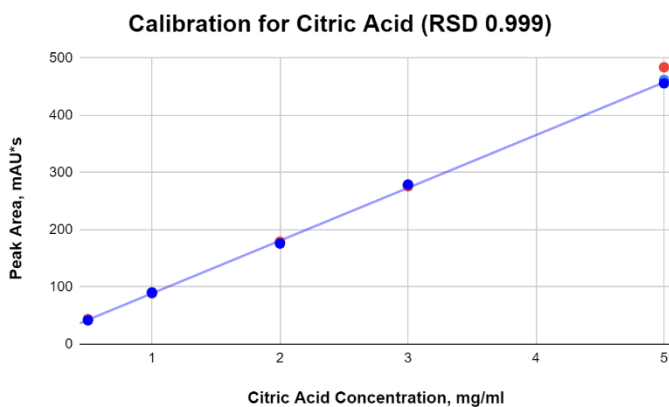
Citric acid (Aldrich catalog #27109)  
Citric acid formulation CX-21  
ACN (Tedia, catalog #AS1127)  
Distilled water (Aldrich, catalog #270733)  
Sulfuric acid (Aldrich, catalog 5.43827)

### Method Description

HPLC Pump set up: A: DI water, B: Acetonitrile, C: 1% H<sub>2</sub>SO<sub>4</sub> in water  
Preparation of 1% of sulfuric acid in DI water: place 200 ml of DI water in 1L volumetric flask, add 10 ml of sulfuric acid and dilute to 1 L with distilled water.  
Mobile phase composition: 5% ACN with 0.05% sulfuric acid  
Mobile phase delivery: A: 90%, B: 5%, C: 5%



### Citric Acid Calibration and Sample Analysis



**Column:** Heritage MA  
**Dimensions:** 4.6 x 150 mm, 3 um, 100A  
**Mobile phase:** 5% ACN with 0.05% H<sub>2</sub>SO<sub>4</sub>  
**Flow:** 1 ml/min  
**Detection:** 220 nm  
**Sample:** Sample #1 and #2  
**Sample dilution:** 1:25 (water)  
**Injection:** 2 uL

Concentration, mg/ml	Peak Area Average, mAU*s	Peak Area, Inj. 1, mAU*s	Peak Area, Inj. 2, mAU*s	Peak Area, Inj. 3, mAU*s	Concentration of Citric Acid, mg/ml
0.5	43.0	43.8	41.8	43.5	-
1	89.4	88.4	89.3	90.5	-
2	178	179	179	176	-
3	277	277	276	279	-
5	467	462	484	456	-
Sample #1 (1:25)	202	202	201	203	53.8
Sample #2 (1:25)	216	217	216	218	57.6