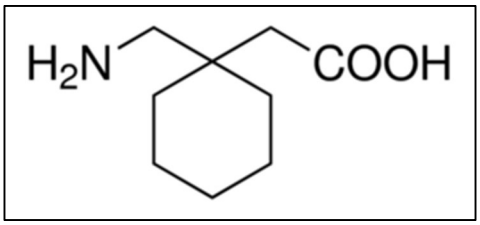
Gabapentin
800 mg Tablet

Structure:



Molecular Formula and Mass: $C_9H_{17}NO_2$ - 171.24
Category: Anticonvulsant
Sample:

Grind one tablet and dissolve in 100 mL of 100% methanol. Shake at least 10 min. Concentration of solution = 800 mg/100 mL = 8.00 mg/mL. Solution is then filtered and 1.00 mL is further diluted with an additional 14.0 mL. Final concentration of sample solution = 0.533 mg/mL, which is the required concentration representing 100%.

Standards:

High Standard:

The high limit is 115%; therefore the concentration of the high standard = (0.533 mg/mL X 1.15 = 0.613 mg/mL. Weigh approximately 15.3 mg of standard. If you weighed 15.4 mg of standard, dissolve it in: (15.4 mg)/(0.613 mg/mL) = 25.1 mL of methanol. This makes the high standard solution concentration equal to 0.613 mg/mL.

Low Standard:

The low limit is 85%; therefore the concentration of the low standard = (0.533 mg/mL X 0.85 = 0.453 mg/mL. Dilute 1.00 mL of high standard to 1.35 mL by adding 0.35 mL of methanol (1.15/0.85 = 1.35).

Spotting:

Spot on the 5 X 10 cm silica gel TLC aluminium plate with 3 µL aliquots as follows:

Left spot	low standard (85%) = 1.36 µg
Center Spot	100% sample = 1.60 µg
Right Spot	high standard (115%) = 1.84 µg

Development:

Mix 15.0 mL of ethanol, 15.0 mL water and 10.0 mL of glacial acetic acid. Develop the plate in a small glass chamber with approximately 20.0 mL of this solution until the solvent front reaches within 1 cm of the top of the TLC plate. (R_f = 0.75)

Detection:

UV: The spots are not visible in the UV.

Ninhydrin stain: Spray or dip the plate using a solution of 50.0 mL methanol, 1.00 g ninhydrin, and 10.0 mL glacial acetic acid. Heat the plate at 100°C for 5 minutes. Spots turn a visible pink color.

Observe the intensities and the sizes of the spots.

Plate observed under visible light.

Lane 1: Low standard (85%) = 1.36 µg

Lane 2: 100% sample = 1.60 µg

Lane 3: High standard (115%) = 1.84 µg

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