PCPQ1 – Quantitation of Phencyclidine (PCP) by Gas Chromatography

Scope

Samples containing phencyclidine (PCP)

Procedure:

Accurately weigh the sample and dissolve in internal standard solution. If necessary, perform a serial dilution using internal standard solution so that the concentration of the target analyte is within the low and high concentration QC solutions. Filter the solution if an appreciable amount of insoluble material is present.

Internal Standard Solution:

0.9507 mg/mL Eicosane in chloroform/methanol (80:20)

Standard Solution:

Accurately weigh the PCP Hydrochloride reference material in Internal Standard Solution so that the concentration of the PCP is within the working range.

Quality Control Solutions:

Prepare two QC solutions for PCP for use as positive controls during quantitative analysis. These two solutions are prepared such that their target analyte concentrations represent the low and high ends of the method's working range.

Chromatographic System:

Instrument: Gas Chromatograph HP/Agilent 7890 equipped with an FID detector (or equivalent)
Column: HP-5 30 m × 0.320 mm I.D. × 0.25 µm film thickness,
Inlet (Injector) Temperature: 220 °C
Mode: Split
Split Ratio: 100:1
Carrier Gas: Hydrogen
Carrier Gas Flow Rate: 2ml/min(1.65min);ramp@1.5ml/min/min to 3ml/min(4min)
Oven Program Set Points: 165C for 1.5min then 40C/min to 250C for 1.5 min
Total Run Time: 5.125 min
Detector Temperature: 275°C
Signal Data (Sampling) Rate: 20 Hz
Injection Volume: 1 µL
Injection Solvent: chloroform/methanol 80:20)

Limitations:

There are no known limitations associated with this method.

Acceptance Criteria:

Selectivity: Selectivity was determined for the critical pair of PCP and lidocaine. Resolution between the PCP/Lidocaine critical pair is > 1.5.
Linearity: Eight concentrations were within 95-105% overall average sensitivity (response/concentration) limits.
Repeatability: Relative Standard Deviation (RSD) for each concentration tested was less than 2%.
Accuracy: Experimentally measured purity (expressed in % w/w) within ± 5% relative to the known prepared purity.

Working Range:

0.16 mg/mL – 3.01 mg/mL PCP

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