Phenylalanine Test

The Astoria-Pacific SPOTCHECK® Phenylalanine test is used as an aid in screening for Phenylketonuria (PKU), an inherited disorder of phenylalanine metabolism caused by a decreased level of phenylalanine hydroxylase activity in newborns.

When phenylalanine is ingested by an affected newborn, the decrease or absence of phenylalanine hydroxylase activity, which converts phenylalanine to tyrosine, causes blood and urine levels of phenylalanine to become elevated. Serum phenylalanine measurements therefore can be used to diagnose and treat this disease.

The Astoria-Pacific SPOTCHECK® Analyzer automates the measurement of phenylalanine in the newborn's sample by first diluting and then dialyzing the sample to remove interfering substances. The phenylalanine in the sample then reacts with ninhydrin in the presence of a dipeptide to form a fluorescent end product.

The fluorescent end product formed is measured quantitatively with a fluorometer equipped with a specially designed flow-through flowcell. The amount of fluorescence, excited at 405 nm and emitted at 480 nm, is proportional to the phenylalanine concentration in the sample.

Whole blood, spotted on standardized filter paper, S&S® 903™ or equivalent is suitable for analysis. The procedure is designed for use with one 1/8 inch spot but may be adapted to alternative punch protocols with appropriate validation.

Other tests, such as Total Galactose or Uridyltransferase, can be run with the Phenylalanine analysis simultaneously from the same extracted sample. Sample throughput is 90 per hour.

The SPOTCHECK® Phenylalanine 50 Hour Reagent Kit is designed to be used on the Astoria-Pacific SPOTCHECK® Analyzer. The kit contains all necessary reagents needed for analysis and will provide approximately 50 hours of analyzer run time. Allowing for start up and calibrants, the approximate number of actual samples analyzed per kit is conservatively 2500.