



# STERLING NEWS & NOTES

*A Report from Sterling Reference Laboratories*

Second Quarter, 2008 – TECHNICAL CONTENT

## Technical Information from STERLING Reference Laboratories

### WHAT IS COTININE?

Cotinine is the first-stage metabolite of nicotine, a toxic alkaloid that is a central nervous system stimulant in humans. Since cotinine can be made only from nicotine, and since nicotine enters the body with cigarette smoke, cotinine measurements can show that cigarette smoke has entered your body. While cotinine is thought to be an inactive metabolite, its elimination profile is more stable than that of nicotine which is largely urine pH dependent. As a result, cotinine is considered a good biological marker for determining nicotine exposure.

#### Why Test for Cotinine?

Testing may be used in a number of situations to evaluate the possible use of tobacco products. Because of the health risks and costs associated with regular tobacco use, employers and insurance companies may test potential employees or applicants for life or health insurance. Many insurers offer reduced rates for non-smokers and may require cotinine testing to validate a person's nicotine free status. Smoking is a recognized risk factor for extended recovery times for certain surgical procedures, and is linked with higher recidivism rates in drug treatment programs. Smoking cessation programs and various smoke free programs may wish to test occasionally to monitor compliance. And lastly, cotinine can be used to evaluate nicotine poisoning, such as might happen if a child were to ingest nicotine lozenges or gum.

#### How Long Might I Test Positive After I Quit Smoking?

Different people metabolize nicotine at different rates, so there is a fairly broad window of detection for the metabolite cotinine. Median elimination half life for cotinine is around 20 hours with a range of approximately 7 to 40 hours. What that means is that most people will be negative at normal reporting levels within 2 to 4 days after quitting, but some individuals may take as much as a week to ten days to be consistently negative. Use of nicotine replacement products such as patches or gums may result in positive cotinine results until the person is completely weaned from nicotine.

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### What About "Side-stream" Smoke?

Measurable cotinine levels are possible from any nicotine exposure even if no smoking has occurred. People who are exposed to cigarette smoke, such as children in a smoking household, could have cotinine levels as high as 100 ng/mL. Active smokers will typically have cotinine levels in excess of 200 ng/mL. The positive cutoff for the cotinine screening test used at STERLING is 200 ng/mL, so passive exposure should not be an issue.

As always, if you have any questions on interpretation, a consulting scientist is available at (800) 442-0438, (253) 552-1551, or via e-mail at [certifying@regtox.com](mailto:certifying@regtox.com).