

What are the Common Reasons for a Drug Class to trigger a Not-Negative result in Urine Drug Screening?

The five drug classes that fall under the AS/NZS-4308:2008 banner for workplace drug testing are as follows:

- Amphetamine-type substances
- Benzodiazepines
- Cannabis metabolites
- Cocaine metabolites
- Opiates

The screening devices and screening assays for these drug classes are typically targeted against an individual compound from within that drug class with varying degrees of cross-reactivity to other compounds within and outside that drug class.

This fact sheet seeks to address some of the common causes for not negative (and sometimes false negative) results from compounds not listed in the AS/NZS-4308:2008 testing standard.

In all cases samples giving non-negative results **must** be sent to an accredited laboratory for confirmatory testing in order to meet the requirements of the AS/NZS-4308:2008 testing standard.

1. Amphetamine-type substances:

Ranitidine is a common medication used in the treatment of reflux that may cause a not-negative screening result.

Phenethylamine is an organic compound and natural monoamine alkaloid sometimes found in supplements, that will give a not-negative screening result.

Commonly prescribed stimulants such as Methylphenidate (**Rubifen[®]**, **Ritalin[®]**, **Concerta[®]**) are not amphetamine-type substances and therefore will give a **negative** result for amphetamine-type substances.

2. Benzodiazepines:

Lorazepam (Ativan[®]) is a relatively common benzodiazepine medication.

Midazolam (Hypnovel[®]) is a benzodiazepine medication used for anaesthesia.

Triazolam (Hypam[®], Halcion[®]) is a central nervous system (CNS) depressant in the benzodiazepine class.

All three substances will typically give a not-negative screening result.

3. Cannabis metabolites:

Atripla[®] is an anti-retroviral triple therapy that triggers a not-negative cannabinoids screen but will not confirm as a cannabinoid.

Hydroxychloroquine (Plaquenil[®]) is a medicine used to treat rheumatoid arthritis, SLE and other connective tissue diseases, as well as malaria, and has been shown to produce a not-negative screening test for cannabinoids.

4. Cocaine metabolites:

Mate de coca (Coca leaf tea) as perhaps the name intimates comes from the Coca tree and will cause a not-negative result for cocaine metabolites for up to 36 hours post one cup of tea. This product is not legal in New Zealand.

5. Opiates:

Pholcodine is usually consumed as a liquid for cough suppression. Can come as **Pholcodine Linctus** or in some **Durotuss[®]** preparations as an over the counter (OTC) Pharmacy-only medication. Pholcodine is an opiate and unlike the other opiates will have an extended detection time (5-10 days typically).

Dihydrocodeine (DHC Continus[®]) is an opiate available only on prescription and has strong cross-reactivity for the opiate screening tests.

Poppy seeds are the original source of opiates and contain morphine along with other alkaloids. Consumption of poppy seeds in a person's diet will lead to a not-negative screening test for opiates due to the presence of morphine and other opiates and will be confirmed as morphine.

Oxycodone (Oxycontin[®], Oxynorm[®]) is an opiate and is used in the management of moderate to severe chronic pain. Typically, screening devices have poor cross-reactivity to this opiate (and its metabolite oxymorphone), i.e. there will need to be levels anywhere from 10000 µg/L upwards to trigger a non-negative screening result at a nominal cut-off of 300 µg/L. In most instances the presence of oxycodone will be missed because of this factor.

Non-opiate opioids such as **Fentanyl, Tramadol, Methadone, Naltrexone, Naloxone and Buprenorphine** are not structurally related to opiates and as such do not trigger non-negative screening results for opiates. These compounds can be identified via Mass Spectral analysis in a laboratory setting.