

Xylazine Test Strips

Purpose and Scope

Xylazine test strips (XTS) can identify the presence of xylazine in drug samples in concentrations below the limit of detection of FTIR. Although XTS are not currently a standard part of drug checking in B.C., this is the recommended procedure for services who include these strips in their service. This procedure has been tailored to allow the technician to perform a XTS and a benzodiazepine test strip (BTS) simultaneously.

It is currently recommended that XTS be used alongside FTIR drug checking and not in isolation. XTS are not recommended for take-home test strip programs. There are known issues with cross-reactivity that require careful consideration when interpreting results. In particular, ortho-methylfentanyl has been linked to faint negative results that can be incorrectly interpreted as positive when using XTS¹.

Technicians should be familiar with [fentanyl](#) and [benzodiazepine test strip](#) procedures prior to using XTS. Technicians should be familiar with safe handling, drug crushing, and disposal procedures prior to using any test strips. See the BCCSU guides on [reducing exposure and contamination](#), [drug crushing](#), and [disposal](#). All samples should be handled with care to avoid contamination.

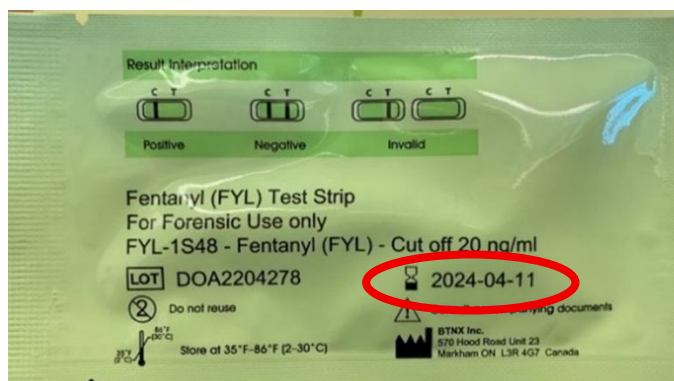
Setup

Before conducting a xylazine test, ensure a clear work area on an impermeable surface where the technician will not be bumped by passerby. Gather the following supplies:

- Microscoop or lab spatula
- Paper towels
- Alcohol swabs
- 2ml flip top plastic centrifuge tube (see sample below)
- Nitrile gloves
- Tap water (preferably in a lab squeeze bottle with a gooseneck nozzle)

- Drug sample
- (optional) face mask
- (optional) vortex mixing device

Check the test strip package for punctures, that the expiry date has not passed (see below for example), and that the test strip has been stored correctly. Do not use damaged, exposed, or expired test strips as these may have unpredictable results.

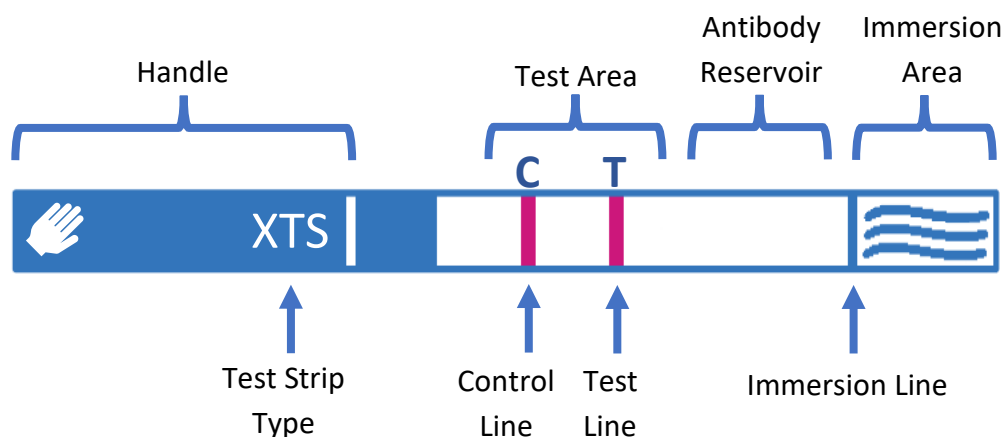


Check the expiry date on the test strip package before commencing the test.



Sample 2ml flip-top tube

Understanding Test Strips



Xylazine test strips work the same as fentanyl or benzodiazepine test strips. Dipping the strip into a liquid will pull the liquid through the antibody reservoir and into the test area. Antibodies are tiny protein molecules that are designed to stick to certain molecules based on their shape. The antibodies have a dye attached to them, and when they bond (stick) to the control and test line areas, lines appear. While the control line should always appear (with some exceptions), the test line will disappear if the antibodies bond to a substance instead of the test line.

Procedure

1. Don nitrile gloves (optionally don a face mask according to don/doff procedures for PPE)
2. Thoroughly crush and mix the sample before obtaining a sample.
3. Add one grain of sample (about 2 mg) to the plastic tube. This is typically about the volume of half a grain of rice.
4. Fill the tube with water, leaving enough space to close the lid.
5. Close the tube and shake for 30 seconds to dissolve the sample. A full 30 seconds of shaking is crucial to the accuracy of the test. Optionally, a vortex mixer can be used.
6. Dip the XTS in the test water, up to the immersion line (see diagram to right). A BTS can optionally be inserted simultaneously, with the test strips back-to-back.
7. After 10-15 seconds, set the XTS down on a non-absorbent surface such as an empty test strip package. Do not set the test strip on paper towel or other absorbent materials to avoid cross-contamination.
8. Wait at least 2 minutes before reading the results. Wait a full 5 minutes if the test strip is positive, as it may take longer for a negative line to fully develop. Do not read the result at 10 or more minutes as the result is invalid after this period.
9. Return remainder of sample to service user, or dispose of sample.
10. Dispose of test water in kitty litter or another absorbent material.
11. Clean work area and tools using alcohol swabs or other sanitizing wipes.
12. Throw out all materials, including gloves, in regular garbage.



Interpreting Test Results

1. Positive Result



A positive test strip result indicates that the target substance is present. In this case, xylazine.

Considerations for a positive result:

- View under a bright white light as negative test results can be very faint.
- If a high concentration of ortho-methylfentanyl was detected by FTIR, it may produce false positive or very faint negative results on the XTS if the solution is too concentrated². Ensure 2mg of sample and 2ml of water is used, and allow 5 minutes for the test strip to fully develop.
- There could be a substance that is not xylazine cross-reacting with the test strip to result in a positive result.
- Consider repeating the test to confirm the result if it is unexpected (e.g. stimulants containing xylazine).

2. Negative Results

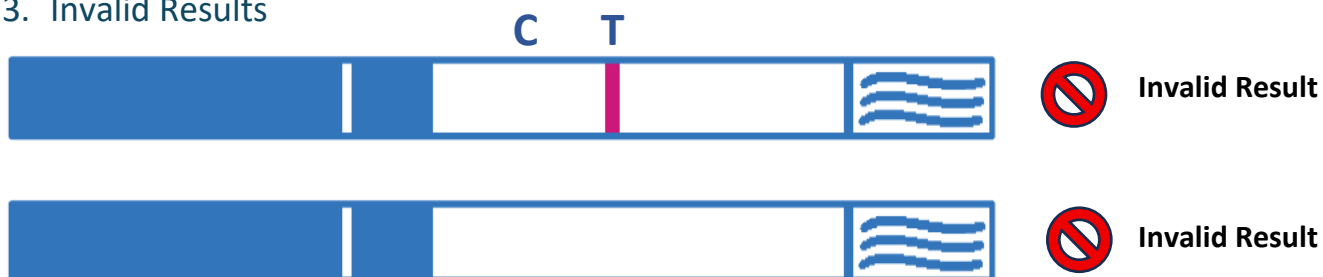


A second bar appearing on the test strip (however faint) indicates a negative test result.

Considerations for a negative result:

- There is no xylazine in the sample provided (See: [chocolate chip cookie effect](#))
- The sample may not have been crushed well enough or shaken enough to dissolve enough of the target substance into the test water.
- A different drug may be present that does not react with this test strip.
- False negatives were not found to be common during the trial of these test strips.

3. Invalid Results



If no control line (C) appears, the test is invalid.

Invalid test results can occur from:

- Improper handling.
- Testing substances that are not compatible with test strips such as alcohol.
- Wetting the result area (center white area where the two lines appear) while performing the test. Only the wavy lines up to the immersion line should contact the test water.
- Using expired test strips.
- Using test strips from punctured bags (the strips are sensitive to humidity).
- Test strips were bent or damaged prior to use.
- Not enough liquid to saturate the test strip.

Considerations for an invalid result:

- Repeat the test using an unexpired test strip from an intact package. Carefully conduct the test to rule out operator error.
- If the test remains invalid, ensure that the strip is being read in the correct direction. A positive result can be mistaken for an invalid result as they both have one line.
- If the test is conducted and interpreted correctly, the substance may be incompatible with test strips. Use an FTIR or other means of testing for this sample.
- Dispose of all expired test kits.

Additional Resources

Canadian Community Epidemiology Network (CCENDU): [An Update on Xylazine in the Unregulated Drug Supply](#) (2023)

Government of Canada: [The emergence of Xylazine in Canada](#) (2023)

National Institute on Drug Abuse: [Xylazine](#)

University of Pittsburgh: [Xylazine Wound Care Handout](#)

Prevention Point Pittsburgh: [What's the Deal With Xylazine?](#)

References

1. **Angelucci J, Ruiz Orduna A, Matthews J.** *Detection of xylazine by immunoassay test strips in community drug samples: phase 2 report.* Vancouver (BC): British Columbia Centre on Substance Use; 2025 May. <https://drugcheckingbc.ca/wp-content/uploads/sites/4/2025/05/XTS-Report-Phase-2.pdf>
2. **Angelucci J, Chana, M, Ruiz Orduna A, Matthews J.** *Detection of xylazine by immunoassay test strips in community drug samples: a preliminary report.* Vancouver (BC): British Columbia Centre on Substance Use; 2024 May. <https://drugcheckingbc.ca/wp-content/uploads/sites/4/2024/05/2024-04-26-Detection-of-xylazine-by-immunoassay-test-strips-in-community-drug-samples-A-preliminary-report-FINAL-May-2024.pdf>

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