



BRITISH COLUMBIA
CENTRE ON
SUBSTANCE USE

Networking researchers, educators & care providers

Drug Checking

Guidelines for Identifying Colours and Textures



1.0 Definition

The British Columbia Centre on Substance Use (BCCSU) is evaluating the implementation of a provincial drug checking project using Fourier transform infrared (FTIR) spectroscopy in combination with fentanyl immunoassay strips. In order to maintain consistency and analytical rigour, each sample's appearance and composition is recorded and tracked according to the following guidelines.

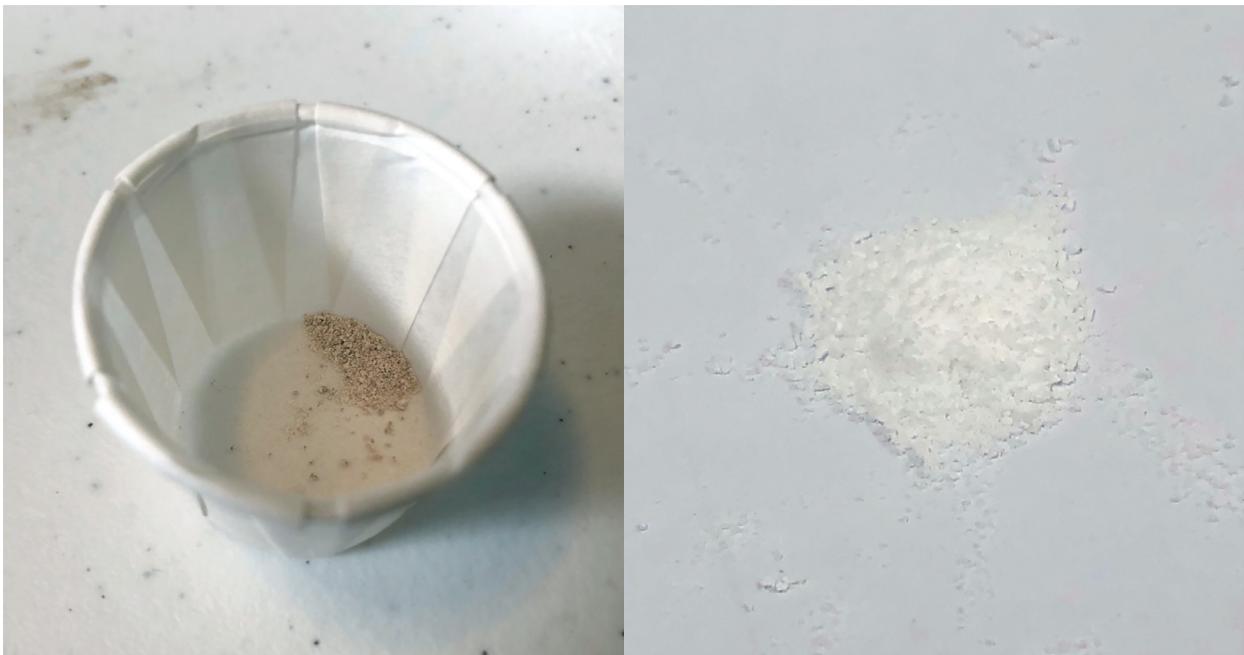
These guidelines should be followed for all sample appearance data uploaded into the electronic data capture system. However, when submitting a public health alert, a more detailed description of the drug's appearance may be needed, including a photo of the sample whenever possible.

It is important to note that the descriptors that comprise this guide are based on drug checking data collected primarily in Vancouver, BC from October 2017 to January 2019. As the colour and texture descriptors are meant to reflect appearances in local drug markets, this guide will be updated as needed.

2.0 Textures

2.1 Powder

Powders are defined as dry, bulk^a, and finely divided solids composed of a large number of particles that flow freely when shaken. They are distinct from granules, as they tend to form clumps when flowing and have a smaller particle size. Powder particles can range in size from 0.1 to 10 microns.



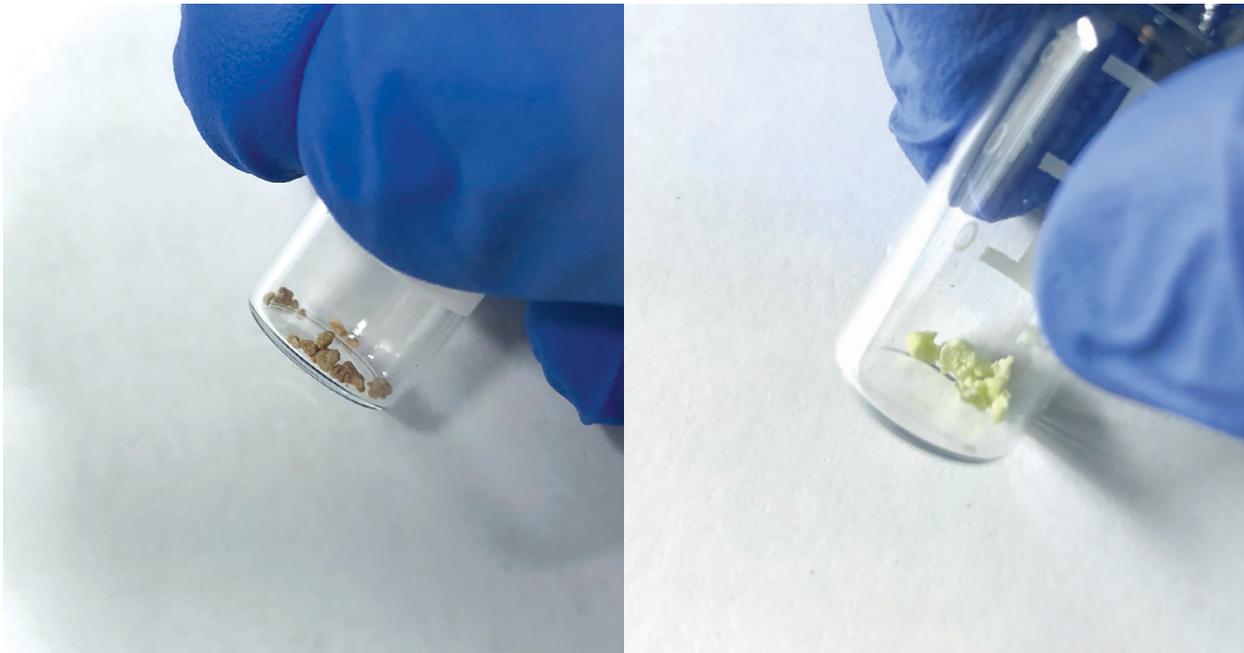
Light brown powder (left) and white powder (right)

Powder is a common appearance for heroin, cocaine, and psychedelics such as 2C-B. Powdery cocaine often clumps together but breaks down when pressed. Very finely crushed crystalline drugs, such as 3,4-methylenedioxymethamphetamine (MDMA), can also have the appearance of powders. **Powders are never colourless**, as finely crushed crystals will appear white.

a. Bulk is defined as an assembly of particles that is large enough for the statistical mean of any property to be independent of the number of particles.

2.2 Granules

Granules are defined as clusters of powders or small particles that appear larger, more inconsistent in size and shape, and freer flowing than powder particles.¹ Individual granules can be up to 5 mm in diameter. A rule of thumb for differentiating granules from powders is that if the particles are distinguishable by eye, or if a single particle can be isolated with a fine-tipped spatula, then the substance is granular.



Granules

Granules are a common appearance for fentanyl and heroin samples. Note that pharmaceutical preparations of morphine or amphetamine are often capsules filled with sucrose-based beads. When logging this information in the electronic data capture system, beads should be classified as granules with clarifying details in the comments box of the Outreach Report.

2.3 Pebbles

Pebbles have a distinct appearance and texture from granules and powders. While pebbles are also dry and free flowing, they are often larger (i.e., greater than 3.0 mm) in size and can sometimes be difficult to break down when pressed with an FTIR anvil. Some pebbles have sharp edges and are chunkier in appearance. Fentanyl is often sold as brightly coloured pebbles that resemble Nerds™ candy.



Pebbles

Some samples consist of a heterogeneous mix of pebbles and granules. In these cases, the sample should be logged as pebbles with further detail provided in the comments box in the Outreach Report.

2.4 Crystals

Crystals are defined as solid materials formed by a crystal lattice structure that is geometric in shape.² They are characterized by flat sides and sharp edges. Fine crystals may be distinguishable from powders due to a shiny appearance. Crystals range from transparent to opaque, with some possessing colour and others presenting as colourless. Crystals can vary from fine (resembling snow, difficult to distinguish with the naked eye), to large (various structures, easily distinguishable with the naked eye). Some crystals over a few centimetres in size may be referred to as shards. Methamphetamine, MDMA, and ketamine are drugs that often present as crystals.



brown crystals

*dark brown crystals
(in capsule)*

*colourless crystals
(in capsule)*

2.5 Tablets

Tablets may be either (a) non-pharmaceutical *pressed tablets* or (b) pharmaceutical *tablets*. These pills can be complicated to analyze, as they contain the active ingredients as well as diluents, binders, lubricants, disintegrates, sweeteners, and/or pigments.

(a) *Pressed tablets* refer to non-pharmaceutical tablets created with a pill press. Pressed tablets are often branded with an imprint (e.g., crown, bumblebee). The three main ingredients in a pressed tablet are: the active ingredient (e.g., MDMA in ecstasy pills), the binding agent (e.g., microcrystalline cellulose), and the flowing agent or lubricant (e.g., magnesium stearate).⁴ When analyzing a pressed tablet with an FTIR spectrometer, expect to see signal from an 'uncertain oil' or 'wax'; this is due to the magnesium stearate used as the lubricant.

Note that pressed tablets may have the appearance of pharmaceutical ones. High-quality pill presses are able to create Xanax pills that are indistinguishable from legitimate ones, and green oxycodone 80 mg tablets have well-known counterfeit counterparts containing fentanyl.

Distinct characteristics should be noted by the technician in the comments section of the Outreach Report (e.g., shape, estimate of size, imprint), and if possible, a photo should be attached.

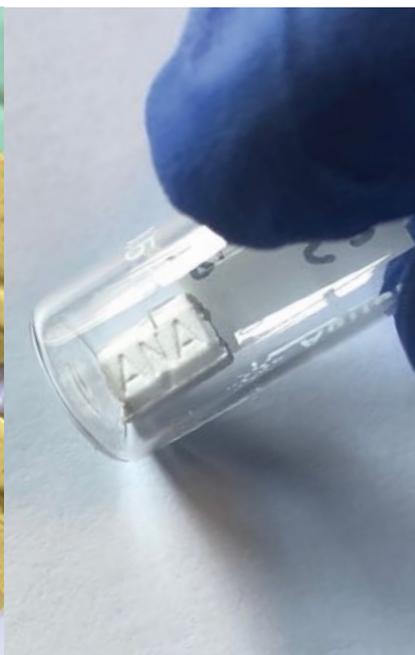
(b) *Tablets* are pharmaceutical preparations of medication³. Similar to illicitly pressed tablets, pharmaceutical tablets typically have imprints (e.g., letters or numbers that identify the active drug and dosage). Tablets are often coated with a covering (e.g., enteric coating) that makes them easier to swallow or be better able to survive stomach acid. As these coatings do not contain any active drug, a sharp spatula can be used to chip off some of the outer coating and reveal the interior of the pill. The powdery interior should be used as the sample on the spectrometer.

Some drugs that are prepared in tablet form have very small (sub-milligram) dosages (e.g., benzodiazepines). In these cases, the vast majority of the pill is made up of excipient (i.e., filler), with the active ingredient composing a small percentage of the tablet – often below the limit-of-detection of the FTIR. In such samples, free online pill identifier tools (drugs.com or webmd) may come in handy.

Tablets should be logged with a note describing the appearance in the comments box of the Outreach Report .



multiple coloured pressed tablets



white tablet (Xanax fragment)



white tablet (Percocet)

2.6 Capsules

Capsules are a pharmaceutical preparation for the delivery of medication³. Capsules are hard cylinders with domed ends, typically coated with gelatine, that contain a powder. They can be two or more colours and can be printed with text denoting the contents. Drugs such as MDMA, ketamine, or other psychedelics often present inside clear capsules for easy storage; clear capsule shells are easily purchased online or at a pharmacy.

When performing a drug check on a capsule, the pill separating the two halves should be opened in order to test the powder contained within.

When logging a drug check result, log the texture as “capsule” only when the pill is pharmaceutical in nature (not when other types of substances are stored within capsules for transport and storage). Record the appearance of pharmaceutical capsules by selecting the main colour of the capsule for the colour. When logging a drug check result on samples clear-shelled capsules, refer to the appearance of the contents of the capsule, not the capsule itself. In the comments section of the Outreach Report, include a brief description of all colours, text, and/or dosage. If possible, upload a photo.



white capsule

2.7 Blotter paper

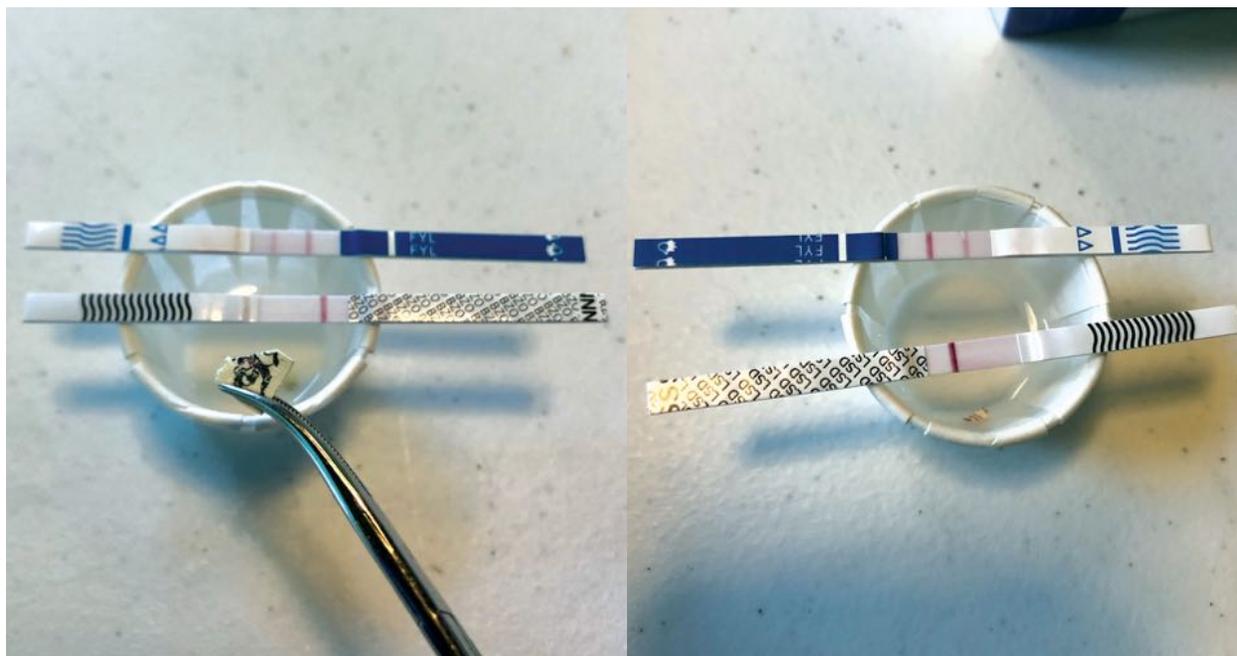
Blotter paper (also known as a “tab”) is a common method for dosing drugs, most notably lysergic acid diethylamide (LSD). Blotters are small pieces of paper, about 1 cm², onto which a liquid containing the drug has been deposited. The paper is typically placed onto or under the tongue for sublingual absorption, but can also be swallowed. A typical LSD dosage is about 100 micrograms, far below what the FTIR is able to detect. For this reason, **blotter papers are not testable with the FTIR.**

However, tabs containing substances other than LSD can be sold as acid, so checking blotter paper with other technologies is still an important harm reduction measure. The BCCSU employs LSD immunoassay strips to confirm the presence of LSD on blotter paper. Ehrlich reagent can also be used, but is not preferred.

Alprazolam (Xanax), as well as carfentanil, are actively being sold in the street drug market on blotter paper. For this reason, fentanyl test strips should always be used when performing a benzodiazepine or LSD test strip on a piece of blotter paper.

When logging a drug check performed on a blotter paper, select the texture “blotter (tab).”

When choosing a colour, pick the one that best describes the overall appearance of the tab and provide more detail in the comments box, uploading a photo if possible.



Alprazolam on a blotter paper

Small sliver of LSD blotter paper

2.8 Miscellaneous

Chunk: An irregular piece of substance that resembles a large pebble but is more jagged and irregular in shape. Crack cocaine often presents as chunks.

Flake: Flakes are flat, wide, and thin. Cocaine sometimes has the appearance of flakes.

Liquid: Substances that may flow freely like water or oil, or be suspended in more viscous solutions like gel. Liquids may be collected out of a syringe.

Paste: A paste is a soft, wet substance that tends to be amorphous and viscous.

Organics: Substances that come from plants. Appearance can vary from dried, ground-up leaves to cannabis bud. Many organics cannot be tested with the FTIR due to detection-limit issues. There are some exceptions: changa (DMT smoking blend) has been successfully tested with the FTIR and heavily-trichomed cannabis can contain enough THC to be measured with the FTIR although not many conclusions about the product can be made (i.e., cannot determine THC:CBD ratio or terpenes present).

Residue: A small amount of substance that remains after the main portion has been used (e.g., from the inside of a baggie or a used cooker). In the comments box, provide detail on what kind of residue was being tested.

white chunk (crack cocaine)



colouress liquid (GHB)



*brown residue
(heroin and methamphetamine in used cooker)*



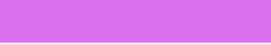
*black residue
(fentanyl on used foil)*

2.9 Other

'*Other (Specify)*' is an option reserved for textures that do not fit into any of the above categories. **This selection is a last resort and should only be use in rare circumstances.** It is best to attempt to fit the substance being checked into another category. If selecting the texture as *other*, provide as many details in the comments box as possible.

3.0 Colours

Colours are often used as a way to differentiate one product from another in street drug markets. Keeping track of drug colour is an important part of the data collection process.

<i>Colour</i>	<i>Available Descriptors</i>		
	<i>Regular</i>	<i>Light</i>	<i>Dark</i>
<i>Red</i>			
<i>Orange</i>			
<i>Yellow</i>			
<i>Green</i>			
<i>Blue</i>			
<i>Purple</i>			
<i>Pink</i>			
<i>Brown</i>			
<i>Grey</i>			
<i>White</i>		<input type="checkbox"/>	<input type="checkbox"/>
<i>Black</i>		<input type="checkbox"/>	<input type="checkbox"/>
<i>Colourless</i>		<input type="checkbox"/>	<input type="checkbox"/>
<i>Other (Specify)</i>			

Colour descriptors must be chosen from the pre-selected list provided in the electronic data capture system. Although there is an option for *Other*, **only use it as a last resort**.

Note: This list of colours is provided to streamline data collection. If a substance is presented for testing triggers a public health alert, describe the appearance of the substance in detail and include a photo whenever possible.

References

1. Duran, Jacques. *Sands, Powders, and Grains: An Introduction to the Physics of Granular Materials*. New York, NY: Springer New York, 2000.
2. Florence, Alexander T., and David Attwood. *Physicochemical Principles of Pharmacy: In Manufacture, Formulation and Clinical Use*. Sixth edition. London: (PhP) Pharmaceutical Press, 2016.
3. Sayeed, Vilayat. 'Size, Shape, and Other Physical Attributes of Generic Tablets and Capsules Guidance for Industry', 2015.
4. 'How to Make a Tablet Pill Mix for a Pill Press Part 1'. LFA Tablet Presses, 2018.
<https://www.lfatabletpresses.com/videos/how-to-make-a-tablet-pill-mix-for-a-press-1>.

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