

Found in all drugs

- Natural, mild stimulant found in coffee, tea, and chocolate
- When taken in high doses or for long periods of time, it may cause nausea, headaches, restlessness, insomnia, and anxiety

Caffeine

Found in all drugs

- Natural sweetener found in fruits and vegetables and used in diabetic-friendly foods
- Rapidly excreted in urine when injected or taken orally
- May cause mild dehydration when taken in high amounts

Mannitol

Found in opioids & cocaine

- Type of sugar that naturally occurs in fruits, beans, grains, and nuts
- Considered a pseudovitamin
- It may cause nausea when ingested in high doses

Inositol

Found in opioids

- Naturally produced in fruits and vegetables
- Commonly used to treat and prevent the common cold and several infections
- Generally nontoxic, but may cause nausea, headaches, stomach cramps, and kidney stones when taken in doses higher than 2g/day
- Given away in OPS settings and therefore has been seen as an adulterant in opioids. Commonly used to help crack cocaine dissolve for injection

Ascorbic Acid (Vitamin C)

Found in methamphetamine & other crystals

- Supplement naturally occurring in small amounts
- Used to treat muscle damage and arthritic pain
- Generally nontoxic when taken orally but may cause nausea and headaches when ingested in high doses
- Commonly added to meth because it bulks out the size of a whole crystal, but appears as a cut in other drugs as well

Dimethyl Sulfone (MSM)

Found in pressed tablets & pharmaceuticals

- Obtained from purified plant material
- Generally nontoxic, but may harm the digestive system and interfere with nutrient absorption when ingested in high doses
- Does not dissolve, so important to filter before injection

Microcrystalline Cellulose (MCC)

Found in opioids

- Sweetener used in low-sugar foods. Occurs naturally in many fruits and vegetables
- No adverse effects found when administered orally or intravenously
- It does not get metabolized and is excreted in urine

Erythritol

Found in opioids & some pharmaceuticals

- Found in fentanyl and other opioids when sold as 'pure' or 'raw'
- When taken orally in high doses, it may cause nausea and abdominal pain
- When administered intravenously it is excreted almost completely in the urine

Polyethylene Glycol (PEG)

Found in opioids

- Administered orally to treat dental decay as it does not promote tooth decay
- Used intravenously as an energy source during IV nutrition
- Generally nontoxic

Xylitol

Found in cocaine

- Pharmaceutical drug used as a painkiller and to treat fever before acetaminophen was invented
- Taken off the market in 1978 because it was linked to certain cancers when taken in large doses for long periods of time
- Also known as 'superbuff' since it looks and acts like cocaine when cooked into crack

Phenacetin (Superbuff)

Found in cocaine

- Antiparasitic drug used to treat bacterial, parasitic, and viral infections in humans and animals
- Sometimes called pig dewormer
- Taken off the American market in 2000 due to its side effects: it can cause agranulocytosis (reduction in number of white blood cells) in humans when taken for long periods of time

Levamisole

Found in cocaine

- Used in insecticides
- It can be toxic if ingested in high quantities
- May heighten the local anesthetic effect of cocaine

Boric Acid

AKA: coke, blow, powder

- A stimulant extracted from the leaves of the South American coca plant
- It increases the levels of dopamine in the brain affecting reward pathways and inducing euphoria

Cocaine

Found in cocaine & sometimes MDMA and ketamine

- Supplement used by bodybuilders and athletes
- Used in muscle recovery to improve strength and power output during resistance exercise
- Side effects when taken in high doses include weight gain due to water retention, muscle cramps, dizziness, upset stomach and diarrhea

Creatine

Found in opioids

- Powerful synthetic opioid (50-100 times stronger than morphine)
- Typically used to treat patients with severe pain
- The high potency of fentanyl greatly increases the risk of overdose, especially when the dose is unknown and combined with other depressants

Fentanyl

AKA: Diacetylmorphine, dope or down

- **Semi-synthetic opioid, made from processed morphine**
- **Twice as strong intravenous morphine if injected**
- **There are several forms of heroin (base, salt, and raw)**
- **Purified hydrochloride salt is a white powder that can be easily dissolved and injected; the purified base is used for smoking**

Heroin

AKA: special K or K

- **Has been used as an anesthetic and painkiller since the 1970s and is increasingly used for various reasons including as an antidepressant**
- **Produces a feeling of dissociation between mind and body and may cause hallucinations**
- **Strength of its effects is proportional with the dose taken and it can last for up to 90 minutes; high doses of ketamine are associated with the K-hole which is a state of high dissociation where the person may be unable to move (temporary paralysis)**

Ketamine

AKA: side, jib, tina, crystal meth

- **Powerful stimulant; it increases the levels of dopamine in the brain, causing feelings of motivation, alertness, euphoria, and wakefulness**
- **Effects can last up to 12 hours**
- **Identified as an adulterant in opioids and other stimulants (including cocaine and MDMA)**

Methamphetamine

AKA: Sally or Sass

- **Stimulant and mild psychedelic**
- **It is more potent than MDMA and the effects tend to last longer**
- **MDA is much more likely to produce visual hallucinations than MDMA**
- **Like MDMA, MDA increases the release of serotonin, dopamine, and norepinephrine, which produce a feeling of euphoria**
- **Be careful when reading FTIR matches as the name is similar to methylenedioxy[meth]amphetamine**

MDA

AKA: ephylone, NEP

- **Developed in the 1960s but first seen in the USA in 2016**
- **Synthetic cathinone and stimulant, often mis-sold as MDMA but can be cut into MDMA**
- **Significantly more potent than MDMA**
- **Linked to numerous overdoses and deaths; little is known about the long-term side effects**

N-Ethylpentylone (NEP)

Found in opioids

- Chemicals that are structurally very similar to fentanyl are called fentanyl analogues
- Different analogues have different strengths and dosages and are often unknown
- Cannot be detected by FTIR analysis because fentanyl concentration is often low (~5%), slightly above the detection limit of the device
- Important: determining which analogue of fentanyl is present in a sample is very difficult

Fentanyl analogues

Have been identified in opioids

- Examples are: AMB-FUBINACA, 5F-MDMB-PINACA)
- Typically used to create synthetic cannabis which is smoked for its psychoactive effects
- There are no medical or commercial uses for synthetic cannabinoids; side- and long-term effects are unknown

Synthetic Cannabinoids

Found in opioids

- AKA: paracetamol, Tylenol
- First made in 1877, it is the most common medication used to treat pain and fever
- Generally regarded as safe in recommended doses (3-4g) it can cause toxicity and liver failure at higher doses

Acetaminophen

Found in opioids

- Used as a pill filler (pressed and pharmaceutical)
- Naturally occurring sugar in the milk of most mammals
- Generally considered safe to consume and non-toxic

Lactose

Found in cocaine

- An amino acid used in the biosynthesis of proteins
- The most abundant free amino acid in human blood
- Can be found in protein rich foods like beef, chicken, dairy products, eggs, and certain vegetables
- Can be purchased in a purified form as a workout supplement

Glutamine

AKA: benzos

- **Examples are alprazolam, clonazepam, adinazolam**
- **Used in treating anxiety, insomnia, agitation, seizures, muscle spasms**
- **Results in a sedative and hypnotic effect**
- **May cause moments of memory loss and feeling of detachment if taken in high doses**

Benzodiazepines

Found in cocaine

- **Often used in surgeries or minor medical procedures to freeze an area**
- **Creates a numbing effect similar to cocaine and is used as an adulterant to produce the feeling of strong cocaine**
- **Non-psychoactive**

Local anesthetics

(Benzocaine, lidocaine, procaine)

Found in cocaine & pressed pills

- **AKA: baby powder, talcum powder**
- **May increase the risk of cancer from prolonged exposure of talc containing asbestos**
- **Case studies indicate that snorting drugs with talc over extended periods time can cause chronic lung problems**

Talc

Generally found in old pressed ecstasy (MDMA) pills

- **Potent stimulant often used with TMFPF**
- **Gives a euphoric and stimulant effect**
- **Adverse include acute psychosis, renal toxicity and seizures; its effects are similar to amphetamine**
- **Physical problems reported were (in order of frequency): poor appetite, hot/cold flushes, heavy sweating, stomach pains/nausea, headaches and tremors/shakes**
- **Psychological problems experienced were (in order of frequency): trouble sleeping, loss of energy, strange thoughts, mood swings, confusion and irritability**

Benzylpiperazine (BZP)

Found adulterated into opioids & counterfeit Xanax tablets

- **Benzodiazepine derivative**
- **Central nervous system depressant drugs used to treat people with anxiety disorders, panic attacks, sleep disorders, or seizure disorder in some parts of the world (not North America)**
- **May cause prolonged sedation, blackouts, memory loss**

Etizolam

Found in old pressed ecstasy (MDMA) pills

- *Common in pressed pills in the 1990s but has fallen out of favour with the creation of crystal MDMA*
- *Almost always present with BZP in the form of 'legal ecstasy' as these research chemicals were not illegal*

Trifluoromethylphenylpiperazine (TFMPP)



Found in drugs sold as fentanyl

- *Depressant used as a sedative for veterinary surgery*
- *Little is known about its effects in humans*

Xylazine



AKA: Molly, ecstasy, or E

- *Enhances the production of serotonin to create feelings of increased alertness, energy, empathy and pleasure*
- *Effects can last 4-6 hours*
- *If taken in high doses it can cause muscle tremors, nausea/vomiting, increased blood pressure and can be particularly taxing on the heart, liver and kidneys*

MDMA



AKA: Liquid E, "G", juice

- *A white powder usually sold as a solution in water*
- *Strengths can vary so dosages do as well*
- *Use slowly and if dose is unknown, start with a tester*
- *Works on GABA receptors like alcohol*
- *Do not mix with other depressants (opioids) and dissociatives (ketamine)*

Gamma-Hydroxybutyrate (GHB)

