checkit!

2024

DRUG CHECKING ANNUAL REPORT

checkit!

Drug Checking
Annual Report 2024

checkit! is part of Suchthilfe Wien gGmbH and runs a project in cooperation with the Medical University of Vienna to research and monitor current drug consumption trends and developments on the drug market. Within the framework of this cooperation, checkit! offers users of so-called recreational drugs the opportunity to have psychoactive substances chemically analysed (drug checking). Drug checking not only refers to the literal chemical analysis, but allows users to talk about their drug use, ask questions, receive non-judgemental advice and individually tailored information. This annual report provides an overview of the analysis results of various psychoactive substances that were submitted for analysis in 2024 at music events, during stationary drug checking at the checkit!-homebase or via pharmacies.

checkit! also offers information and psychosocial counselling independently of drug checking either in person, by telephone, online or by video call. All services are anonymous, confidential and free of charge for users.

Expansion of the checkit! drug checking service

In 2025, checkit! will expand its drug checking services to another location in Meidling. In addition, there will be a counselling center at the U4 Center with a drop-in center (checkit! Lokal).

With checkit! Lokal, there will be an additional opportunity to submit substances for analysis. Similar to the homebase, sample submission will take place on-site under the guidance of checkit! staff. Analysis results and further information can be obtained directly from checkit!

FURTHER INFORMATION

All information on checkit!'s services can be found on our website:
www.checkit.wien

Drug Checking

Analysis techniques

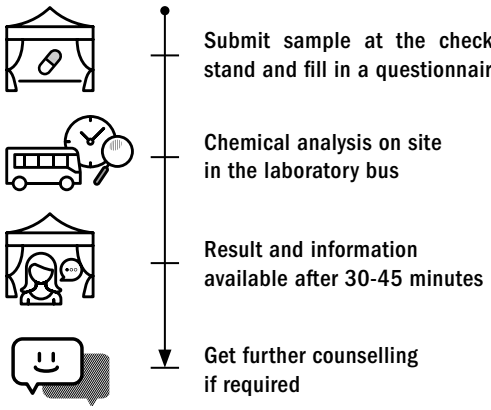
The checkit! laboratory currently combines five different chromatographic, spectroscopic and mass spectrometric analytical techniques (UHPLC-IT-MSn, UHPLC-DAD, MALDI-HRMSn, DSAP-IT-MSn and ATR-FTIR) in order to break down the composition of the submitted samples as completely as possible. Combining these complementary methods allows to identify all pharmacologically relevant components, even in complex mixtures, and determine the dose or concentration of the substances identified concurrently.

Sample submission

Since 2020, users of psychoactive substances have had three different options for submitting their substances for analysis at checkit! In general, only a few milligrams or microliters of the substance are required for the analysis.

Mobile drug checking at events

checkit! offers mobile drug checking on-site at music events (clubs, festivals, etc.) approx. 12 times a year. Upon submission, each sample is assigned a number which corresponds to an analysis result published directly on-site after 30 to 45 minutes and communicated by psychosocial staff. In 2024, checkit! provided information and advice at nine events and drug checking at six events. At these events in 2024, there were a total of 1,555 conversations with event attendees and users of the drug checking service as well as 396 analysed samples.

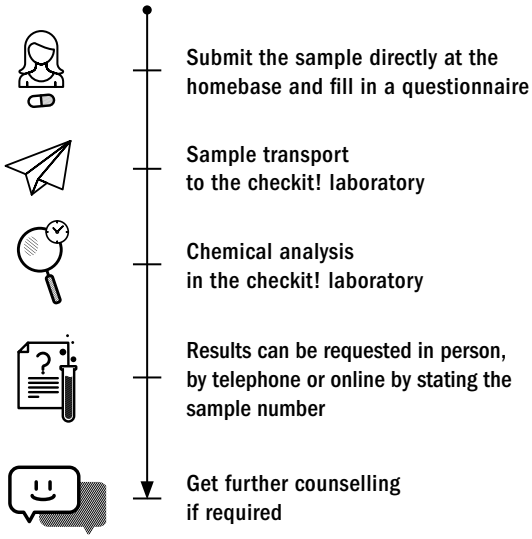


INFORMATION ABOUT DRUG CHECKING SERVICES

You can find all information about the drug checking services on our website:
www.checkit.wien/drug-checking-2

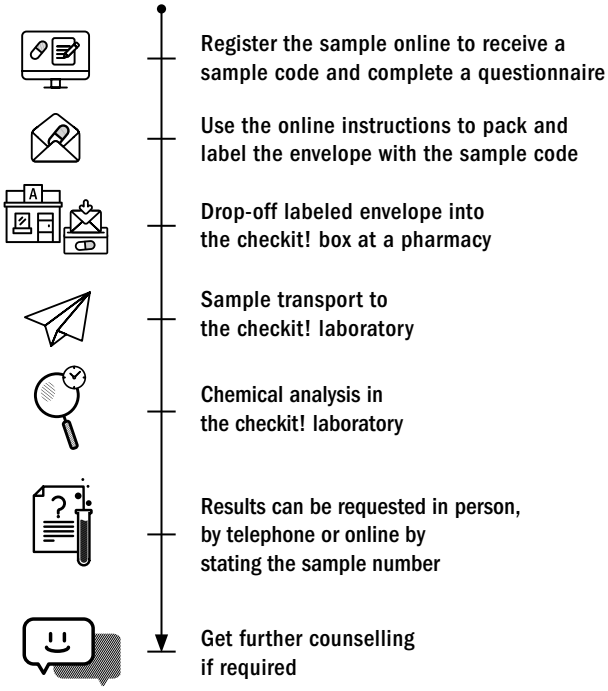
Stationary drug checking at the homebase

Since April 2025, the drop-in center has been open four days a week, including for sample submissions, with no appointment necessary. The exact opening times can be found on the checkit! website. The sample submission takes place under the guidance of the staff on site. The analysis results and further information can be obtained from checkit! staff. In 2024, a total of 1,285 contacts with users of the stationary drug checking service were registered and 1,108 samples analysed. In 2024, three so-called „Night Checks“, with a total of 155 analysed samples, were organised, where samples could be submitted for analysis at the checkit!-homebase late in the evening or at night and the result was provided a few hours later.



Drug checking via pharmacies

In certain pharmacies, checkit! boxes are available for sample submission. For this, the samples must first be registered online and packaged according to the instructions. The analysis results and further information can be obtained from checkit! staff. As part of the pharmacy-based drug checking service, 409 conversations were conducted and 703 samples were analysed in 2024.

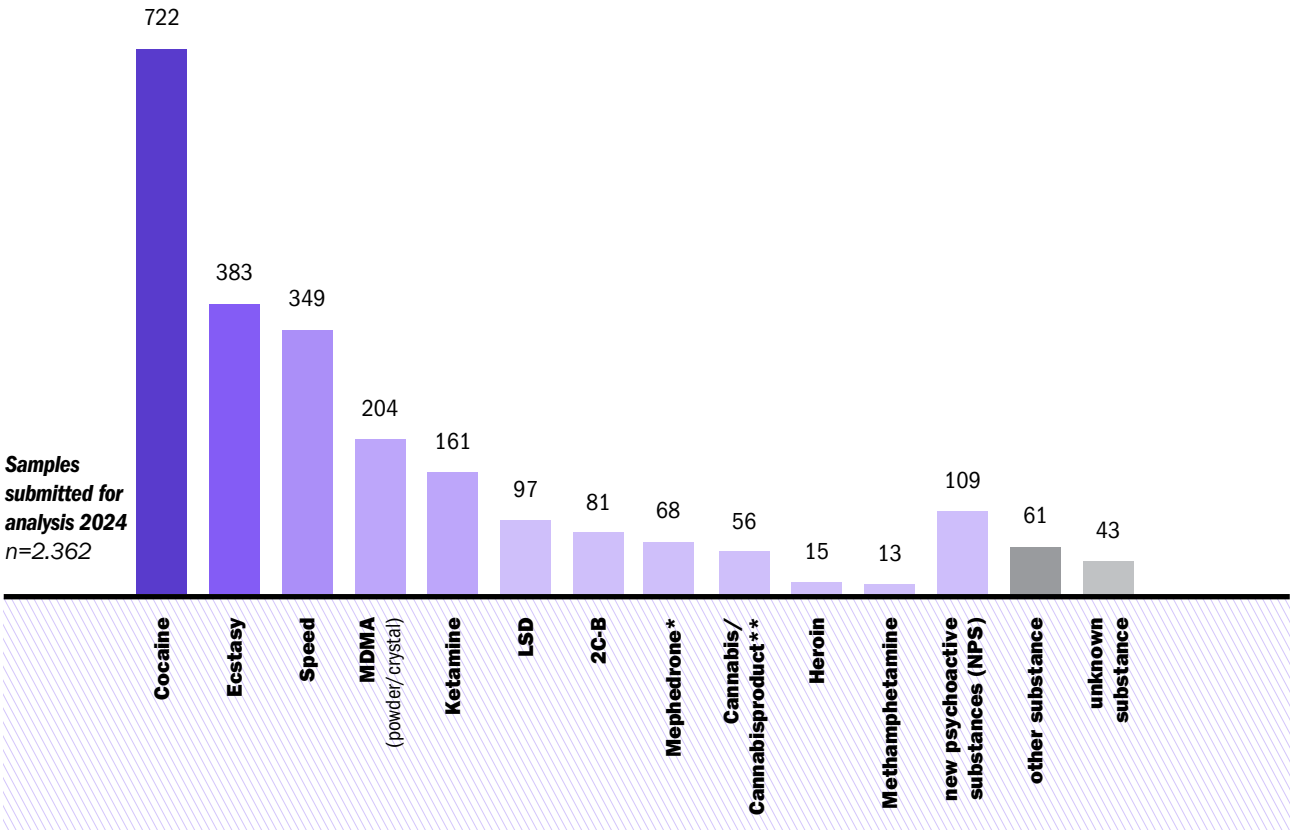


4 Drug Checking

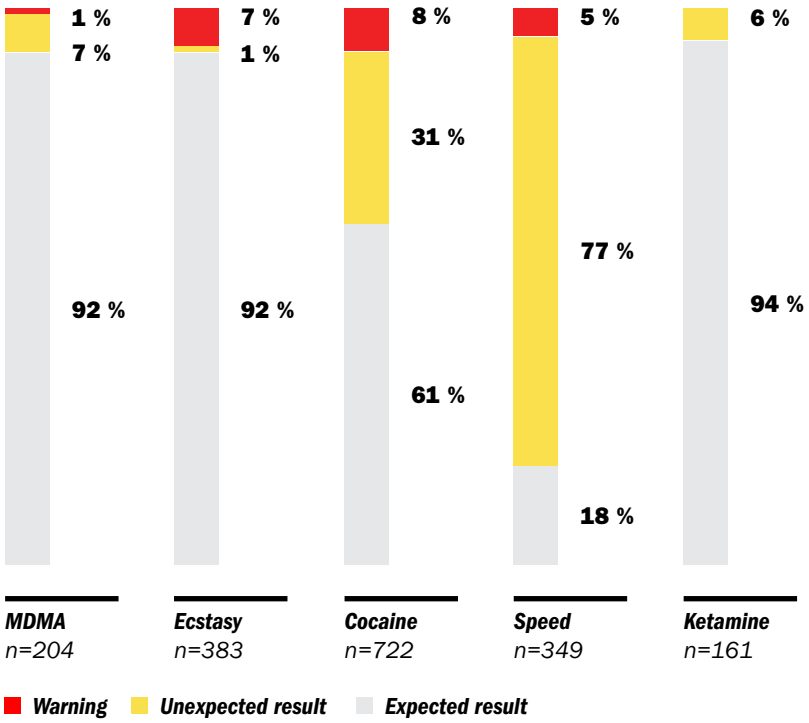
Results for 2024

Results for 2024

In 2024, 2,362 alleged psychoactive substances were submitted for analysis to the checkit! laboratory and are shown in the graph below.



* Mephedrone belongs to the group of NPS, but is shown separately here due to its frequency.
**Cannabis is only tested for the presence of synthetic cannabinoids.



Categorisation of the analysis results

62% of the analysed samples contained solely the expected psychoactive substance (expected result).
In 30% of the samples, the analysis showed another active substance in addition to the expected content or exclusively an unexpected active substance (unexpected result). In 8% of the samples analysed, a warning had to be issued due to the composition of the powder, tablet or trip being of particular concern to health.
The following chart shows how often the respective result categories were assigned to the most frequently submitted substances:

- *„Expected result“*
- *„Unexpected result“ or*
- *„Warning“*

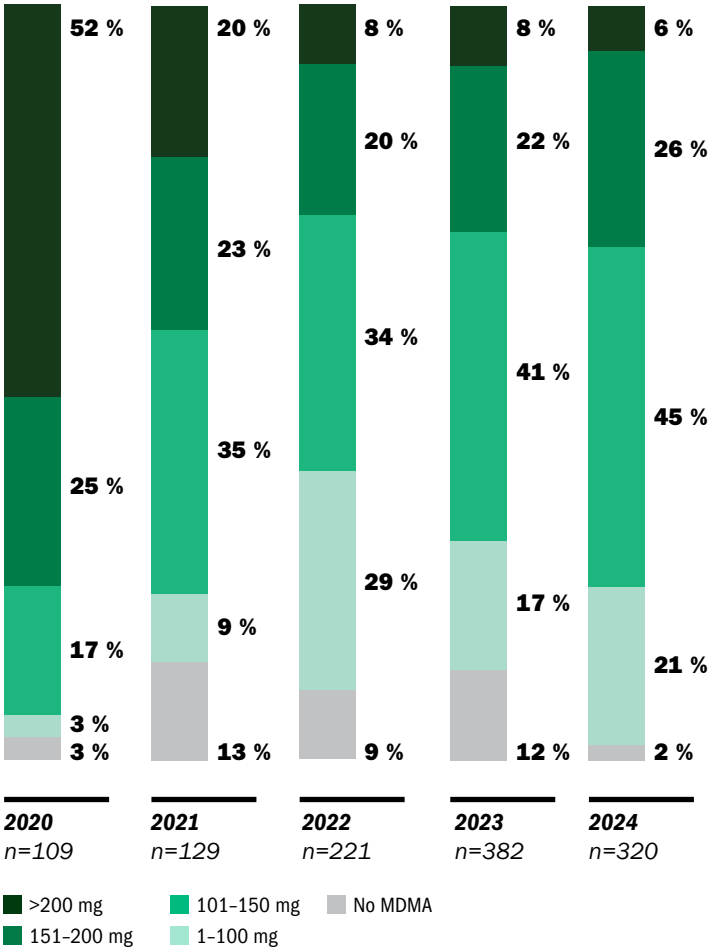
ECSTASY

Ecstasy is a common name for tablets containing MDMA (methylene-dioxy-methyl-amphetamine). MDMA belongs to the group of phenethylamines and has, among other things, a stimulating, empathogenic and entactogenic effect. MDMA can increase feelings of happiness and euphoria as well as change body perception and reduce inhibitions. There may be suppression of hunger, thirst and fatigue. Body temperature can rise, which can lead to severe overheating, especially in combination with excessive dancing and high ambient temperatures. At high doses, jaw spasms, muscle tremors, palpitations, increased blood pressure, seizures and anxiety as well as disorientation may occur.

Changes over time in the composition of ecstasy

In 2024, 97% of ecstasy tablets contained MDMA as the sole psychoactive component in varying dosages. After remaining below 90% for the past three years, the value reached a record high of 97% in 2024. However, the ecstasy market is highly dynamic, meaning the situation can change at any time and the value may drop again.
At the same time, a large proportion of the tablets contained MDMA in high dosages (from 100mg/tablet) or very high dosages (from 200mg/tablet).

MDMA dose in ecstasy tablets
2020–2024



Excluded in the graphic: Fragments and those samples whose MDMA content was not quantifiable.

DEGREE OF PURITY

97%

372 of 383 ecstasy tablets analysed in 2024 contained only MDMA

AVERAGE CONCENTRATION

134 mg*

Average MDMA dose per tablet in 2024 (*Median, MDMA hydrochloride)

FURTHER INFORMATIONEN

Further information about XTC/MDMA can be found on our website.

Mind the dosage!
Take max. 1/3 of a tablet and wait for the effects. The MDMA dose in ecstasy tablets is often far too high when the whole tablet is consumed. The risk of adverse effects such as nausea, vomiting, muscle tremors, jaw spasms and a severe rise in body temperature which can result in multi-organ-failure, increases, especially with doses above 1.5 mg per kg body weight in men, and above 1.3 mg per kg body weight in women (i.e. more than 90 mg in a 60 kg man and about 78 mg in a 60 kg woman).

Crush it!
The effect may occur later than expected with firmly pressed tablets. Always break the tablet into several pieces and ideally grind them into a powder to enable better dosing. In any case, wait for a longer period of time before adding more, otherwise you may overdose.

The appearance of a tablet
says nothing about the actual composition. Tablets with the same appearance (logo, colour, size, etc.) may contain different substances and dosages. If you do not have access to drug checking, take a small amount first and wait for the effect.

Take longer breaks between sessions!
MDMA releases a lot of the body's own serotonin. The human brain needs about 4-6 weeks after consumption to restore its normal serotonin level.

Make sure you drink enough, but not too much. Recommended are 0.3-0.5 litres of (non-alcoholic) liquid per hour.

Avoid mixing with other psychoactive substances.

Further information on risk reduction can be found here: www.checkit.wien/infos/gesundheitstipps/risikoreduzierung/

MDMA

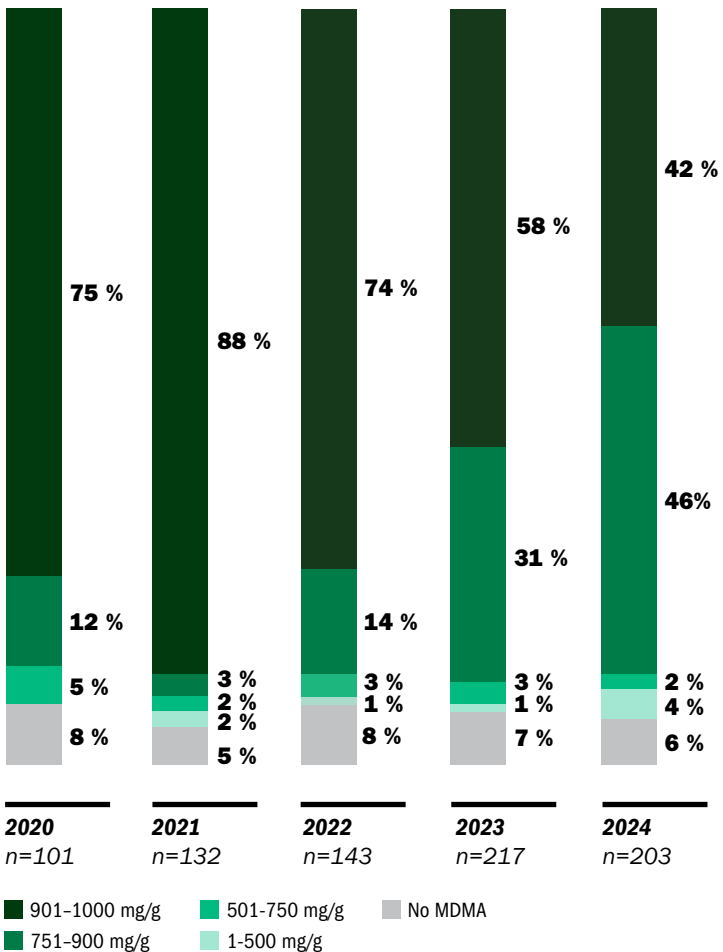
Powder/ crystals

Besides tablets (ecstasy), MDMA is also available as powder or in crystalline form. The possible effects correspond to the description for ecstasy.

Changes over time in the composition of MDMA powders/crystals

In 2024, 92% of the samples contained only the expected psychoactive substance MDMA. As can be seen in the graph below, MDMA levels continue to slightly fluctuate, but remain at a relatively high level.

MDMA concentration in MDMA samples
2020–2024



DEGREE OF PURITY

92%

187 of 204 MDMA samples analysed in 2024 contained only MDMA

AVERAGE CONCENTRATION

896 mg/g*

average MDMA concentration in 2024 (*Median, MDMA hydrochloride)

FURTHER INFORMATION

Further information on MDMA can be found on our website.

Mind the dosage! The concentration of MDMA has been very high in recent years. The risk of adverse effects such as nausea, vomiting, muscle tremors, jaw spasms and a severe rise in body temperature which can result in multi-organ-failure, increases, particularly with doses above 1.5 mg per kg body weight in men, and above 1.3 mg per kg body weight in women (i.e. more than 90 mg in a 60 kg man and about 78 mg in a 60 kg woman).

Use drug checking!
The appearance/smell/consistency of the powder/crystal says nothing about the actual composition. If you do not have access to drug checking, take a small amount first and wait for the effect.

Take longer breaks between sessions!
MDMA releases a lot of the body's own serotonin. The human brain needs about 4-6 weeks after consumption to restore its normal serotonin level.

Make sure you drink enough, but not too much. Recommended are 0.3-0.5 litres of (non-alcoholic) liquid per hour.

Avoid mixing with other psychoactive substances.

When consuming nasally, use your own snorting supplies and do not use bank notes. Consume from a clean surface and crush your substance into as fine a powder as possible. Blow your nose before and after consumption to clear it.

Further information on risk reduction can be found here: www.checkit.wien/infos/gesundheitstipps/risikoreduzierung/

SPEED

"Speed" is another name for amphetamine, usually sold as a powder and has a stimulating (boosting) effect. Consumption can lead to enhanced alertness, increased urge to move, the feeling of increased performance and concentration. Fatigue, hunger, thirst and pain sensation can be suppressed or reduced. There may be an increase in body temperature, high fluid loss, headaches, restlessness, trembling and aggressive behaviour. High doses can put a lot of strain on the cardiovascular system.

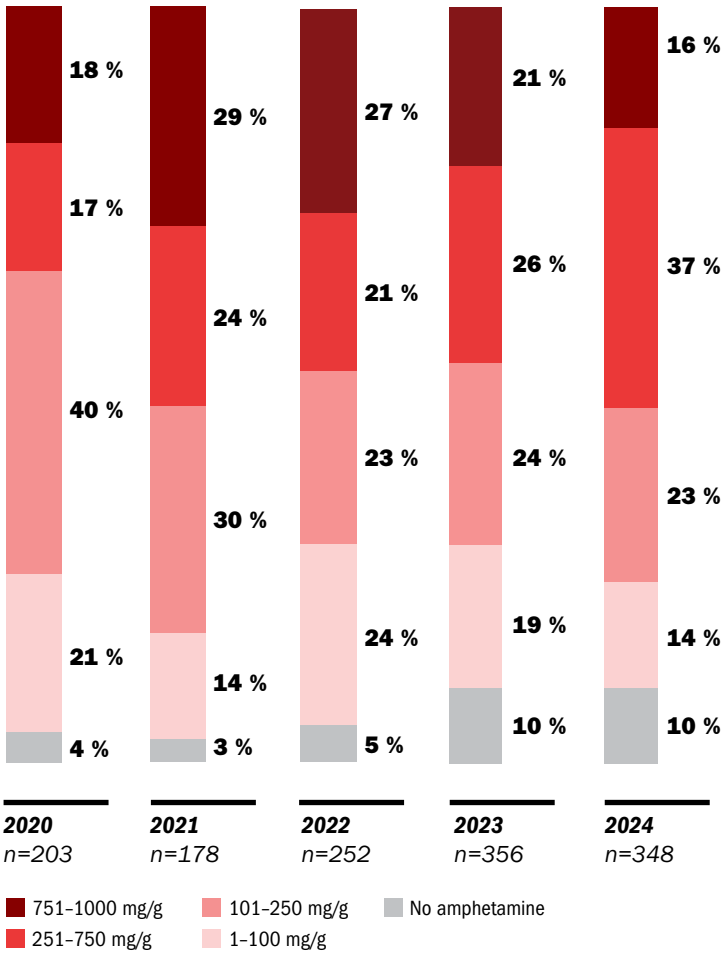
Changes over time in the composition of speed

In 2024, 18% of the analysed speed samples contained amphetamine as the sole psychoactive component in varying concentrations. Almost half of the samples contained less than 250 mg/g amphetamine or no amphetamine at all. At the same time, 16% contained more than 750 mg/g.

The most common psychoactive adulterant: caffeine

Caffeine was detected in 60% of the samples. The concentration of caffeine in these analysed samples ranged between 500 and 600 mg/g over the past three years. Caffeine belongs to the group of stimulants (drive-increasing substances), has an activating effect on muscle and heart activity in small doses and leads to a slight increase in blood pressure and body temperature. The combination of caffeine and amphetamine can put a lot of strain on the cardiovascular system and increase the risk of overheating and major fluid loss.

Amphetamine concentration in speed samples 2020–2024



Samples whose amphetamine content was not quantifiable are excluded.

DEGREE OF PURITY

18%

64 of 349 samples analysed contained only amphetamine

AVERAGE CONCENTRATION

307 mg/g*

average amphetamine concentration in 2024 (*Median, Amphetamine sulfate)

FURTHER INFORMATION

Information on Speed/Amphetamin can be found on our website.

Use drug checking!
The majority of the samples submitted for analysis as speed also contained other psychoactive substances (mostly caffeine) in addition to amphetamine.

Test small amounts first if you don't have access to drug checking. The concentration of the contents can vary greatly from powder to powder.

When consuming nasally, use your own snorting supplies and do not use bank notes. Consume from a clean surface and crush your substance into as fine a powder as possible. Blow your nose before and after consumption to clear it.

Make sure you drink enough, but not too much. Recommended are 0.3-0.5 litres of (non-alcoholic) liquid per hour.

Take longer breaks between sessions!
Speed has a high potential for psychological dependence.

Avoid mixing with other psychoactive substances.

Further information on risk reduction can be found here: www.checkit.wien/infos/gesundheitstipps/risikoreduzierung/

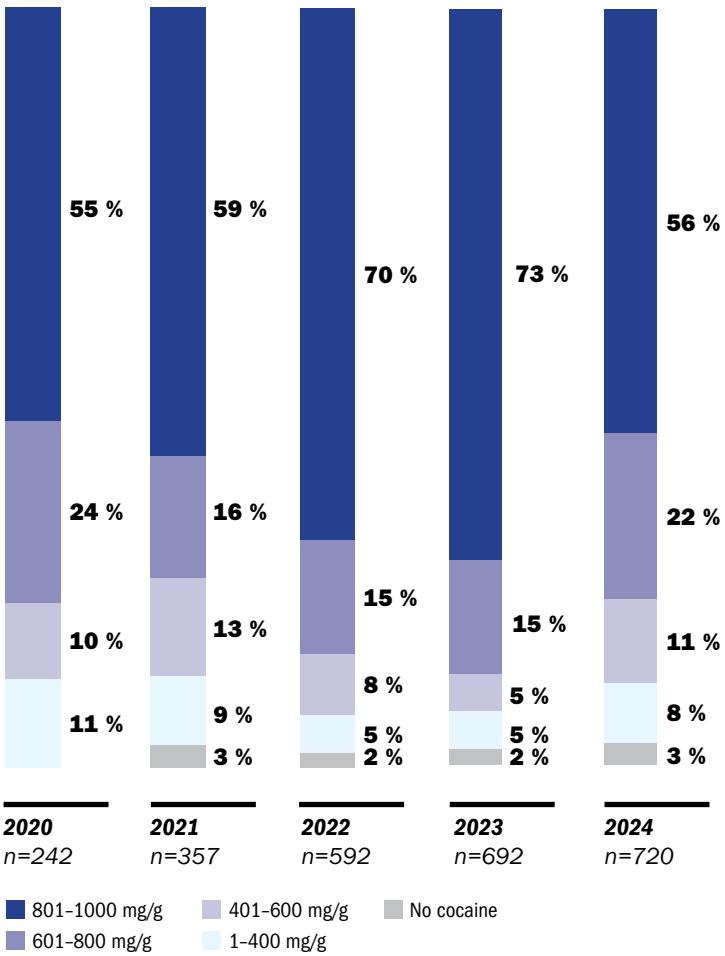
COCAINE

Cocaine is a substance with a stimulating (drive-increasing) effect and is extracted from the leaves of the coca bush. Cocaine can produce strong euphoric feelings, increased self-confidence, sociability and alertness. Restlessness, tension and the urge to move may also occur. The use of cocaine is a heavy burden on the cardiovascular system and increases the risk of heart rhythm disorders and heart attacks. At high doses, anxiety and delusional states can be triggered.

Changes over time in the composition of cocaine

In 2024, 61% of the analysed cocaine samples contained cocaine as the sole psychoactive component in varying concentrations. After four consecutive years of steadily increasing purity, 2024 saw the first significant decline. The reason for this drop was contamination with procaine, which began to rise in April and affected nearly every second sample by mid-year. Toward the end of the year, the proportion of contaminated samples decreased again. In total, 36% of all samples contained pharmacologically active adulterants such as levamisole, caffeine, procaine or other local anaesthetics.

Cocaine concentration in cocaine samples
2020–2024



Samples whose cocaine content was not quantifiable are excluded.

DEGREE OF PURITY

61%

440 of 722 cocaine samples analysed contained only cocaine

AVERAGE CONCENTRATION

836 mg/g*

average cocaine concentration in 2024 (*Median, Cocaine hydrochloride)

FURTHER INFORMATION

Information on cocaine can be found on our website.

Use drug checking!
The concentration of cocaine can vary greatly, and adulterants are often present. If you do not have access to drug checking, take a small amount first and wait for the effect.

When consuming nasally, use your own snorting supplies and do not use bank notes. Consume from a clean surface and crush your substance into as fine a powder as possible. Blow your nose before and after consumption to clear it.

Avoid mixing with other psychoactive substances - especially cocaine and alcohol!

Make sure you drink enough, but not too much. Recommended are 0.3-0.5 litres of (non-alcoholic) liquid per hour.

Take longer breaks between sessions!
Cocaine has a high potential for psychological dependence.

Further information on risk reduction can be found here: www.checkit.wien/infos/gesundheitstipps/risikoreduzierung/

Levamisole

Levamisole is still among the most common adulterants found in cocaine samples. Side effects reported in connection with levamisole include: allergic reactions (e.g. difficulty breathing, swelling of the lips, tongue, face and impairment of the central nervous system (e.g. confusion or loss of consciousness, extreme tiredness. The most worrying side effect of levamisole is a possible change in the blood count, called agranulocytosis. This is a reduction of white blood cells, which can lead to life-threatening infections due to immunodeficiency.

Local anaesthetics

Local anaesthetics are medicinal substances used for numbing specific areas of the body. The most common anaesthetics added to cocaine include substances like lidocaine and procaine.

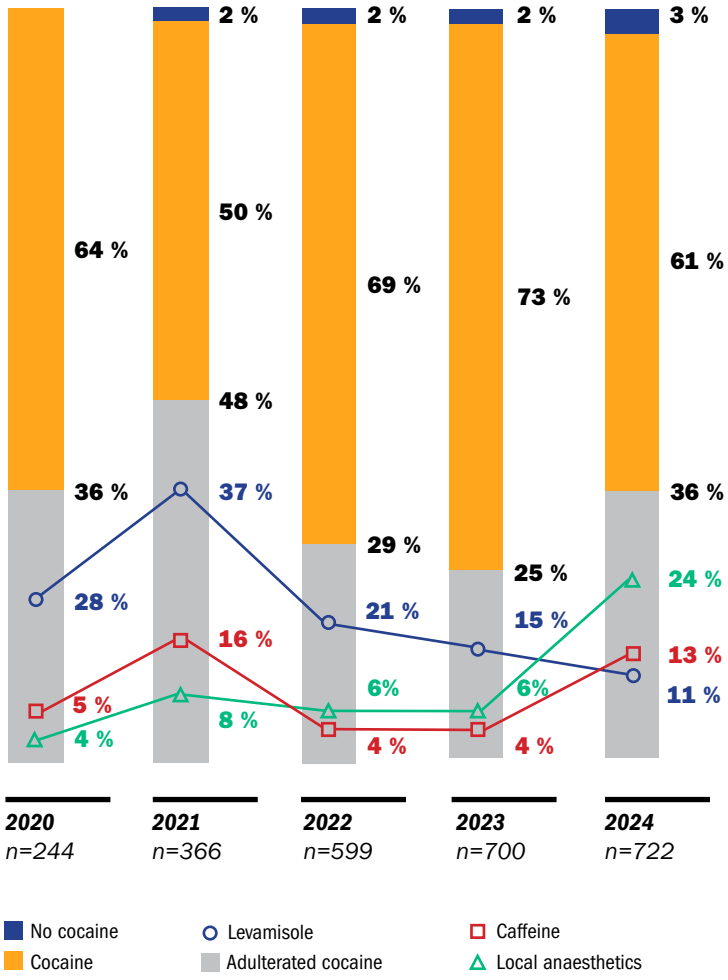
Their taste and numbing effect make them appear similar to pure cocaine when used as cutting agents. However, interactions between cocaine and local anaesthetics such as lidocaine or procaine can be severe and, in some cases, life-threatening, potentially leading to dangerous heart arrhythmias. The risk of heart attacks is also significantly increased.

Caffeine

In small amounts, caffeine can stimulate muscles and the heart and subjectively enhance concentration. Blood pressure and body temperature may increase. At doses of 400 mg or more, symptoms such as headaches, sweating, trembling, nervousness, rapid heartbeat, or sleep disturbances become likely. When combined with other stimulants like speed or cocaine, it puts particular strain on the cardiovascular system and can lead to dehydration and overheating.

Composition of the samples submitted as cocaine and frequency of adulterants 2020–2024

One sample may contain several adulterants.



KETAMINE

Ketamine is an anaesthetic and pain-relieving drug used in emergency and veterinary medicine, among other fields. In low doses, ketamine can produce euphoric and alcohol-like effects. At higher doses, it can lead to dissociative states, where body and mind feel disconnected, up to the "K-Hole" – a feeling of leaving the body, while being unable to move at the same time. Side effects may include anxiety and paranoid states, dizziness, loss of appetite, or increased blood pressure and heart rate. There is also a risk of cardiac arrhythmias. In very high doses, ketamine can cause unconsciousness, convulsive and epileptic seizures, and coma-like states.

Changes over time in the composition of ketamine

In 2024, 94% of the analysed ketamine samples contained ketamine as the sole psychoactive component in varying concentrations. 3% of the samples did not contain ketamine but other substances such as 2-MMC or 2-Flurodeschloroketamine and Deschloro-N-ethylketamine.

Ketamine Variants

Ketamine is found in three forms: **S-ketamine**, **R-ketamine**, and the **racemate** (a mixture of S- and R-ketamine). S-ketamine is about twice as potent as the racemate. You cannot tell for sure which form of ketamine you have based on its appearance (e.g., crystal structure).

At checkit!, samples submitted as ketamine from 2022 & 2023 were analysed for their ketamine variant. In this process only racemic ketamine was identified.

DEGREE OF PURITY

94%

152 of 161 ketamine samples analysed contained only ketamine

AVERAGE CONCENTRATION

932 mg/g*

average ketamine concentration in 2024 (*Median, Ketamine hydrochloride)

FURTHER INFORMATION

Informationen on ketamine can be found on our website.

Use drug checking!
The appearance/smell/consistency of the substance says nothing about the actual composition.

Test small amounts first if you don't have access to drug checking and don't know the composition or variant of your substance. The concentration of the contents can vary greatly from powder to powder.

When consuming nasally, use your own snorting supplies and do not use bank notes. Consume from a clean surface and crush your substance into as fine a powder as possible. Blow your nose before and after consumption to clear it.

Make sure you drink enough, but not too much. Recommended are 0.3-0.5 litres of (non-alcoholic) liquid per hour.

Take longer breaks between sessions! Ketamine has a high potential for psychological dependence.

Avoid mixing with other psychoactive Substances, especially with other "downers" (substances with dampening effects) – such as alcohol, opioids and benzos!

Further information on risk reduction can be found here: www.checkit.wien/infos/gesundheitstipps/risikoreduzierung/

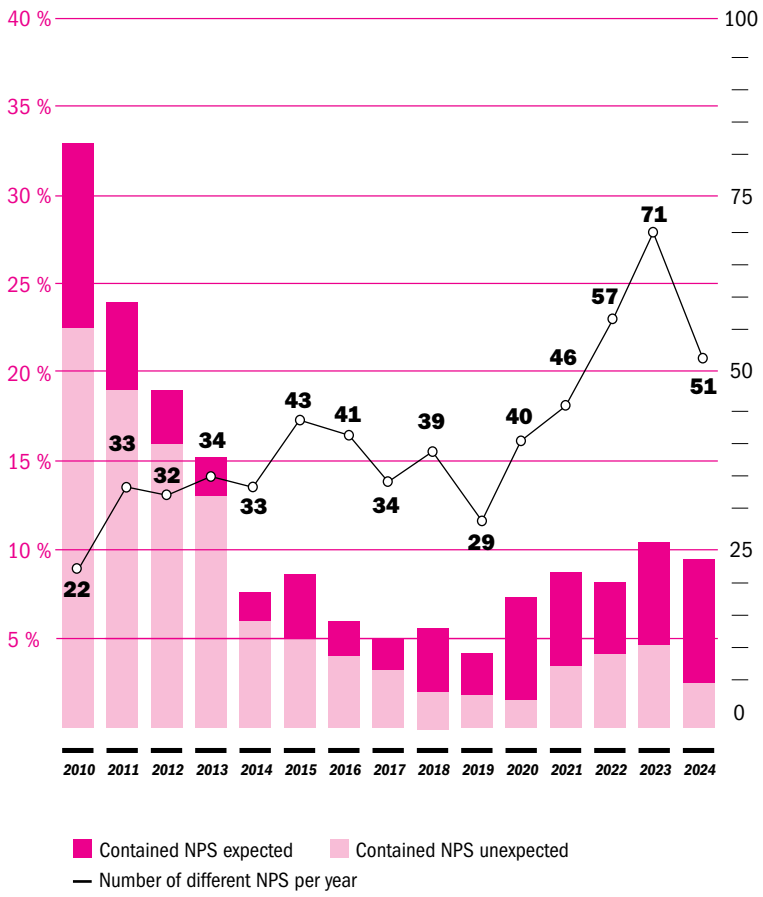
The term "new psychoactive substances" (NPS) is used to describe substances with psychoactive effects that are largely unexplored and about whose effects, risks and long-term consequences little or nothing is known. These may be substances that have been known for some time but have only recently been used/marketed as recreational drugs, or substances that have recently been synthesized for the first time. Some of them are produced with the aim of imitating the effects of known (illegal) substances and/or circumventing laws. Alternatively, they are also called research chemicals (RC's).

Among the total of 2,362 samples analysed by checkit! in 2024, NPS were detected in 9.6% of the samples. Of these, 7.3% were actually acquired as a new psychoactive substance. For the remaining 2.3%, the detection of a new psychoactive substance was unexpected (see figure). The number of unexpected NPS has therefore dropped by nearly half compared to last year.
The number of different NPS detected has also not continued to increase but from last year's peak, but instead dropped to 51 different NPS this year.

The most frequently detected new psychoactive substances in 2024 were 3-CMC, 2-MMC and Mephedrone (4-MMC), which occurred 42, 37 and 26 times respectively. Others were: 4-CMC (15x), MDMB-4en-PINACA (11x), 3-MMC (10x), iso-3-CMC (7x), 1-T-LSD (7x), HHC* (6x), 4-HO-MET (6x).

* HHC is a semi-synthetic Cannabinoid.

Percentage of NPS (expected and unexpected) per year
2010–2024



NPS

The **51 different NPS** identified in 2024 belong to the following substance classes:

14	Cathinones
12	Phenethylamines
7	Tryptamines
5	(semi-)synthetic cannabinoids
4	Arylcyclohexylamines
4	Ergolines
3	Benzodiazepines
1	Opioid
1	single substance belonging to another class than those listed above

FURTHER INFORMATION

General information on **NPS** can be found on our website.

Reliable information
on the effects, dosage, risks and possible long-term consequences of NPS use is hard to obtain. If you still decide to use such a substance, be aware that risk reduction is only possible to a very limited extent due to a lack of information.

Find out as much as possible and ask at checkit!. We are constantly gathering information and are happy to share it with you.

Use drug checking!
The appearance/smell/consistency the substance says nothing about the actual composition. If you do not have access to drug checking, take a small amount first and wait for the effect.

Use micro scales
Many NPS are active even in very small quantities.

Synthetic Cathinones

Over the past few years, an increasing number of synthetic cathinones have been submitted for analysis at checkit!. In 2024, a total of 117 samples (5%) were recorded—mainly mephedrone (4-MMC) and 3-MMC. However, 75% of the mephedrone samples and 80% of the 3-MMC samples contained not only the expected substance but also, or instead, a different one—most commonly 3-CMC and 2-MMC.

Cathinones are classified as research chemicals and were originally marketed as legal alternatives to illegal stimulants. Some of the most well-known include mephedrone (4-MMC), MDPV, and methylone (bk-MDMA). While they generally have stimulating effects, their duration and intensity vary. Some act more like MDMA, others more like cocaine or methamphetamine. Certain cathinones can trigger a strong urge to redose, which gives them a high potential for dependence.

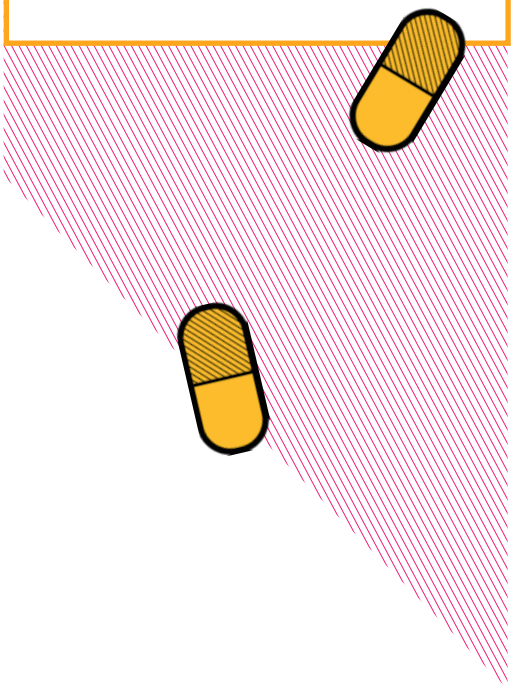
These substances are poorly researched, so no reliable statements can be made about their risks or long-term effects. Mixing them with other substances carries unpredictable risks. Combined use with other stimulants places a heavy burden on the cardiovascular system. Some synthetic cathinones are also suspected to have neurotoxic effects.

Use drug checking!
The appearance/smell/consistency of the substance tells nothing about the actual ingredients.

Test small amounts first if you don't have access to drug checking. The concentration oft he contents can vary greatly from powder to powder.

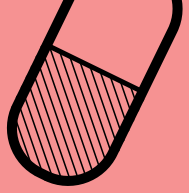
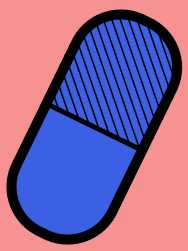
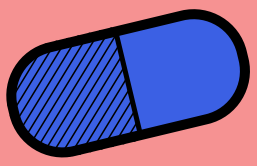
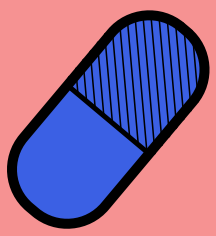
Take longer breaks between sessions! Some synthetic cathinones pose a great addictive potential.

Avoid mixing with other psychoactive substances.



Only consume when you are in a good state of mind, in a safe and comfortable environment, and in the presence of trusted individuals.

If you begin to feel unwell, do not stay alone. Seek assistance from those you trust.
Contact emergency services *(144)* if you or someone else experiences adverse effects after consumption.

checkit!

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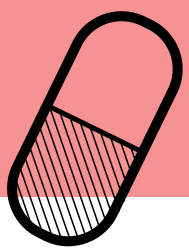
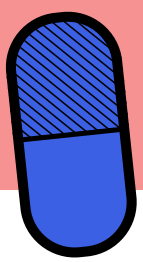

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