

**checkit!**

**2022**

**DRUG  
CHECKING  
ANNUAL  
REPORT**



## checkit!

Drug Checking  
Annual Report 2022

checkit! is part of Suchthilfe Wien gGmbH and runs a project in cooperation with the Medical University of Vienna to research and monitor current 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 2022 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.

### FURTHER INFORMATION



All information on  
checkit!'s services can  
be found on our website:  
[www.checkit.wien](http://www.checkit.wien)

# Drug Checking

## Analysis techniques

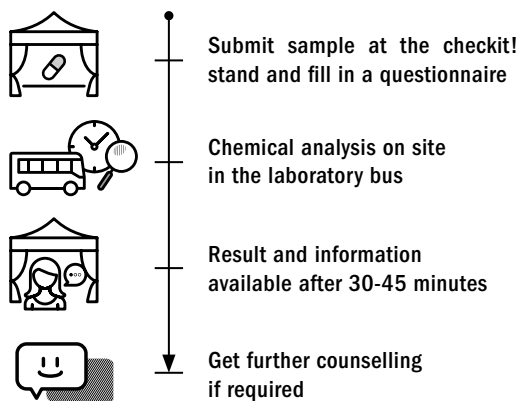
The checkit! laboratory currently combines four different chromatographic, spectroscopic and mass spectrometric analytical techniques (UHPLC-IT-MSn, UHPLC-DAD, MALDI-HRMSn and ATR-FTIR) in order to break down the composition of the submitted samples as completely as possible. Combining these complementary 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 recreational drugs 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 psycho-social staff. The pandemic still affected outreach services in 2022. Therefore, checkit! provided information and advice at ten events and drug checking at only two events.



### INFORMATION ABOUT DRUG CHECKING SERVICES

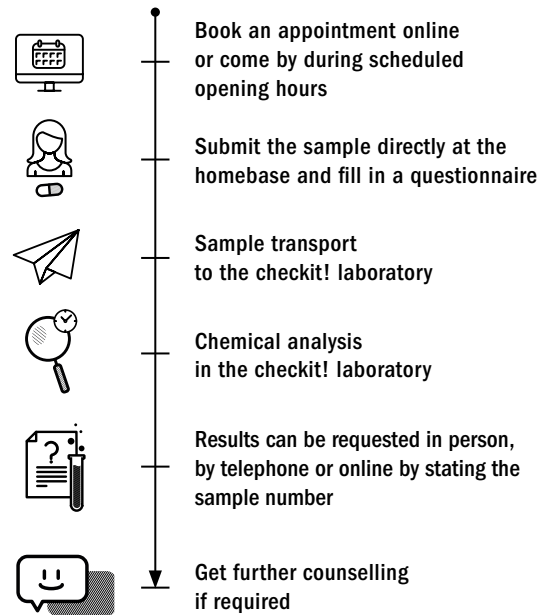


You can find all information about the drug checking services on our website: [www.checkit.wien/drug-checking-2](http://www.checkit.wien/drug-checking-2)

## Stationary drug checking at the homebase



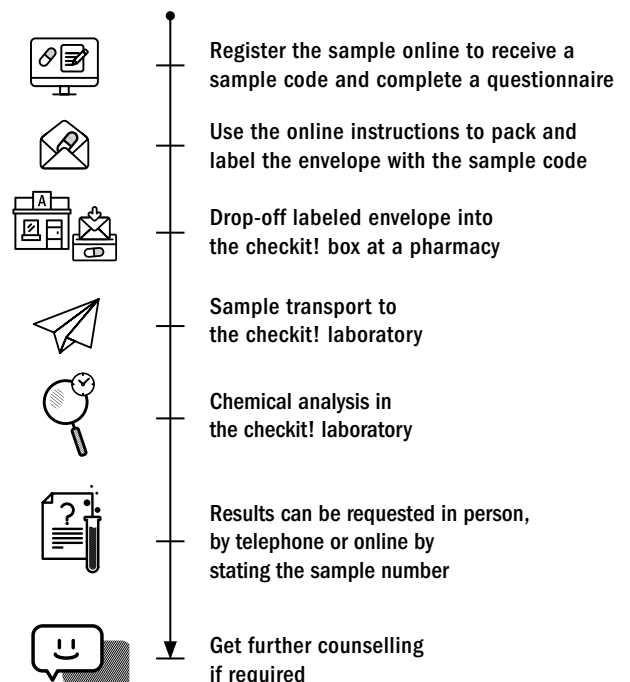
At the checkit!-homebase, there are currently two options for sample submission. One is to come by during drug checking opening hours and submit the sample. The other is to book a fixed appointment in advance via our website. The sample submission takes place under the guidance of the staff on site. The analysis results and further information can be obtained from checkit! staff.



## Drug checking via pharmacies



In certain pharmacies, there are checkit! boxes 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.



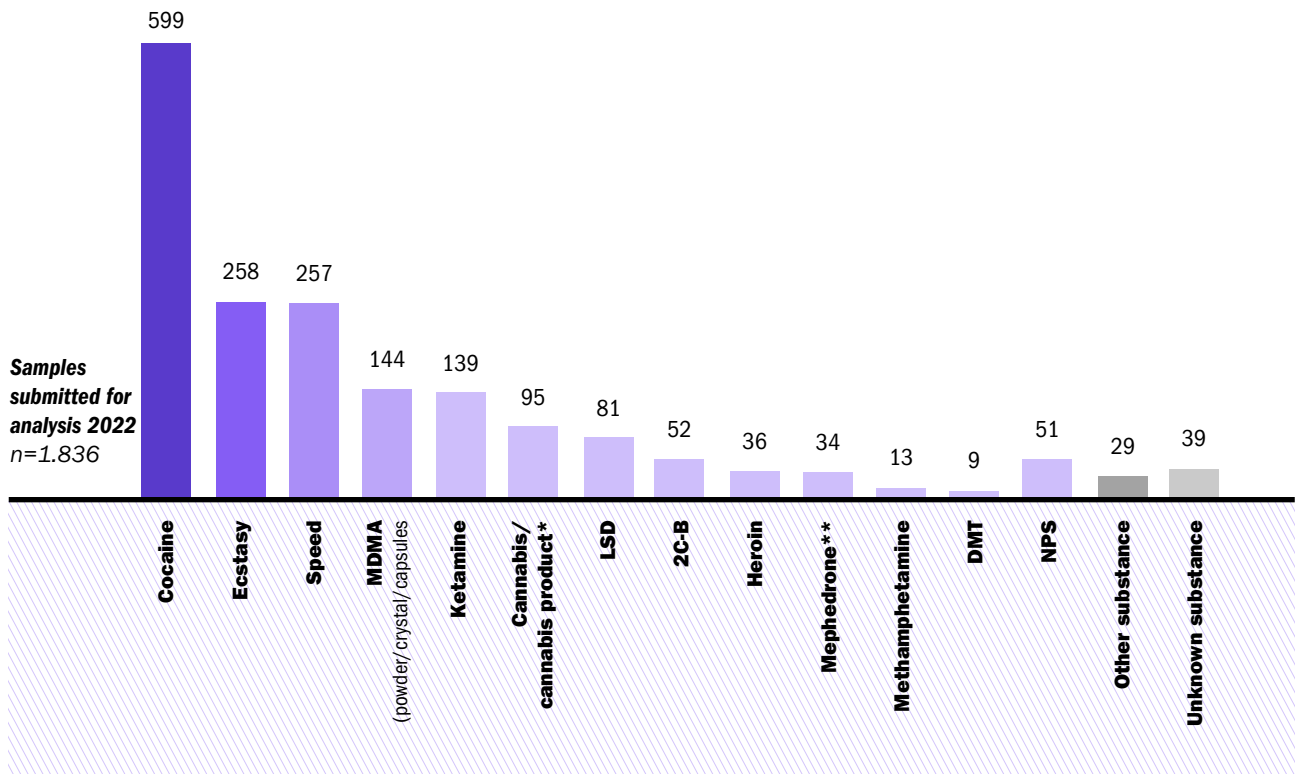
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# Drug Checking

Results for 2022

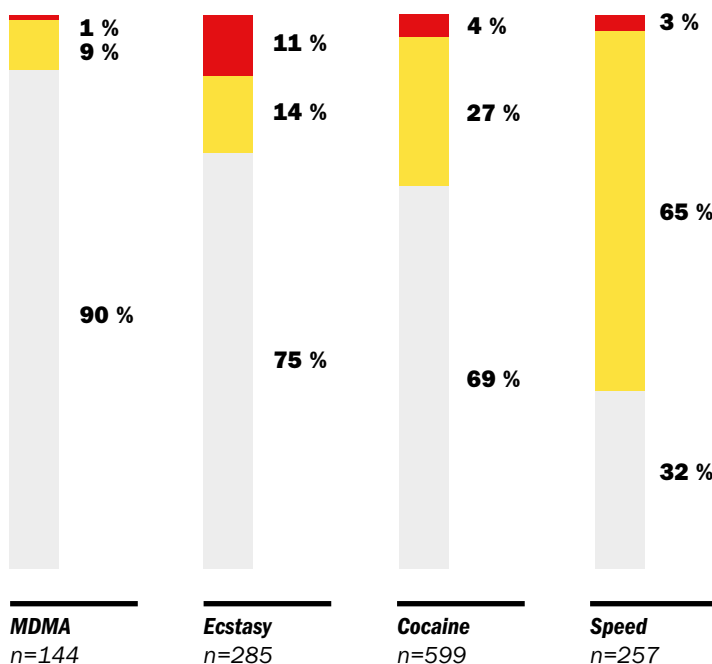
## Results for 2022

In 2022, 1,836 alleged psychoactive substances were submitted for analysis to the checkit! laboratory and are shown in the graph below.



\* Cannabis is only tested for the presence of synthetic cannabinoids.

\*\* Mephedrone belongs to the group of NPS, but is shown separately here due to its frequency.



## Categorisation of the analysis results

65 % of the analysed samples contained solely the expected psychoactive substance (expected result). In 27% 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“

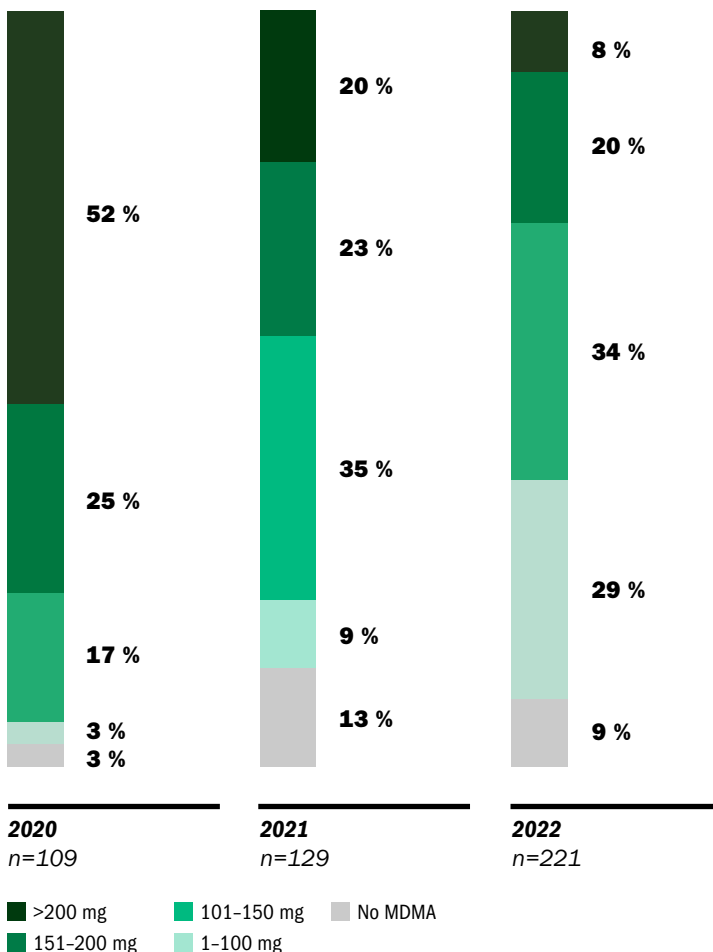
■ Warning ■ Unexpected result ■ Expected result

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 2022, 82 % of ecstasy tablets contained MDMA as the sole psychoactive component in varying dosages. From 2017-2020, only a small proportion of samples contained a different active substance. Over the last two years however, the number of unexpected analysis results increased again. In addition to amphetamine and caffeine, various synthetic cathinones (e.g. 3-CMC, 4-CMC, mephedrone) were detected in the tablets. Besides unexpected effects and interactions, the lack of scientific information on many of the substances also poses a risk. 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 2020-2022



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

### DEGREE OF PURITY

# 82%

211 of 258 ecstasy tablets analysed in 2022 contained only MDMA

### AVERAGE CONCENTRATION

# 125 mg\*

Average MDMA dose per tablet in 2022 (\*Median)

### 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.

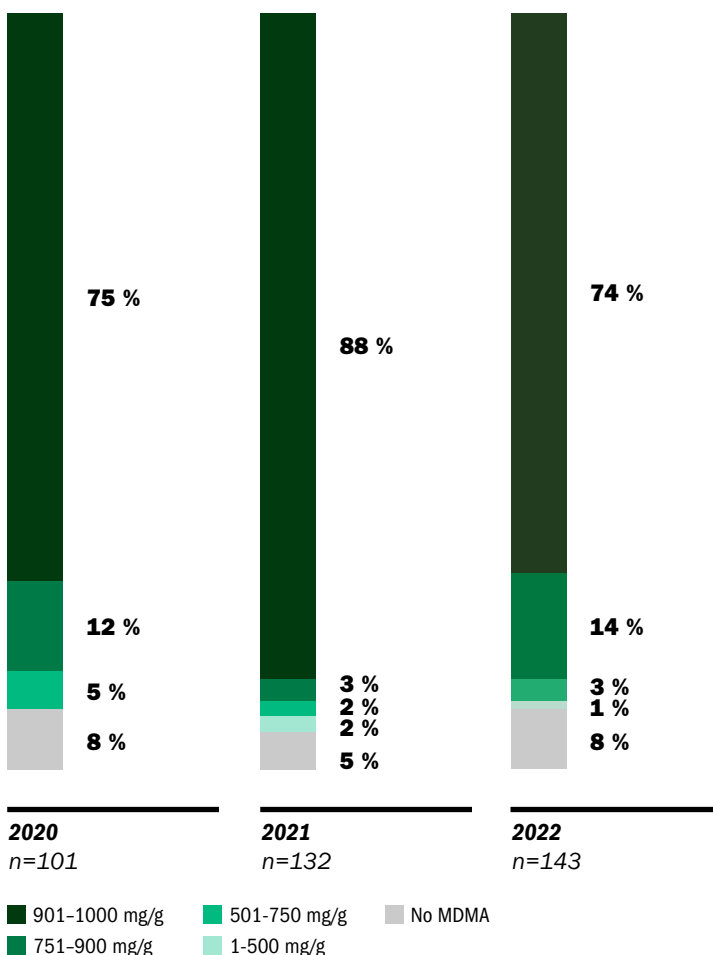
Further information on risk reduction can be found here: [www.checkit.wien/infos/gesundheitstipps/risikoreduzierung/](http://www.checkit.wien/infos/gesundheitstipps/risikoreduzierung/)

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 2022, 90 % of the samples contained only the expected psychoactive substance MDMA. As can be seen in the graph below, MDMA levels continue to fluctuate, but remain at a relatively high level. Compared to the previous year, the proportion of samples that did not contain MDMA increased slightly again.

### MDMA content in MDMA samples 2020–2022



#### DEGREE OF PURITY

# 90%

129 of 144 MDMA samples analysed in 2022 contained only MDMA

#### AVERAGE CONCENTRATION

# 976 mg/g\*

average MDMA concentration in 2022 (\*Median)

#### FURTHER INFORMATION



Further information on MDMA can be found on our website.



**Mind the dosage!** The concentration of MDMA has risen sharply 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/gesundheitsstipps/risikoreduzierung/](http://www.checkit.wien/infos/gesundheitsstipps/risikoreduzierung/)

"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.

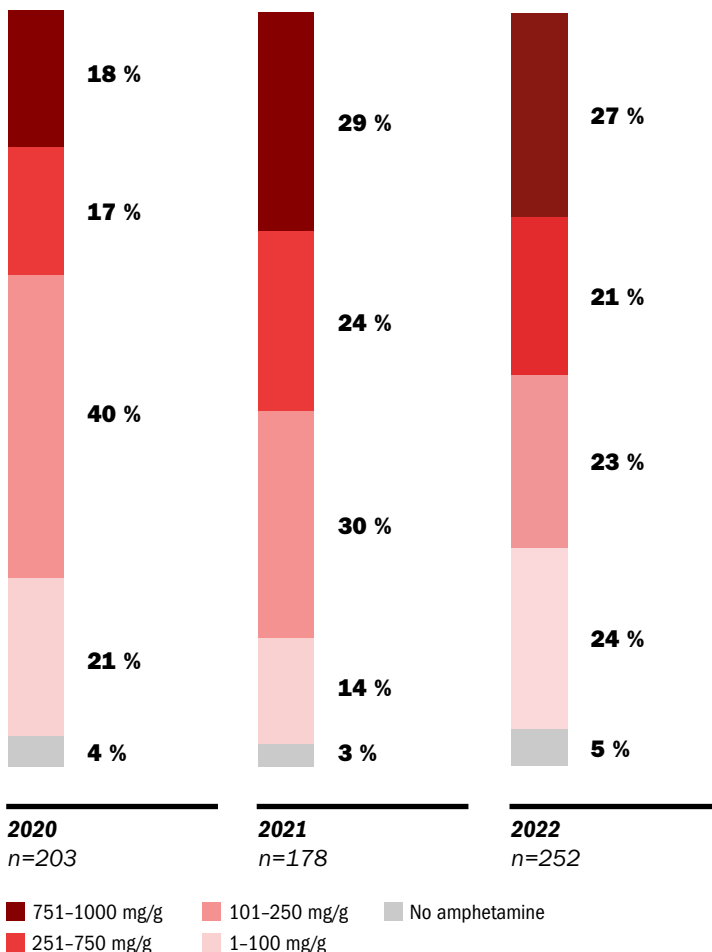
### Changes over time in the composition of speed

In 2022, 31 % of the analysed speed samples contained amphetamine as the sole psychoactive component in varying concentrations. Just under half of the samples contained less than 250 mg/g amphetamine. At the same time, 27% 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 the analysed samples has been around 500 mg/g in each of the last 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 content in speed samples 2020-2022



Samples whose amphetamine content was not quantifiable are excluded.

### DEGREE OF PURITY

# 31%

80 out of 257 samples analysed contained only amphetamine

### AVERAGE CONCENTRATION

# 260 mg/g\*

average amphetamine concentration in 2022 (\*Median)

### FURTHER INFORMATION



Information on [Speed/Amphetamine](#) can be found on our website.



### Use Drug Checking!

The majority of the samples submitted for analysis as speed also contain 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/](http://www.checkit.wien/infos/gesundheitstipps/risikoreduzierung/)

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 2022, 69 % of the analysed cocaine samples contained cocaine as the sole psychoactive component in varying concentrations. The average cocaine concentration in the analysed samples has risen sharply since 2012 and has been relatively stable at a high level since 2017. Last year, the proportion of samples with more than 800mg/g cocaine increased again. Nevertheless, 29% of all samples contained pharmacologically active adulterants such as levamisole, phenacetin or local anaesthetics.

#### DEGREE OF PURITY

**69%**

**413 of 599** cocaine samples analysed contained only cocaine

#### AVERAGE CONCENTRATION

**891 mg/g\***

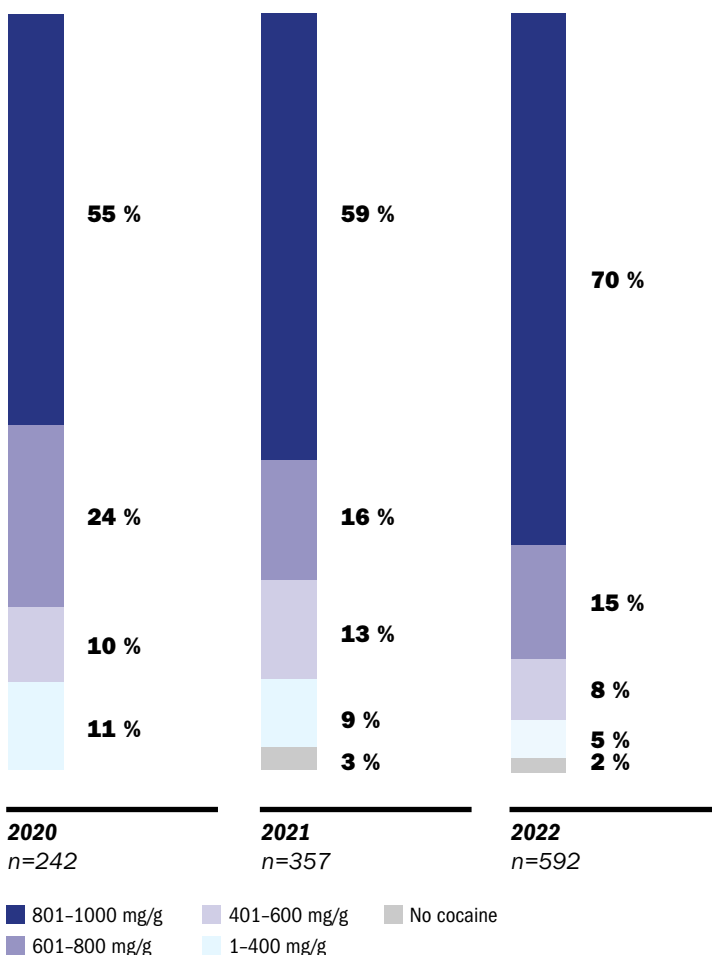
**average cocaine concentration in 2022** (\*Median)

#### FURTHER INFORMATION



Information on [cocaine](#) can be found on our website.

### Cocaine concentration in cocaine samples 2020–2022



Samples whose cocaine content was not quantifiable are excluded.



#### 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/gesundheitsstipps/risikoreduzierung/](http://www.checkit.wien/infos/gesundheitsstipps/risikoreduzierung/)



## Levamisole

Levamisole is still the most common adulterant 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.

## Lidocaine

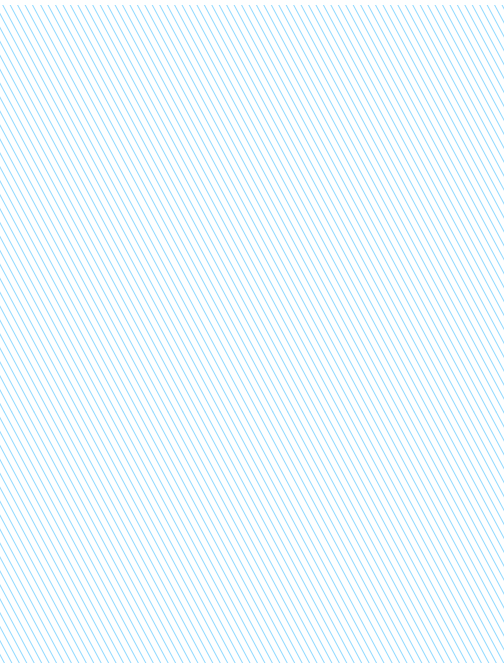
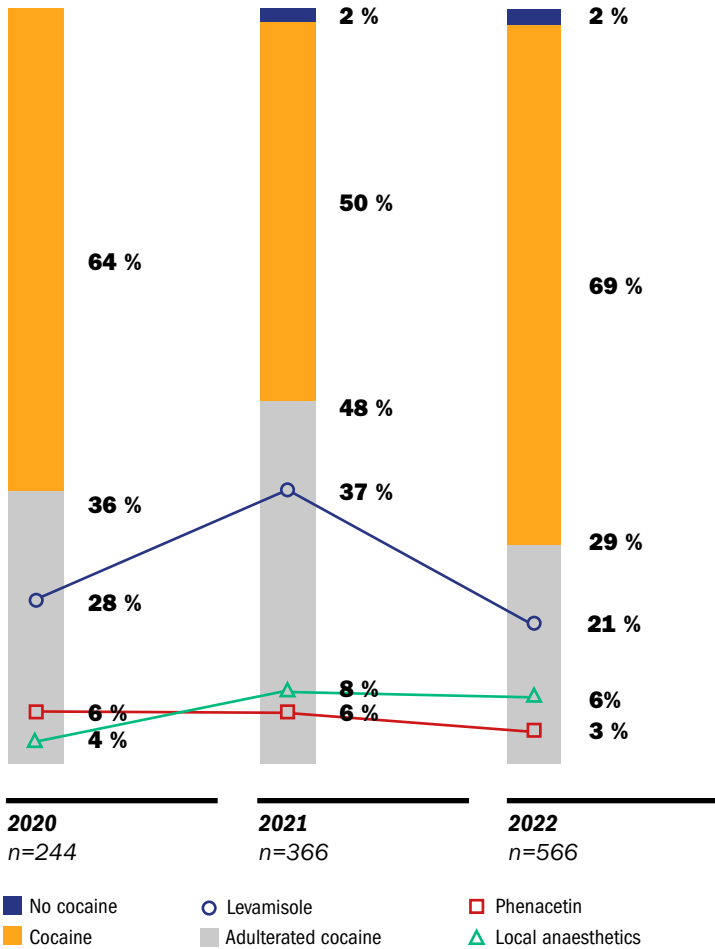
Lidocaine is a local anaesthetic that is used in both veterinary and human medicine as an effective and fast-acting local anaesthetic. The interaction between lidocaine and cocaine can be severe and lead to life-threatening cardiac arrhythmias.

## Phenacetin

Phenacetin is an aminophenol derivative used for the treatment of pain and fever reduction. Because of its harmful effect on the kidneys in combination with other painkillers, it was withdrawn from the market. Phenacetin is also suspected of having carcinogenic properties. It has a mild euphoric and stimulating effect which is probably why it is used as an adulterant.

## Composition of the samples submitted as cocaine and frequency of adulterants 2020-2022

One sample may contain several adulterants.



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 1,836 samples analysed by checkit!, NPS were detected in 8.1% of the samples. Of these, 4.4% were actually acquired as a new psychoactive substance. For the remaining 3.7%, the detection of a new psychoactive substance was unexpected (see figure). The number of unexpected NPS has increased again. This is due on the one hand to the synthetic cannabinoids detected in cannabis and also to the unexpected components in ecstasy tablets. The number of different NPS detected also continued to rise this year, reaching a new high of 57 different substances.

The most frequently detected new psychoactive substances in 2022 were 3-CMC and mephedrone (4-MMC), both occurring 23 times in total. Others were: 4-CMC (15x), MDMB-4en-PINACA (12x), 3-MMC (7x), iso-3-CMC(6x), 1P-LSD (5x) and Cumyl-CH-MeGaClone (5x).

## NPS

The **57 different NPS** identified in 2022 belong to the following substance classes:

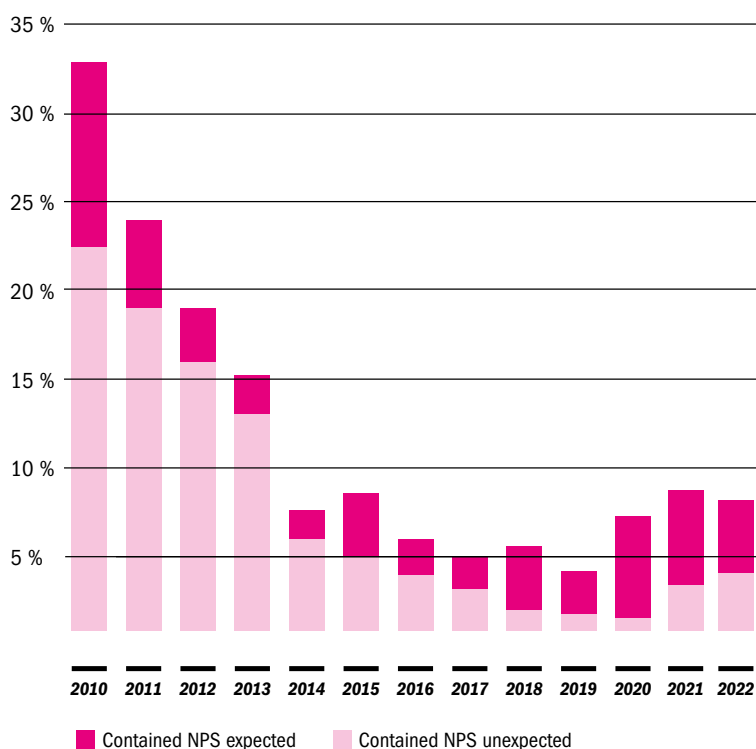
- 16** Cathinones
- 10** Phenethylamines
- 9** Arylcyclohexylamines
- 8** Synthetic cannabinoids
- 5** Benzodiazepines
- 4** Ergolines
- 3** Tryptamines

## FURTHER INFORMATIONEN



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

## Percentage of NPS (expected and unexpected) per year 2010–2022



### 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 cannabinoids

Since 2020, checkit! has increasingly analysed cannabis products for the presence of synthetic cannabinoids. In 22% of the samples, these were in fact detected in 2022.

Synthetic cannabinoids are substances that act similarly to  $\Delta^9$ -THC (tetrahydrocannabinol), but most have a much stronger effect. This is why overdoses and poisonings occur more frequently. When consumed unintentionally, the effects can be particularly overwhelming. Symptoms of overdose may include effects on the cardiovascular system, seizures, nausea with vomiting, confusion, unconsciousness/coma, acute psychosis and/or aggressive behaviour.

Unfortunately, there is little research on these substances, which is why no reliable conclusions can be made about effects, risks or long-term consequences.

### FURTHER INFORMATION



More information on synthetic cannabinoids in cannabis can be found on our website

## Synthetic cathinones

In 2022, checkit! detected 16 different synthetic cathinones. These were found both expectedly and unexpectedly in a wide variety of samples.

Cathinones are research chemicals and were originally marketed as a legal alternative to illegal stimulants. Since 2012 cathinones are covered in the NPSG and some are listed in SMG in Austria. Among the best known are mephedrone (4-MMC), MDPV and methylone (bk-MDMA). In principle, they have a stimulating effect, but they differ in strength and duration. Some act like MDMA, others are similar to cocaine or methamphetamine. Some trigger a strong desire to consume more and therefore have a high potential for dependence.

Research on these substances is very limited, which is why no conclusions can be drawn about risks and long-term effects. The combination with other substances poses an unpredictable risk. Consumption together with other stimulants places a heavy burden on the cardiovascular system. Some synthetic cathinones are suspected of being neurotoxic.



### Test small amounts

- e.g. a few puffs - and then wait for about 15 minutes. If the effect is unusual, do not take more.

**Make sure the products are blended well:** use a grinder, for example.

**Avoid mixing psychoactive substances** (including alcohol).



### Use Drug Checking!

The appearance/smell/consistency the substance says nothing about the actual composition.

**Test small amounts first** and wait for the effect. Some substances only exert their full effect after a longer period of time.

**Do not take more** if the effects are unusual.

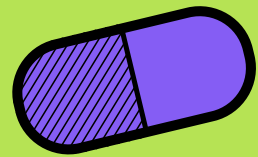
**Avoid mixing psychoactive substances** (including alcohol).

**Take longer breaks between sessions!** Some synthetic cathinones have a high potential for dependence.



**Consume only when you are well, in a place where you feel comfortable and with people you trust.**

**Don't stay on your own if you feel uncomfortable.** Turn to people you trust. Call the rescue service (144) if you or someone else is unwell after consumption.



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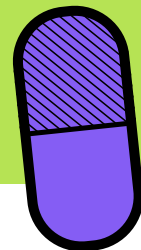
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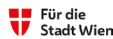
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