Stadt Zürich
Soziale Einrichtungen
und Betriebe

LSD Evaluation

Drug Checking at the Drug Information Center Zurich 2022

Author
City of Zurich, Drug Information Center (DIZ) Zurich

Zurich, May 2023

Department of Social Welfare

1 Introduction

LSD (lysergic acid diethylamide) is a chemically produced derivative of lysergic acid, which occurs naturally in organic compounds of the ergot fungus. It belongs to the group of psychedelics.

In 2022, 103 felts declared as LSD were handed in for analysis at the Drug Information Center (DIZ) in Zurich[1] . In eleven mobile drug checkings carried out in the city of Zurich in 2022, 10 felts declared as LSD analyzed. The results published here are not representative of the entire substance market in the city of Zurich.

1.1 Risk assessment

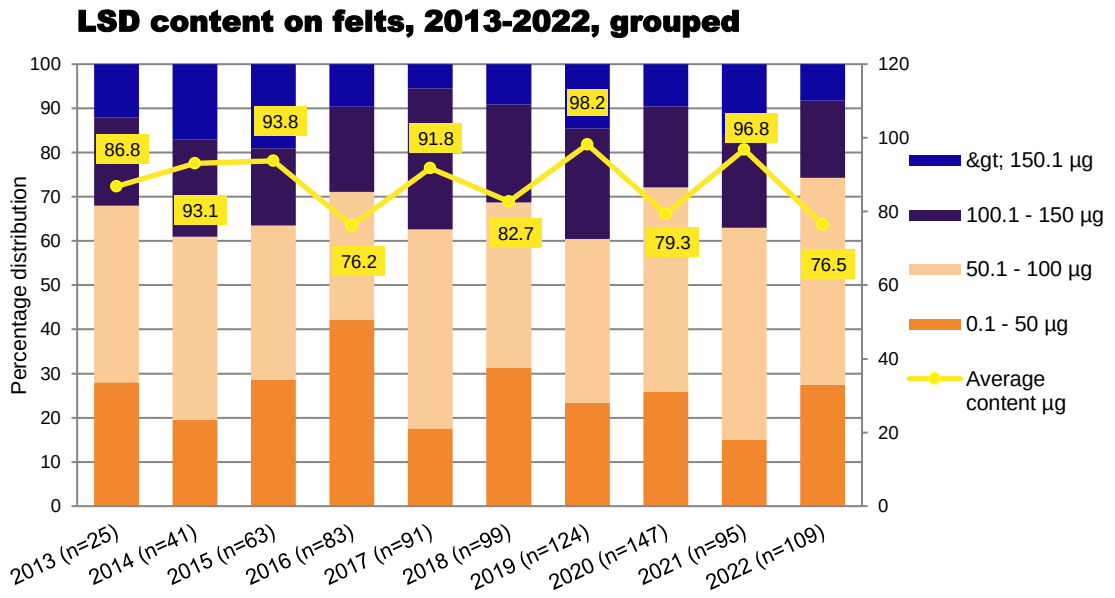
In addition to the dose, the effect of LSD is always strongly dependent on one's own state of mind (set) and the environment (setting). Also, there is a risk of taking missold substances, pharmacologically active extenders and/or high-dose felts when consuming LSD.

A highly variable active ingredient content on LSD felts can lead to the (unintentional) ingestion of high doses, which increases the risk of a negative experience (bad trip) - even for experienced users. Highly intense psychedelic experiences can be induced, which can be disturbing and frightening. In recent years, missold LSD felts (felts containing another psychoactive substance instead of LSD) have been handed in at the DIZ in isolated cases. Such misdeclarations can pose a high health risk, depending on the substance. Information and recommendations for low-risk use can be found on www.saferparty.ch under LSD Safer Use.

1.2 LSD content

In 2022, the LSD felts analyzed at the DIZ and during mobile operations contained an average of 76.5 µg of LSD. This is 20.3 µg less than in the previous year[2] . The range was from 6.3 µg to 215.7 µg LSD per felt. 74% of the LSD felts contained less than 100 µg LSD (+11%) and 17% contained between 100 and 150 µg (-4%). In 2 of the LSD felts dispensed, no pharmacologically active substances were detected or the active substance content was below the value measurable with the given analytical methods. For 8 of the felts declared as LSD (8.7 %), a warning was issued because they contained more than 150 µg of LSD (-7.3 %).

[1] In 2022, an additional 129 liquid LSD samples were analyzed. These were not included in the evaluation, as liquid LSD samples are usually declared as a self-mixed product and thus their evaluation is only of limited significance.
[2] The differences compared with the previous year are shown below in parentheses.



Graphic 1: LSD content in tartrate on felts, 2013-2022, grouped

1.3 Unexpected substances and impurities

In 2022, 9% (-3.4%) of the felts declared as LSD contained unexpected pharmacologically active substances. This was due to false declarations or unintentional contamination (e.g. smear contamination in already used Minigrips). One felt (1.1% of the samples) was a misdeclaration; instead of LSD, the sample contained a high dose of 2.7 mg of the phenethylamine DOC (2,5-dimethoxy-4-chloroamphetamine). Furthermore, no psychoactive substance could be detected in 2 of the 113 samples declared as LSD and 7 samples (7.9%) contained various impurities in a very low dosage. In 2022, 39.6 % of the analyzed LSD felts also contained the non-psychoactive *iso-LSD* (+ 11.5 %). In contrast to 2021, no LSD analogues missold as LSD (such as 1cP-LSD) were detected in the DIZ.

The potentially pharmacologically active substances on LSD felts analyzed in 2022 are described below.

1.3.1 DOC (4-chloro-2,5-dimethoxy-4-chloroamphetamine)

DOC is a very potent, long-acting psychedelic that leads to strong visual effects, euphoria, and intensified perception of music and movement. DOC can cause chest pain, mental overload, vasoconstriction, and nausea. Due to the late onset of action of DOC (up to 3 hours after ingestion), there is a risk - especially if confused with LSD - of post-dosing and thereby overdosing. DOC has a very long duration of action of up to 20 hours and can thus lead to mental overload.

2022 DOC was analyzed on one (1.1%) felt declared as LSD.

1.3.2 iso-LSD

The non-psychoactive *iso-LSD* is produced during the manufacture of LSD and/or during prolonged storage under non-destructive conditions (exclusion of light and oxygen), in each case by so-called isomerization. Some users report that *iso-LSD* inhibits and/or otherwise affects the effects of LSD. However, to date there is no scientific evidence to support this hypothesis. Whether *iso-LSD* can produce non-psychoactive but otherwise pharmacologically relevant effects has not been conclusively determined. Especially in higher doses, pharmacologically significant effects are conceivable.

In 2022, 39.6% of the LSD felts analyzed contained *iso-LSD* (+11.5%); on average, LSD felts contained 22.3 µg (-6.3 µg) of *iso-LSD.*

1.3.3 Other pharmacologically active substances

In addition to the substances described above, small amounts of **amphetamine (3 samples), DMT (1 sample), caffeine (2 samples), 2C-B (1 sample) and phenylacetone (1 sample)** were analyzed on individual LSD felts. Since only small, barely effective or ineffective doses of these substances were detected on the affected LSD felts (less than 1 mg), risky interactions are very unlikely. It is assumed that these are smear contaminations. Thus, these substances most likely got onto the samples unintentionally and not as extenders. Furthermore, in addition to LSD, various synthesis by-products were detected in 2 of the 113 samples. However, their effects during consumption are completely unexplored and therefore unknown.

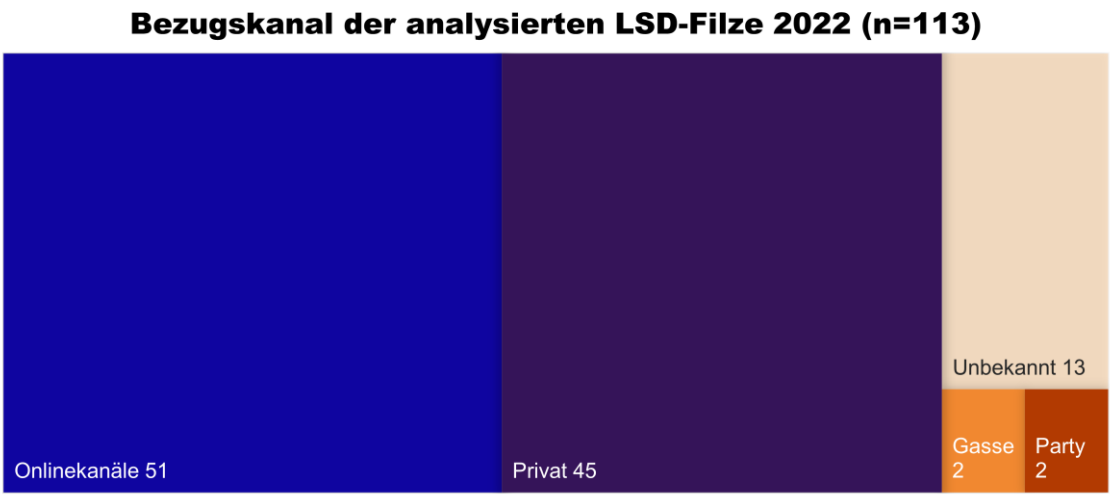
In the following section, specifically for LSD felts, the declared LSD content as well as the reference channels of the samples are evaluated, since in 2022 these properties have emerged as a special feature for LSD felts.

1.4 Declared LSD content and reference channels

In 2022, the active ingredient content declared at the time of sale was recorded for 64 LSD felts tested at the DIZ and during mobile drug checkings. The evaluation showed that these declarations often differed greatly from the actual content. On average, the felts were declared to contain around 165 micrograms at the time of sale. The laboratory analyses showed that these felts contained an average of around 80 micrograms. This means that many users assume that they consume much higher doses of LSD than is actually the case.

For the annual evaluation of LSD felts handed in at the DIZ and at mobile drug checkings, the purchase channel was also evaluated this year. Users were asked how and where they bought their LSD felts. The evaluation confirms the assumption that LSD felts are bought online more frequently than average. Online channels include chat messengers

(e.g. Telegram, Wickr etc.), social media platforms (e.g. Snapchat, Instagram etc.) and internet stores in the darknet and clearnet.



Graph 2: Reference channel of the analyzed LSD felts 2022 (n=113).

Almost half (45%) of LSD felts dispensed in 2022 were purchased through online channels. This is a higher than average figure. In comparison, only around 16 % of all other substances dispensed at the DIZ and at mobile drug checkings in 2022 were purchased via online channels (n=2078)[3] .

[3]Only the total of samples for which a reference channel was indicated (excluding cannabis samples) was evaluated.

2 Conclusion

- About three quarters of the LSD felts analyzed by DIZ show a dosage of less than 100 µg LSD, with a very wide range. Especially the few samples containing an extremely high amount of LSD show how important it is to analyze felts before use.
- A large proportion of the LSD felts dispensed at the DIZ are declared to contain much higher doses than they actually do. The analyses in 2022 again showed that LSD felts in almost all cases contain a maximum of half of the expected active ingredient content (myth "250 microgram felts").
- The number of LSD felts containing unexpected substances is also low in 2022 compared to the number of samples. The high proportion of felts containing iso-LSD remains unchanged. *Iso-LSD has* no psychoactive effect, but is unexplored and consumption may therefore be associated with unknown side effects.
- At the DIZ Zurich, almost half of the LSD felts dispensed in 2022 were obtained directly by users via online supply channels such as Telegram or the darknet. This is in striking contrast to the usual, conventional supply channels (e.g. private individuals, parties, etc.) of the other substances tested, such as cocaine and amphetamine.

Zurich city
Social institutions and enterprises
Drug Information Center (DIZ).
Waterworks road 17
8006 Zurich
T+ 41 44 415 76 40
diz@zuerich.ch
saferparty.ch

05.2023