

I-TREND Substance briefing: 3-MMC

This technical folder provides information on 3-methylmethcathinone. The information provided is based on a number of existing data sources and work undertaken as part of the I-TREND project. Research informing the folder includes an analysis of user discussions on popular Dutch drug forums (Workstream 1), an analysis of marketing on popular Dutch speaking web shops selling the substance (Workstream 2), and scientific laboratory analysis of the compound through test purchasing of the substance from Dutch web shops (Workstream 3).

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1. Substance name(s)

1.1. Chemical name

3-Methylmethcathinone

1.2. Other names (e.g. popular/street/slang names)

- The EMCDDA's EDND (2014) also refers to this substance as 1-(3-methylphenyl)-2-(methylamino)propane-1-one.
- Dutch forum activity (WS1) suggests users referred to 3-MMC only with this name. None other names are known.
- Compound sold as 3-MMC or 3-methylmethcathinone by web shops based in the Netherlands.

1.3. Branded products

Dutch drug forum analysis found that users purchased a number of brands which contained 3-MMC.

2. Classification and effect

2.1. EMCDDA substance group classification

Cathinones

2.2. Substance analysis results

All 3-MMC samples were confirmed through the analysis of the compound test purchased from web shops.

2.3. Dutch drug forum monitoring

Dutch drug forum monitoring suggests that from 2013 onwards, 1465 forum posts in 4 selected fora covered this substance.

2.4. Dutch web shops marketing

The English web shops analysed within the I-TREND project advertised 3-methylmethcathinone only as 3-methylmethcathinone or 3-MMC.

3. Legal status and identification of the substance

3.1. Legal status/acts/laws in the Netherlands

Presently 3-MMC is not under any law. For a number of years until summer 2014, it was under the Medicine Act, but it was decided by the High Court that NPS can no longer be addressed under this law, hence 3-MMC is presently free to use, sell or manufacture in the Netherlands.

3.2. EMCDDA Notifications of 3-MMC

- 3-MMC was first reported at the European level by Swedish authorities and notified by the EMCDDA in 2012
- 3-MMC was first reported by the Swedish National Focal Point in 2012
- 3-MMC has been reported to the EMCDDA by the following European countries:

Country	Dates
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Sweden	05-09-2012
Finland	30-10-2012
Hungary	05-12-2012
Germany	13-02-2013
Slovakia	29-05-2013
UK	06-09-2013
Ireland	08-10-2013
Greece	18-10-2012
Italy	16-01-2014

4. Photographs of the substance

4.1. Images used in the marketing of the product on the web shops where the compound was purchased



4.2. Photograph of the substance purchased for laboratory analysis



5. Chemistry

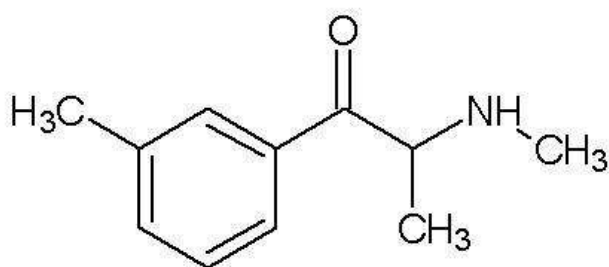
5.1. Chemical Abstracts Service (CAS) registry number

1246816-62-5

5.2. Chemical information: other chemical names or variants

None information reported.

5.3. Structure (picture of structural formula)



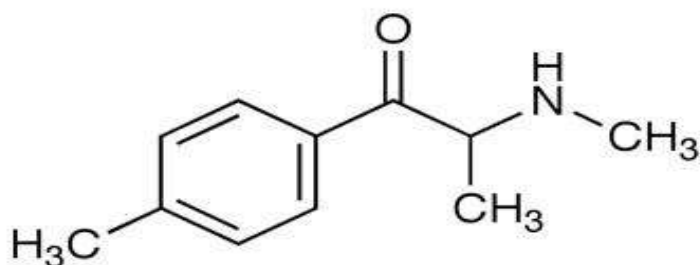
5.4. Molecular formula

C₁₁H₁₅NO

5.5. Molecular Weight

177,242 g/mol

5.6. Structural comparison with a related substance



4-MMC (mephedrone)

6. Analytical composition: results of substance analysis carried out on samples purchased online

According to the I-TREND methodology used for the workstream 2 (See dedicated online reports), a list of web shops was set up. Among them, at least 4 with the best ranking on the Internet were selected for further investigation. Samples were bought for chemical analysis and web shops content scanned.

For the Netherlands 4 samples of 3-MMC were purchased from different web shops in different periods over 2014.

The techniques used for analysis were: LC-DAD /GC-MS /Calibration curve (9 points) for quantification.

Web shop	Date of purchase	Form	Substance named on package/web shop	Confirmed substances
Research Chemical shop	March 2014	Powder	3-MMC	3-MMC
Commercial Shop 1	November 2014	Capsules	4-FMP	3-MMC
Commercial Shop 2	November	Capsules	4-FA	3-MMC

	2014			
Dark Web market place	October 2014	Powder	MMC	3-MMC Mephedrone

Analysis results confirm that 3-MMC was present in all samples obtained as 3-MMC, but also in two samples obtained as 4-FMP and 4-FA. Mean concentration was 69.5% (sd.= 11.) (4 sample analysed).

7. Price and marketing strategies on Dutch web shops tested and selling 3-MMC

7.1. Compound Prices for powder and crystal form

	Euro	Quantity
Minimum price	15	1 gr
Maximum price	20	1 gr

3-MMC had been also found in blotter form, priced at 25€ per unit.

7.2. Description of marketing strategies on Dutch web shops selling 3-MMC.

As it can be observed on the picture above, web shops can use several identities such as the fact to supply different nutrition product.

8. Law enforcement and health data

8.1. Number of law enforcement seizures in the Netherlands in 2014

32 seizures were made by police (the Netherlands Forensic Institut) and 9 by customs services. It is noticeable that the total amount of those last were 365 kg.

8.2. EMCDDA health alerts in the Netherlands

None.

8.3. Confirmed deaths and acute cases reported in the Netherlands:

None.

8.4. Intoxications or cases in other countries:

3-MMC was confirmed in 50 Swedish drivers in 2013. Clinical features were tachycardia (48%) and agitation (42%). Reduced level of consciousness (32%), dilated pupils (24%), hallucinations (20%), diaphoresis (12%), seizures (8%), and hyperthermia (6%) were also found. A Polish study reported a fatality due to combined 3-MMC/ 5-APB intoxication.

9. User experiences of the substance: results from an analysis of discussions in 4 Dutch Drug Forums

The information below is based on an analysis of 4 Dutch drug forums containing 1465 posts on 3-MMC since January 2013 in selected fora.

9.1. Dosage specified by drug forum users (6 discussions, 65 posts)

9.1.1. Initial Dosing

(6 sources, 28 references)

A common initial dose is between 75-150 mg 3-MMC with an average of around 100 mg (nasal). If taken orally, the initial dose may be somewhat higher.

9.1.2. Boosting

(5 sources, 29 references)

Many forum members report the large number of redoses as there is a strong craving for 3-MMC, presumably as the effects wear off soon, after several hours or earlier. Some redose only 50% of the initial dose, where many other redose the same amount as the starting dose. A total of 4-5 doses of 150-200 mg each during the night, is mentioned a number of times.

9.1.3. Threshold

(1 source, 1 reference)

Around 50-60 mg of 3-MMC is supposed to sort any stimulant effect. Not much information available.

9.1.4. Light

(6 sources, 29 references)

A light stimulant effect is reported by some forum members around 50-60 mg if ingested or 70 mg if taken nasally

9.1.5. Common

(5 sources, 35 references) Common dose is up to 200 mg.

9.1.6. Strong

(6 sources, 28 references) Strong doses are given up to 250; 300 mg.

9.2. Duration

(5 sources, 34 references)

anecdotal information mentions a 2-3 hours' rush after taking 100 mg 3-MMC (snorted), others say 1 gr can last for 15 hrs, other report relatively short duration, dose 150 mg: after 3 hours 'normal' again. 200mg gives 3-6 hr rush. Many forum member report a (for NPS unusual) short duration of effects, without further specification. Generally speaking a dose of 100 mg may last 2-3 hours is snorted.

9.2.1. Onset

(4 sources, 4 references) quick, within minutes after intake and nasal, 15-20 min when taken orally; 10 max and after 30 min first effects (swallowing)

9.2.2. Coming up

(4 sources, 13 references) 30-45 minutes

9.2.3. Plateau

(5 sources, 9 references) 1,5 hours / 2 hrs, short peak:45-60 min after intake peak: and lasts for 1-5 hr (capsule)

9.2.4. Coming down

(4 sources, 15 references) 1 – 2 hrs ('If combined with MDMA: very strong and long comedown, several days after the intake')

9.2.5. After effects

(2 sources, 2 references) tension of the jaw remain several hours effects have gone

9.2.6. Hangover/Day after

(3 sources, 17 references) days especially after high doses or after combined use of 3-MMC and MDMA. Lack of hangover if compared to mephedrone.

9.3. Effects of 3-MMC reported by forum users (7 discussions, 87 posts)

(7 sources, 87 references) In small dose it works as a general 'mood lifter'; effects do not endure very long, e.g. 150 mg endures 2-2,5 hrs

When snorted effects are like cocaine, when ingestion in high doses effects are like MDMA. crystals need to be crushed first.

Less vague and intense as MDMA, but more intense if compared to 6-APB. No hangover the day after. Effects similar to cocaine but less euphoric; no hangover/ dip; sexually stimulating; re high doses: mainly restlessness and jaw tension remain; strong rush if compared to 6-APB; 6-apb comes up slowly; Clear thinking is possible; redosing works better than with 4-MMC; Less release of serotonin if compared to 4-MMC; Mild stimulant effects, lasts 2 hours. Mild effect compared to MDMA, no euphoric effects;

Redosing works well with 3-MMC: it increased the effect rather than that it prolongues it. advice therefore is to take an intial dose around 150 or zo, and redose after 1,2 hrs until you feel the effect you want; Effects remain very short period, therefore many redoes.

9.3.1. Physical effects

(6 sources, 43 references)

Fit, extremely talkative, sweating, bruxism, wide pupils; Heartbeat increases; pressure on the cheek/ jaw (similar to ecstasy); palpitations

9.3.2. Psychological effects

(6 sources, 41 references)

General feeling of wellbeing, sexual arousal, energetic, euphoria,

9.3.3. Desired

(6 sources, 54 references)

No hangover, reported by many users; Stimulates sexual feelings; Very talkative, energetic; ; quick onset of effects; Alertness

9.3.4. Undesired

(7 sources, 53 references)

when snorted, unpleasant feeling in nose and throat; bruxism; wide pupils (large doses);problems falling asleep long after last intake

Thickened veins; Jaw tension, long time after last intake; Palpitations convulsion, and biting in lips; Headaches (high doses); Heart problems/ heart beating (too) fast; Sweating; chest problems (problems with breathing), lack of energy

Euphoria lasts very short, effects last short, therefore wanting to redose, you need relatively high doses to sort any effects,

Light paranoia day after; Nausea; Dry mouth; crash; craving.

9.3.5.Tolerance

It is mentioned frequently in posts on other topics that regular use of 3-MMC can quickly lead to tolerance as well as craving

9.4.Route of administration (ROA)

(6 sources, 30 references) Snorting, swallowing in bomb, licking of hand/fingers. Some combine various ROA: initially snorting, followed by swallowing

9.4.1.Ingestion

As roa is mentioned in 5 sources, 25 references; Effects last longer compared to snorting

9.4.2.Snorting

It is mentioned in 6 sources, 24 references, but it is reported that it burns in the nose, but has more of a rush if compared to Usually the crystals need to be crushed thoroughly and then snorted. If the crystals that are snorted are too big, acute damage of the nose is likely.

9.4.3. Other roa are not mentioned or discussed

None.

9.5.Other substances referred to when discussing 3-MMC

(7 sources, 52 references) Cocaine, 6-APB, mephedrone, MDMA are most often mentioned related to 3-MMC.

9.5.1.Referred to in comparing the effects

(6 sources, 37 references)

MDMA, when ingested and when in high dose

cocaine: when snorted

Compared to mephedrone, the effects of 3-MMC are less strong and endure for a shorter period. Euphoria is around, but less pushy and less 'fake' compared to mephedrone

compared to 6-APB different because of the strong rush with 3-MMC, while 6-APB comes up gradually.

Works shorter than 6-APB does. A dose of 150/200 mg works for around 2 hours.

9.5.2.Referred to as increasing the effects

(5 sources, 18 references)

2C-D, cannabis, 6-APB

9.5.3.Referred to in managing come down

(2 sources, 9 references)

2C-D, cannabis, AM2201, etizolam

9.5.4.Other substance discussed in the same episode/combo

(3 sources, 18 references) AM-2201, 4-FA, pentedrone, 2C-D

9.6. Appearance and preparation

(6 sources, 8 references) 3-MMC appears in powder, capsules and crystals

9.7. Patterns/Frequency of use

3-MMC is a stimulant and thus used as club drug at parties. Daily use of 3-MMC is considered to lead to a fast dependency, increased tolerance for the effects. Carving is mentioned often as a negative side effect of using 3-MMC; the strong wish to keep on redosing.

9.8. Context of consumption use

3-MMC is used as a club drug since it is a strong stimulant.

9.9. User's views and experiences on the online market use

Price is considered not too high, discussions are about legal status, difference in strength between various samples from the same shop, the quality and quantity of the substances sold

10. Relevant literature

Adamowicz P, Zuba D, Byrska B. Fatal intoxication with 3-methyl-N-methylcathinone (3-MMC) and 5-(2-aminopropyl)benzofuran (5-APB). *Forensic Sci. Int.* 2014; 245C: 126-132.

Bäckberg M, Lindeman E, Beck O, Helander A. Characteristics of analytically confirmed 3-MMC-related intoxications from the Swedish STRIDA project. *Clin. Toxicol. (Phila)*. 2015; 53: 46-53

11. References

EMCDDA (2014) EDND

National Programme on Substance Abuse Deaths (NPSAD) (2014) Data provided for I-TREND on Deaths involving specified Novel Psychoactive Substances reported to the National Programme on Substance Abuse Deaths (NPSAD). London: St Georges Hospital