

## I-TREND Substance briefing: 4-MEC

This technical folder provides information on 4-MEC. 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

2-Ethylamino-1-(4-methylphenyl)-1-propanone

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

- The EMCDDA's EDND (2014) also refers to this substance as 4-methylethylcathinone
- Dutch forum activity suggests users also referred to 4-MEC.
- Compound sold as 4-MEC in NL based web shops.

### 1.3 Branded products:

Dutch drug forum analysis found that users purchased a number of brands which contained 4-MEC.

## 2 Classification and effect

### 2.1 EMCDDA substance group classification

Cathinones

### 2.2 Substance analysis results

All 4-MEC samples were confirmed through the analysis of the compound test obtained through our regular testing system at DIMS.

### 2.3 NL drug forum monitoring

Dutch drug forum monitoring suggests that from 2013 onwards, 290 forum posts in 4 selected fora covered this substance.

## 2.4 NL web shops marketing

The Netherlands web shops analysed within the I-TREND project advertised 4-MEC as 4-MEC.

## 3 Legal status and identification of the substance

### 3.1 Legal status/acts/laws in the Netherlands

Presently 4-MEC is not under any law. 4-MEC was under the Medicine Act, but it was decided by the High Court that NPS can no longer be addressed under this law, hence 4-MEC is presently free to use, sell or manufacture in the Netherlands.

### 3.2 EMCDDA Notifications of 4-MEC

4-MEC was first reported at the European level by British authorities and notified by the EMCDDA in 2010. 4-MEC was first reported by the Dutch National Focal Point in 2011

4-MEC has been reported to the EMCDDA by the following European countries:

Country	Dates
United Kingdom	7-7-2010
Finland	1-10-2010
Denmark	22-12-2010
Finland	11-1-2011
Czech Republic	25-1-2011
France	2-2-2011
Bulgaria	2-2-2011
Hungary	25-3-2011
Germany	3-5-2011

## 4 Photographs of the substance

### 4.1 Images used in the marketing of the product on the web shops the compound was purchased:



#### 4.2 Photograph of the substance purchased for laboratory analysis:



## 5 Chemistry

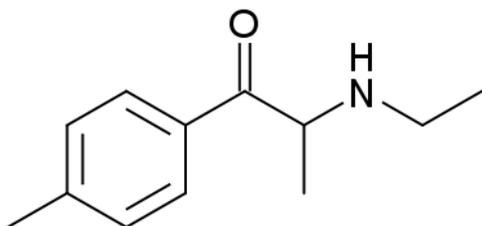
### 5.1 Chemical Abstracts Service (CAS) registry number

1225617-18-4

### 5.2 Chemical information: other chemical names or variants:

White powder, sometimes crystals.

### 5.3 Structure (picture of structural formula):



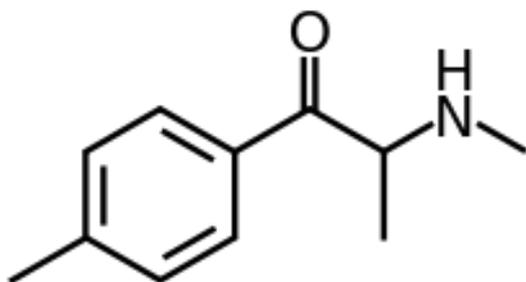
### 5.4 Molecular formula

C<sub>12</sub>H<sub>17</sub>NO

### 5.5 Molecular Weight

191.27 g/mol.

## 5.6 Structural comparison with a related substance



Mephedrone, 4-methylmethcathinone

## 6 Analytical composition: results of substance analysis carried out on samples purchased online (UK IPIP address web shops)

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. Their content was scanned.

For the Netherlands 4 samples of 4-MEC were collected by users 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
Unknown	August 2014	Powder	Ketamine	4-MEC
Dark market web	June 2014	Powder	Ketamine	4-MEC, Pentadrone
Unknown	July 2014	Powder	Ketamine	4-MEC, Pentadrone
Research Chemical shop	July 2014	Powder	Black Romantic	4-MEC

4 samples were handed in via the DIMS in 2014, of which none was actually bought as 4-MEC.

Analysis results confirm that 4-MEC was present in all these samples, but also pentadrone was present in two of them. Mean concentration was 75.3% (sd.= 7.6) (4 samples analysed)

## 7 Prices on Dutch web shops selling 4-MEC:

	Euro	Quantity

Minimum price	15	1 gr
Maximum price	20	1 gr

## 8 Law enforcement and health data

### 8.1 Number of law enforcement seizures in the Netherlands in 2013/2014

In 2013, 4-MEC was seized 10 times by law enforcement. In 2014, this was 45 times.

### 8.2 EMCDDA health alerts in the Netherlands

None.

### 8.3 Confirmed deaths and acute cases reported in the Netherlands

No confirmed deaths by 4-MEC intoxication have been reported. Only one intoxication has been reported in 2013<sup>1</sup>.

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

The information below is based on the analysis of 4 NL drug forums containing 290 posts on 4-MEC since January 2013.

### 9.1 Dosage specified by drug forum users

(Based on 10 posts in 5 discussions)

When snorted, 100mg seems to be a common initial dose, but as the effects are felt only for a very short time, many redose. Some forum members mention however that redose after an initial one doesn't feel good at all.

A dose below 50 mg can be considered a light dose.

A dose of 200 mg and more can be considered a strong dosage. A few forum members mention that they take up to 250-300 mg 4-MEC during one night and in several doses spread over the night.

### 9.2 Duration of effects

(Based on 11 posts in 5 discussions)

#### 9.2.1 Onset

Effects come up quickly, depending on the dosage taken, e.g. within 5-10 minutes.

#### 9.2.2 Coming up

The coming up of the effects is fast e.g. within 20-30 min after intake.

#### 9.2.3 Plateau

Depending on the dose taken, the plateau endures 30-60 minutes (or perhaps longer if really high dosages e.g. >200 mg have been taken)

#### 9.2.4 Coming down

This phase doesn't seem to last very long, e.g. 50 mg effects are gone within the hour.

### 9.3 Effects of 4-MEC reported by forum users

(Based on 30 posts in 8 discussions)

#### 9.3.1 Physical effect

Mild speedy effects, moist hands, tight jaws, body temperature rises, energetic feeling, (strong) rise of heartbeat, shivers, tingling of the fingers (coming up phase), cold hands and feet

#### 9.3.2 Psychological effect

Mild visual effects, mild euphoric feeling, talkative, visual problems.

#### 9.3.3 Sought/expected

No information available.

#### 9.3.4 Desired

The energetic, euphoric feeling is what users are looking for. However forum member generally consider the effects too weak to really enjoy the substance.

#### 9.3.5 Undesired

The substance burns in the nose when sniffed, it even sedates the nose.

4-MEC wears you out, feeling of being exhausted after use.

Focusing is difficult while under the influence.

Severe headaches days after use (reported after use of even small dose 50 mg).

No pleasant effects whatsoever (50 mg).

Strong increase blood pressure and heartbeat, even the day after.

Sweating, also the day after.

General increased pressure on the body the day after, especially in the head.

Interestingly, many forum member express the fact that they did not like this substance at all.

#### 9.3.6 Tolerance

Craving is mentioned in 4 posts in 2 discussions.

Forum users mention the strong desire to keep redosing and warm for this.

### 9.4 Route of administration (ROA)

(Based on 4 posts in 3 discussions)

4-MEC is administered mainly by snorting or ingestion (orally). 4-MEC is snorted but it burns in the nose, is painful therefor it is also used orally (powder in cigarette paper and then swallowing). There are no posts dealing with routes of administration other than the mentioned routes.

### 9.5 Other substances referred to when discussing 4-MEC

(Based on 10 posts in 7 discussions)

Mephedrone and MDMA were quoted only. It was stated that 46MEC is less speedy and less euphoric compared to them. Generally speaking users of 4-MEC are not satisfied with the effects.

### 9.6 Appearance and preparation

(Based on 2 posts in 2 discussions)

Substance comes as powder, looks like snow, is not hard but cannot be cut simply. Fine white powder, light chemical taste, sweet smell  
Several forum members mention that the price ( around 20 euro/gram) is perceived low.

### **9.7 Context of consumption use**

No additional information found.

### **9.8 Accessibility**

No additional information found.

### **9.9 Legality**

No additional information found.

### **9.10 Price**

No additional information found.

### **9.11 Quality purchase**

No additional information found.

### **9.12 Quantity purchase**

No additional information found.

### **9.13 Advice provided by online peers**

No additional information found.

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<sup>i</sup> Hondebrink, L.; Nugteren-van Lonkhuyzen, J.J.; Gouwe, D. van der; Brunt, T.M. (2015). Monitoring new psychoactive substances (NPS) in The Netherlands: Data from the drug market and the Poisons Information Centre. *Drug and Alcohol Dependence*. 147: 109-115