

Expert Committee on Drug Dependence

Thirty-eighth Meeting

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**World Health
Organization**

Expert Peer Review No.1 for 4-Methylethcathinone (4-MEC)

1. Comments based on the review report

a. Evidence on dependence and abuse potential

The existing pharmacodynamic data indicates that 4-MEC is less potent than mephedrone in a variety of assays, possibly reflecting the induction of serotonin release compared to catecholamine reuptake inhibition. *In vivo* properties of 4-MEC suggest that 4-MEC induced psychostimulant-type behavior is somewhat comparable to methcathinone, amphetamine and cocaine, but it requires higher dosage levels. There was no available information from animal studies. Human studies found that the urge to redose when using 4-MEC was considered weak and short-lived with low incidence of negative comedown symptomatology (compared to mephedrone) and low need more frequent dosing. There was no other information to support the dependence potential of 4-MEC. The data suggest a lower dependence and abuse potential compared to non-selective releasing agents such as mephedrone.

b. Risks to individual and society because of misuse

A survey amongst a group of injecting users of new psychoactive substances, found that 4-MEC was injected at a rate per day higher than heroin use. The combination of injecting drug users changing to new psychoactive substances (especially psychostimulants), with a propensity to increased frequency and needle sharing, resulted in economic challenges for harm reduction services, and increased need for vigilance and monitoring of viral and bacterial infection rates.

From the critical review data, new cases associated with 4-MEC intoxications and deaths have been reported. In the majority of cases, the appearance of other substances and alternative causes of deaths (in case of fatal intoxications) complicated interpretation.

c. Magnitude of the problem in countries (misuse, illicit production, smuggling etc)

Use of 4-MEC is also associated with the purchase of “research chemicals” or equivalent products *via* the Internet and possibly “smart” shops. 4-MEC was reported to be the most common substance found in pills sold as “ecstasy” in the region of

Oceania (at least in the time frame up to 2013). Responses obtained to the UNODC questionnaire on NPS (up to 2012) revealed that 4-MEC was ranked fourth with regards to numbers of report (38) received, superseded by mephedrone (68), MDPV (61) and methylone (53).

d. Need of the substance for medical (including veterinary) practice

4-MEC is not marketed as a medicine and not listed on the WHO Model List of Essential Medicines

e. Need of the substance for other purposes (e.g. industrial)

4-MEC has no reported industrial use; it is only reported that 4-MEC is available as standard reference material and produced for scientific research by commercial suppliers.

f. Measures taken by countries to curb misuse

4-MEC is controlled in Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Lithuania, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden, United Kingdom and Turkey, The Russian Federation, USA, Singapore and New Zealand.

g. Impact if this substance is scheduled

None

2. Are there absent data that would be determinative for scheduling?

Need more research data about the dependence potential of 4-MEC.

3. Other comments or opinions

None

4. Expert reviewer's view on scheduling with rationale

4-MEC has abuse potential, but it is considered to be lower than mephedrone, and there are some fatal new cases reported in humans (even though there were other substances present). 4-MEC poses a risk to public health and society and has no recorded therapeutic or industrial uses, so I recommend that 4-MEC be placed in Schedule II of the 1971 Convention.