

Expert Committee on Drug Dependence
Thirty-sixth Meeting
Geneva, 16-20 June 2014



1. Comments based on the review report

Mephedrone (4-methylmethcathinone) is a synthetic β -keto-amphetamine. Pharmacologically, it has a profile comparable to but milder than other amphetamine type stimulants. Mephedrone has affinity for the monoamine transporters, is able to inhibit the reuptake of serotonin and dopamine, and is a stimulant of dopamine release.

a. Evidence on dependence and abuse potential

Animal studies indicate that mephedrone has definite dependence and abuse potential (self-administration in animal models). Survey studies in users also indicate that dependence occurs and that it is associated with frequent use of high doses of mephedrone. Mephedrone has a relatively short duration of action (after intravenous use: approximately 30 minutes) and in a typical session, mephedrone is administered every 30-60 minutes, intranasally. Intranasal administration appears to be the main route of administration. This may be related to the low bioavailability (10%) of mephedrone found in a rat study. In surveys, most users confirm that mephedrone can cause dependence.

b. Risks to individual and society because of misuse

The adverse effects of mephedrone are comparable to those of other amphetamine type stimulants, but its potency is less than that of amphetamine and methamphetamine. Serious intoxications have occurred, including fatalities. Patients show acute sympathicomimetic symptoms (tachycardia, hypertension, agitation, hyperthermia). In most cases, co-ingestion of other psychoactive substances (including alcohol) is common. Mephedrone alone has been identified in a few fatalities.

Two respondents to the WHO questionnaire reported overdose deaths in 2012, and three reported emergency room visits in 2012/2013.

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

Use of mephedrone started around 2007 and has increased since then. Mephedrone users are usually poly-drug users (including alcohol). Data on prevalence of misuse are lacking. A few surveys have been carried out in the UK, showing that among clubbers, students and school children lifetime use may be as high as 40% (self-reports of users).

Twenty-one respondents to the WHO questionnaire reported that there was recreational/harmful use. Nine respondents reported withdrawal, tolerance and other adverse effects on health.

Two respondents reported clandestine manufacture, 16 reported trafficking, 3 reported diversion, and 13 reported an internet market. The total number of reported seizures was 547 in 2011 (12 respondents) and 227 in 2012 (14 respondents).

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

Mephedrone has no medical applications.

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

Mephedrone has no industrial use.

f. Measures taken by countries to curb misuse

Thirty-two respondents to the WHO questionnaire reported that mephedrone was controlled under legislation intended to regulate its availability.

g. Impact if this substance if scheduled

Not applicable.

2. Additional information to improve the critical review report

No further information.

3. Other comments or opinions

No further comments.

4. Expert reviewer's view on scheduling with rationale

Mephedrone is a stimulant comparable to but milder than other amphetamine type stimulants. There are no published pre-clinical safety data on mephedrone. Clinical toxicological publications confirm the stimulant properties of mephedrone. Fatal intoxications have occurred. There is evidence that mephedrone can cause dependence and tolerance. Epidemiological data on abuse are lacking. Mephedrone has no recorded medical or industrial application.

On the basis of these issues, the reviewer's opinion is that mephedrone is placed under international control. Considering that the stimulant properties of mephedrone are comparable to other amphetamine type substances, it is recommended that mephedrone be placed in Schedule II of the 1971 Convention on Psychotropic Substances.