



**THE EXPERT ADVISORY COMMITTEE ON DRUGS (EACD)
ADVICE TO THE ASSOCIATE MINISTER OF HEALTH ON:**

4-METHYLTHIOAMPHETAMINE (4-MTA)

Released October 2002

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ADVICE TO THE ASSOCIATE MINISTER OF HEALTH ON 4-METHYLTHIOAMPHETAMINE (4-MTA)

Executive Summary

This paper considers the synthesised amphetamine-type drug 4-MTA (4-methylthioamphetamine).

4-MTA is not controlled under the Misuse of Drugs Act 1975 (the Act). This advice determines that the Expert Advisory Committee on Drugs (EACD) recommends to the Associate Minister of Health that 4-MTA be classified in Part Two of the Second Schedule (Class B2). Rationale for this view is provided in this paper.

Although the EACD is not aware of 4-MTA being abused in New Zealand, the recommended classification for 4-MTA (Class B2) would fulfil New Zealand's international obligations under the United Nations drug classification framework. Additionally, if 4-MTA becomes available in New Zealand in the future, appropriate domestic control will be in place.

Recommendations

After considering all of the information put to the Committee and the classification criteria in the Misuse of Drugs Act 1975, the EACD makes the following recommendations to the Associate Minister of Health:

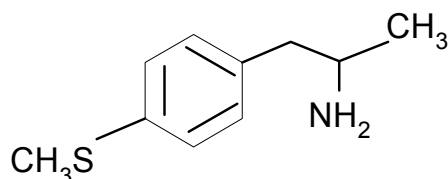
- (a) 4-MTA should be classified in Part 2 of the Second Schedule of the Misuse of Drugs Act 1975 (ie, B2).**
- (b) This paper should be made publicly available (eg, posted on the National Drug Policy website www.ndp.govt.nz) as soon as practicable.**

Substance Identification

4-MTA is a synthetic drug that is chemically and pharmacologically similar to amphetamine and club drugs like MDMA (WHO 2000). It is generally found in the form of cream coloured pills or tablets, and has the street name "flatliner".

Chemically, 4-MTA is 4-methylthioamphetamine. Other names include alpha-methyl-4-methylthiophenetylamine and p-methylthioamphetamine. Its

chemical abstracts registry service (“CAS”) number is 14116-06-04 (WHO 2000).



Structure of 4-methylthioamphetamine (4-MTA)[Elliott 2000]

4-MTA was first developed in 1992 as a slimming aid or anti depressant, and a potential replacement for Prozac (Smith 1999). To date, 4-MTA has been used particularly for pharmacological studies on animals. In tablet form, 4-MTA has been reported in a number of countries, including the Netherlands, United Kingdom, Germany, Switzerland and Australia (WHO 2000).

Similarity to Known Substances

4-MTA is structurally similar to 4-methoxyamphetamine. Pharmacologically, it is similar to MDA and MDMA (Ecstasy). Studies suggest that 4-MTA is six times more potent than MDMA and MDA (WHO 2000).

Current and Proposed Classification

4-MTA is not currently classified under the Act.

It is recommended that 4-MTA be classified as a Part 2 of the Second Schedule (Class B2) controlled drug. This section of the schedules tends to contain drugs with a high risk of harm.

Rational for the Proposed Classification

The following headings relate to the criteria that the EACD must use to assess the appropriateness of a classification for a drug.

Likelihood or evidence of drug abuse

The EACD is not aware of evidence of 4-MTA being a drug of abuse in New Zealand.

The WHO Expert Committee on Drug Dependence submitted its assessment of 4-MTA to the United Nations in October 2000 (WHO 2000). The WHO noted that 4-MTA is mainly abused in Europe. The drug 4-MTA is part of the dance music culture, although its use is relatively less widespread than some

other amphetamine-type stimulants. This is probably because of perceptions by users that the drug is stronger and more harmful than other “club drugs” like MDMA. The WHO reported that 4-MTA has resulted in a number of fatalities and hospital admissions. Toxic effects can be produced from 4-MTA and that the presence of other drugs or alcohol may exacerbate such effects (WHO 2000).

Reports from England indicate that 4-MTA is appearing in nightclubs in the United Kingdom. British authorities recently seized 25,000 tablets that probably originated from the Netherlands. As of June 1999, at least 15 overdoses, five of which were fatal, were reported in Europe. The European Union has taken steps to make distribution of the drug illegal.

4-MTA has not been widely encountered in Europe, and anecdotal information from European sources suggests that it has not gained in popularity because its effects are not as pronounced as MDMA. In a 1999 report, the Dutch Ecstasy Monitoring Programme reported that out of 3,900 samples submitted only seven were 4-MTA. Authorities within Britain’s National Criminal Intelligence Service believe, however, that the drug is making an appearance due to recent police crackdowns on the supply of precursor chemicals for MDMA (DEA 2000).

Should the drug achieve popularity in the European market as an alternative to MDMA, there is potential for the drug to spread to the New Zealand market. This is especially true if gaps in New Zealand’s drug control framework indicate that there are relatively low-risk opportunities to import 4-MTA into this country (ie. there is no legislation in place that prohibits such imports). At this stage, neither health nor law enforcement authorities are aware of 4-MTA being imported or used in New Zealand.

Specific effects of the drug

Although the specific effects of 4-MTA on humans have not been extensively studied, the WHO reported that the drug has similar pharmacological effects to other “rave culture” amphetamines (eg. MDA and MDMA). These effects include, euphoria, increased energy and mild hallucination. Further, studies suggest that 4-MTA is six times more potent than MDA and MDMA in inhibiting 5-HT uptake. A pharmacological study, where the synthesis was described, has shown that this compound has anorexic properties, meaning regular use will result in significant weight loss (Poortman and Lock 1999).

Although chemically 4-MTA is an amphetamine derivative, animal studies suggest that it exhibits different effects than amphetamine. It is non-neurotoxic at behaviourally relevant doses, and at high doses it causes serotonergic behaviour in rats, including hind limb abduction, flat body posture, reciprocal forepaw treading, and salivation. Further studies appear to suggest it has a delayed reaction compared to MDMA-related compounds, reducing the blood pressure of the rats but not significantly reducing the heart rate (Elliot 2000).

Ability to create physical or psychological dependence

Drug discrimination studies in rats suggest that 4-MTA produces discriminative stimulus effects similar to MDMA, this indicates that it has a similar dependence potential to MDMA. 4-MTA did not substitute for amphetamine, LSD or phencyclidine. Reports from the United Kingdom and Northern Ireland indicate that 4-MTA is abused for its stimulant and euphoric effects similar to MDMA (WHO 2000) and therefore is likely to have a similar dependence potential.

Potential to cause death

4-MTA is an amphetamine derivative that appears to carry a higher risk of acute effects than MDMA, including adverse reactions and overdoses. In the European Union, 4-MTA has been associated with a number of deaths and non-fatal cases requiring hospitalisation (Council of European Union 1999).

The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) recently conducted a risk assessment on 4-MTA. The EMCDDA reported that there is a high risk of overdose from 4-MTA. These risks result from the slow onset (and long lasting nature) of the drug's effects, which are often misinterpreted by users as the result of a weak dose, leading to the consumption of more pills. There are also serious risks resulting from mixing the drug with alcohol, MDMA, amphetamines, ephedrine and certain foods (EMCDDA 1999).

Risks to public health

The WHO concluded that although evidence of 4-MTA abuse is available only in a small number of European countries, seizures, including those of large quantities reported from a wider range of countries, suggest that the trafficking and abuse are more widespread than have been reported (WHO 2000). That being the case, and on the basis of its similarity to known MDA-type substances, as well as data from drug discrimination studies in animals, 4-MTA is likely to be abused to an extent constituting a public health and social problem justifying placement under international control. Taking into account that 4-MTA has no recognised therapeutic use, and that it has resulted in a number of fatalities, the abuse of 4-MTA is considered a **high risk** to public health.

Therapeutic value

The WHO has assessed 4-MTA as having no recognised therapeutic use (WHO 2000).

International classification and experience

New Zealand's international obligations under the United Nations Conventions¹

In October 2000, the WHO Expert Committee on Drug Dependence submitted an assessment of 4-MTA to the United Nations, along with a recommendation that the drug be classified under Schedule 1 of the 1971 Convention (WHO 2000).

In March 2001, the United Nations Commission on Narcotic Drugs voted to include 4-MTA in Schedule 1 of the 1971 Convention (although this decision has yet to be formally endorsed by the full UN Economic and Social Council). New Zealand has ratified the 1971 Convention and is thus obligated to include 4-MTA within its domestic drug control regime. However, New Zealand retains the discretion as to how it classifies substances under its national legislation. The proposed classification for 4-MTA (Class B2) will fulfil New Zealand's international obligations under the United Nations drug classification framework.

Other countries' classification of 4-MTA

The Council of the European Union decided in September 1999 to make 4-MTA subject to control measures and criminal penalties. At present, 4-MTA is also in the process of becoming a controlled substance in the United Kingdom (Elliot 2000). Although legislation is still being drafted, and is yet to be endorsed by Ministers, initial indications are that United Kingdom parliamentarians will be invited to classify 4-MTA as a Schedule 1 (Class A) controlled drug under the Misuse of Drugs Act 1971 (Mitchell 2001).

The recent United Nations classification of 4-MTA should result in other signatory countries classifying the drug under their domestic misuse of drugs legislation.

Recommended Presumption for Supply and Justification²

The EACD recommends that a presumption for supply of 4-MTA be set at five grams. Presumption for supply might reasonably be set at five grams or more of 4-MTA, or 100 or more flakes, tablets, capsules or other drug forms containing 4-MTA. This would bring the presumption for supply of 4-MTA in line with that which applies to similar amphetamine-type stimulants, notably MDMA, MDEA and MDA [section 6(6)(cb) of the Act refers].

¹ For detail on the United Nations International drug classification framework please refer to the EACD paper entitled: *Comparing the United Nations International Drug Classification framework with new Zealand's Domestic Drug Classification Framework*.

² The Act contains provisions for setting a presumption for supply for controlled drugs (section 6(6)). This is a threshold where the simple possession of a specified amount of a drug is deemed to be for the purpose of supplying it to other people. Once the threshold is reached the onus is on the person to prove they were not in possession of the drug to supply other people. The EACD may decide to recommend a presumption for supply.

Other Relevant Information

The EACD is not aware of any other information that is directly relevant or material to the Minister's consideration of the EACD's recommendation regarding 4-MTA.

References

- Council of the European Union. 1999. *Council decision of 13 September 1999 defining 4-MTA as a new synthetic drug which is to be made subject to control measures and criminal penalties (1999/615/JHA)*. Available at <http://europa.eu.int/eur-lex>.
- DEA (Drug Enforcement Administration). 2000. *Drug Intelligence Brief*. February 2000. Available at www.usdoj.gov/dea/pubs/intel/20005intellbrief.pdf
- Elliot S. 2000. Fatal poisoning with a new phenylethylamine: 4-methylthioamphetamine (4-MTA). *Journal of Analytical Toxicology*. 24(2):85-9.
- EMCDDA (European Monitoring Centre for Drugs and Drug Addiction). 2001. *Report on the risk assessment of 4-MTA in the framework of the joint action on new synthetic drugs*.
- EMCDDA (European Monitoring Centre for Drugs and Drug Addiction). 15 September 1999. *Press Release – Council Decides New Drug 4-MTA Should Be Placed Under Control*. Available at www.emcdda.org
- Mitchell, S. 2001. Personal communication. [Home Office Action Against Drugs Unit, oral advice on 21 May]
- Poortman AJ, Lock E. 1999. Analytical profile of 4-Methylthioamphetamine (4-MTA), a new street drug. *Forensic Science International* 100: 221-233.
- Smith A. 1999. The chemical generation. *The Observer Newspaper* (London) Sunday, January 24, 1999.
- World Health Organization (WHO) 2000. *WHO assessment of 4-MTA as contained in a notification from the Director-General of the WHO to the Secretary General of the United Nations concerning the proposal for international control NAR/CL.26/2000 Annex*.