



EU EARLY WARNING SYSTEM FORMAL NOTIFICATION

Date issued	12 February 2021	RCS ID	EU-EWS-RCS-FN-2021-0007
Issued by	EMCDDA	Transmitted by	Action on New Drugs Sector, EMCDDA
Subject	Formal notification of <i>N</i> -methyl-1-(3-methylphenyl)propan-2-amine (3-methylmethamphetamine) by Sweden as a new psychoactive substance under the terms of Regulation (EU) 2017/2101		

1. Read me first

This document provides formal notification of the analytical identification of *N*-methyl-1-(3-methylphenyl)propan-2-amine (3-methylmethamphetamine) for the first time in Europe.

Please report any additional data you have on this substance to: ews@emcdda.europa.eu

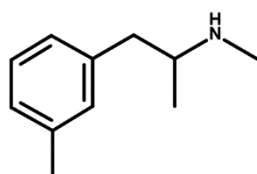
2. Data use restrictions

As with all formal notifications issued by the EU EWS remember that they may contain information that could be regarded as sensitive. Should you provide some of the information in this notification to other groups we would ask that you exercise your best judgment on what information needs to be provided. If you have any questions in this respect, please contact us.

3. Names of substance and other identifiers

- IUPAC name: *N*-methyl-1-(3-methylphenyl)propan-2-amine
- Chemical names: *N*-methyl-1-(*m*-tolyl)propan-2-amine; methyl-[1-methyl-2-(3-methylphenyl)ethyl]amine; *N*, α ,3-trimethylbenzeneethanamine
- Common name: 3-methylmethamphetamine
- Other names: 3-MMA; 3-Me-MA; *N*,3-dimethylamphetamine
- Chemical formula: C₁₁H₁₇N
- Molecular weight: 163.26
- CAS Registry number: 861007-68-3 (base); 2089255-96-7 (hydrochloride salt)
- InChIKey: CXVNBVJDKMLOH-UHFFFAOYSA-N

Molecular structure



4. Substance classification

Phenethylamine

5. Detection

Type: Seizure

Case Report identifier: EDND-CR-2021-64

Details: 3-methylmethamphetamine was identified in 0.78 g white powder seized in Gothenburg, by Police on 2 November 2020. The substance was contained in a plastic bag labeled as '3-met metamfetamin'.

The substance was analytically confirmed using GC-MS, LC-MS and NMR by the Swedish National Forensic Centre (NFC).

6. Chemistry and Analysis

Chemical classification: arylalkylamine; phenylalkylamine; phenylisopropylamine

3-Methylmethamphetamine, also known as 3-MMA, is the 3-methyl derivative of the internationally controlled substance methamphetamine (Schedule II of the 1971 United Nations Single Convention on Psychotropic Substances). 3-Methylmethamphetamine is also a positional isomer of 4-methylmethamphetamine (4-MMA), formally notified in 2013, differing only in the position of the methyl group on the phenyl ring. 3-Methylmethamphetamine is a structural isomer of the internationally controlled N-ethylamphetamine (Schedule IV of the 1971 United Nations Single Convention on Psychotropic Substances) and dimethylamphetamine, formally notified in 2011.

The identification and discrimination of structural isomers can pose analytical challenges due to the fact that these substances have the same molecular weight and similar fragmentation patterns, as a result other analysis techniques, in addition to GC-MS, such as FTIR or NMR may be required.

In a paper on GC-MS and GC-IRD analysis of 2-, 3- and 4-methylmethamphetamine and 2-, 3- and 4-methylamphetamine, the authors reported that as the regioisomers 2-, 3- and 4-methylmethamphetamine and 2-, 3- and 4-methylamphetamine have virtually identical mass spectra, MS is an ineffective technique to discriminate between these closely related compounds [1]. They demonstrated that the three isomers of methylmethamphetamine and methylamphetamine can be separated by GC, and a combination of acetyl derivatisation and vapour phase IR can identify the specific ring substituted compound [1]. Differentiation of 2-, 3- and 4-methylmethamphetamine (2-Me-MA, 3-Me-MA and 4-Me-MA) can also be achieved using supercritical fluid chromatography (SFC) [2].

The synthesis of 3-methylmethamphetamine from 3-methylbenzaldehyde has been reported [1].

3-Methylmethamphetamine contains a stereogenic centre and therefore two possible enantiomers may exist.

7. Pharmacology and toxicology

Pharmacological classification: stimulant

There is no information available on the pharmacology and toxicology of 3-methylmethamphetamine. Based on its chemical structure and on its chemical similarity to methamphetamine, 3-methylmethamphetamine is expected to have stimulant effects.

8. Further information

Further information on this substance is available on the EDND profile:
<https://ednd2.emcdda.europa.eu/ednd/substanceProfiles/1201>

9. Acknowledgements

The Swedish National Focal Point, Swedish Police and the Swedish National Forensic Centre (NFC) are kindly acknowledged for the information and analytical data provided.

10. Attachments

None.

11. References

- [1] Davis S, *et al.* GC–MS and GC–IRD analysis of 2-, 3-and 4-methylmethamphetamine and 2-, 3-and 4-methylamphetamine. *Forensic science international*. 2012;220(1-3):67-73.
- [2] Segawa H, *et al.* Differentiation of ring-substituted regioisomers of amphetamine and methamphetamine by supercritical fluid chromatography. *Drug testing and analysis*. 2017;9(3):389-98.