European Monitoring Centre for Drugs and Drug Addiction

EU EARLY WARNING SYSTEM FORMAL NOTIFICATION

Date issued	10 August 2021	RCS ID	EU-EWS-RCS-FN-2021-0030
Issued by	EMCDDA	Transmitted by	Action on New Drugs Sector, EMCDDA
Subject	Formal notification of 2-(ethylamino)-1-(3-fluorophenyl)butan-1-one (3F-NEB) by Sweden as a new psychoactive substance under the terms of Regulation (EC) No 1920/2006 and Council Framework Decision 2004/757/JHA		

1. Read me first

This document provides formal notification of the analytical identification of 2-(ethylamino)-1-(3-fluorophenyl)butan-1-one (3F-NEB) for the first time in Europe.

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

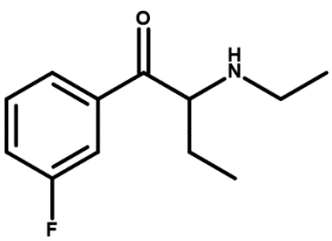
2. Data use restrictions

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: 2-(ethylamino)-1-(3-fluorophenyl)butan-1-one
- Chemical names: 3-fluoro-α-ethylaminobutiophenone
- Common name: 3F-NEB
- Other names: 3F-*N*-ethylbuphedrone
- Chemical formula: $C_{12}H_{16}FNO$
- Molecular weight: 209.26
- CAS Registry number: not registered
- InChIKey: FLFAFGGBRUXYBD-UHFFFAOYSA-N

Molecular structure



4. Substance classification

Cathinone

5. Detection

Type: Seizure
Case Report identifier: EDND-CR-2021-679

Details: 3F-NEB was identified in 372.1 grams of white powder, divided into three bags each containing 53.7 grams, 24.4 grams and 294 grams, seized by Swedish police in Gothenburg on 1 February 2021. In the same case, 3F-NEB was also identified in 920 millilitres of liquid contained in nasal spray bottles, a total of 68 bottles containing 10 millilitres each and 12 bottles containing 20 millilitres each.

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; cathinone

3F-NEB, also known as 3F-*N*-ethylbuphedrone, is structurally related to the internationally controlled cathinones 4-methylethcathinone (4-MEC) and *N*-ethylhexedrone (Schedule II of the 1971 United Nations Single Convention on Psychotropic Substances). 3F-NEB differs from 4-MEC due to the replacement of the methyl in the 4-position with a fluorine in the 3-position on the phenyl ring and replacement of propan-1-one with butan-1-one. 3F-NEB differs from *N*-ethylhexedrone due to presence of the fluorine in the 3-position on the phenyl ring and the replacement of hexan-1-one with butan-1-one.

3F-NEB is the 3-fluoro derivative of *N*-ethylbuphedrone (NEB), formally notified in 2011, and is structurally related to 2-MEB, formally notified in November 2020, differing by the replacement of the methyl in the 2-position on the phenyl ring with fluorine in the 3-position. 3F-NEB is also a positional isomer of 4F-NEB, formally notified in 2016 and a structural isomer of 4-fluoropentedrone, formally notified in 2014. The identification and discrimination of these 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.

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

A reference standard for the hydrochloride salt of 3F-NEB is available and an λmax (ultraviolet wavelength of maximum absorbance) of 248, 291 nm is reported [1]. It is also reportedly soluble in DMF (5 mg/ml), DMSO (14 mg/ml), ethanol (16 mg/ml) and PBS (pH 7.2; 10mg/ml) [1].

7. Pharmacology and toxicology

Pharmacological classification: stimulant

There is no information available on the pharmacology and toxicology of 3F-NEB. Based on its chemical structure and on its chemical similarity to 4-MEC and *N*-ethylhexedrone, 3F-NEB 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/1246

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] https://www.caymanchem.com/product/34019/3-fluoro-%CE%B1-ethylaminobutiophenone-(hydrochloride)