

Emerging psychoactive substances (EPS)

What are emerging psychoactive substances?

Emerging psychoactive substances, or EPS, is a term used to describe drugs that are relatively new to the recreational drug market and have mind-altering effects. EPS often mimic the effects of existing illicit psychoactive drugs such as cannabis, ecstasy (MDMA) and LSD, or have a chemical structure very similar to existing illicit substances. Other names given to this group of drugs include: research chemicals, analogues, legal highs, herbal highs, bath salts, party pills and synthetic drugs. The latter term derives from the fact that EPS are usually man-made and not plant-derived substances like cannabis or heroin. However this can be confusing as substances such as LSD and ecstasy are also artificially-manufactured and have been around for decades.

An EPS may consist of one or more ingredients. Many EPS are sold under brand names and in packaging that give no indication of their contents.

Within the EPS category, substances can be sorted into broad groups:

Synthetic cannabinoids: These drugs contain synthetic chemicals with effects similar to THC, the chemical primarily responsible for cannabis' psychoactive effects. The first synthetic cannabinoid appears to have been released in 2004 and was called [Spice](#). Other synthetic cannabinoids include AM2201, UR-144 and the JWH family (e.g. JWH-073). [See NCPIC's Synthetic Cannabinoids fact sheet](#).

Synthetic cathinones: These substances are chemically similar to cathinone, a substance found in the Khat shrub. Synthetic cathinones are usually available as white or brown powders and claim to have stimulant effects similar to amphetamine, cocaine or ecstasy (MDMA). EPS in this category include mephedrone (sometimes known as miaow miaow, m-cat or drone), methylone, methedrone, naphyrone, butylone and MDPV.

Phenethylamines: These drugs have stimulant and/or hallucinogenic effects. Examples include the 2C-family (e.g. 2C-B, 2C-E, 2C-I), the NBOMe family (e.g. 25B-NBOMe, 25E-NBOMe, 25I-NBOMe) Death on Impact (DOI) and PMMA (paramethoxy-methamphetamine). Amphetamine, methamphetamine and ecstasy (MDMA) are also phenethylamines.

Piperazines: These generally have stimulant and/or hallucinogenic effects similar to ecstasy (MDMA), methamphetamine or LSD. They are usually found in tablet or capsule form, or sometimes as a powder. Examples include BZP, mCPP and TFMPP.

Tryptamines: These are hallucinogens, meaning they cause users to experience distortions to reality. Distortions are usually visual or auditory but can also be tactile (touch), olfactory (smell), temporal (sense of time and place) and/or take the form of unusual thoughts, feelings or beliefs. Tryptamines include the naturally occurring DMT (dimethyltryptamine) and 5-MeO-DMT (5-methoxy-dimethyltryptamine and related hallucinogenic chemicals AMT, DET, DPT, DBT, DiPT and 5-MeO-DiPT).

Other: These include plant-derived substances like kratom and saliva divinorum, and others that do not fit in the above categories such as phencyclidine derivatives.

How many people use EPS?

There is currently no population-wide data on how many Australians have used EPS. The 2013 Ecstasy and Related Drugs reporting System (EDRS) found that among the regular psychostimulant users surveyed (i.e. people who had taken a psychostimulant like ecstasy at least once a month for the past six months):

- 44% had consumed an EPS, including synthetic cannabis, in the previous six months
- 16% had used synthetic cannabis in the previous six months.

However, frequency of use of EPS was low. Respondents reported they had used an EPS on a median of 1-2 days in the previous six months.

Effects of use

Little is currently known about the short and long term effects of emerging psychoactive substances. Research to date suggests side effects may include:

- Aggressive behaviour
- Anxiety
- Confusion
- Dehydration and overheating
- Dizziness and headaches
- Feelings of excitement or euphoria
- Increased alertness/arousal
- Increased energy
- Insomnia
- Involuntary jaw clenching and teeth grinding
- Overdose (especially when EPS are mixed with alcohol or other drugs)
- Psychosis
- Rapid or irregular heartbeat
- Stomach pains, nausea and/or vomiting
- Twitches and tremors
- Unpleasant after-effects ('bad comedown')
- Visual distortions or hallucinations