

New (and emerging) Psychoactive Substances (NPS)

What are NPS?

There are multiple terms in use globally that refer broadly to new, novel or emerging drugs.

This fact sheet focuses on new and emerging psychoactive substances, as defined below:

New Psychoactive Substances (NPS): substances not controlled by the 1961 Convention on Narcotic Drugs or the 1971 Convention of Psychotropic Substances, but which may pose a public health threat similar to illicit drugs that are listed in these conventions.

Emerging psychoactive substances (EPS): psychoactive drugs that are relatively new to recreational drug markets. This term captures all NPS as well as drugs that may not be newly invented, but have recently experienced a resurgence of or increase in use (e.g. 2C-B, DMT).

The NPS market has grown rapidly over the past decade and currently encompasses hundreds of substances and numerous categories (outlined below). In Australia, synthetic cannabinoids are the most widely used NPS, followed by stimulant and psychedelic NPS.

The terms 'synthetic drugs' and 'legal highs' can cause confusion when used to refer to NPS. This confusion stems from the fact that: 1) many 'traditional' illicit drugs (e.g. LSD, methamphetamine, MDMA) are also synthesised; and 2) many countries (including Australia) have moved to prohibit these substances, despite remaining 'legal' at the international level.

NPS can also be referred to as research chemicals, analogues, legal highs, herbal highs, synthetic drugs, designer drugs, novel psychoactive substances, or bath salts.

Synthetic cannabinoids

Examples: Spice, K2, Kronic, Northern Lights, Kaos

Synthetic cannabinoids are substances that are functionally similar to delta-9-tetrahydrocannabinol (Δ^9 -THC), the primary substance responsible for the psychoactive effects of cannabis. They are usually sold in foil sachets and typically contain 1-3 grams of dried plant matter onto which the synthetic cannabinoid has been sprayed. Despite being often marketed as 'legal highs,' synthetic cannabinoids are illegal in Australia.

Adverse effects of synthetic cannabinoid use may include: cardiovascular events, acute kidney injury, seizures, psychiatric problems, hyperemesis, tachycardia, agitation and nausea.

Phenethylamines

Examples: 2C series (2C-E, 2C-B, 2C-I), 4-FMA, NBOMe series (25I, 25C, 25B), PMMA, 5-APB, 6-APB, D series (DOI, DOC), benzodifurans (Bromo-Dragonfly)

Phenethylamines are a class of drugs with documented psychoactive and stimulant effects. Amphetamine, methamphetamine and MDMA are examples of phenethylamines that are controlled under the 1971 Convention of Psychotropic Substances. Examples of phenethylamine new or emerging substances in Australia include the 2C and NBOMe series.

The 2C series are a group of psychedelic phenethylamines, with 2C-B being the most frequently reported new phenethylamine. 2C-B has been described as a cross between LSD and ecstasy and is usually consumed in either powder or pill form. Although bought under international control in 2001 (meaning that it is no longer strictly classified as an NPS), 2C-B is often still considered to be an emerging psychoactive substance due to the fact that it is relatively new to the recreational drug scene.



The NBOMe series are a group of phenethylamines that contain an N-methoxybenzyl group. The most common of the NBOMe series are 25I, 25C and 25B, which are derivatives of the 2C-series (albeit more potent). There have been reports of NBOMe being sold as LSD (when deposited on blotter paper LSD and NBOMe are virtually identical in appearance), which is concerning given that NBOMe drugs can lead to acute toxicity that would not be an expected effect of LSD.

Information on the health risks associated with use of these drugs is limited, however adverse effects of NBOMe toxicity may include cardiovascular complications, agitation, seizures, hyperthermia, metabolic acidosis, tachycardia, organ failure and death.

Synthetic cathinones

Examples: Mephedrone (4-MMC; Meow Meow; M-CAT); Methylone (bk-MDMA); MDPV (Ivory wave); alpha-PVP ('flakka')

Synthetic cathinones are closely related to the phenethylamine family and typically have an amphetamine-type analogue. They first appeared in drug markets in the mid-2000s, with methylone (an analogue of MDMA) the first synthetic cathinone to be reported. Mephedrone is perhaps the most well-known of the synthetic cathinones, although it never gained much prominence in Australia. Mephedrone is mostly available in powder form, although it can also be pressed into pill form, and is usually snorted or ingested. Other synthetic cathinones include MDPV and alpha-PVP, which are both synthetic 'euphoric stimulants' with a very short history of human consumption.

Some of the health risks associated with the use of synthetic cathinones may include: anxiety, agitation, chest pain, paraesthesia, heart palpitations, seizures, tachycardia, hypertension and dependence.

Tryptamines

Examples: DMT, 5-Meo-DMT, 5-Meo-DPT, AMT, 4-AcO-DMT

Some tryptamines are natural neurotransmitters, whilst most are psychoactive hallucinogens found in plants, fungi and animals. Natural tryptamines include 5-Meo-DMT and DMT, whilst AMT and 4-AcO-DMT are synthetic tryptamines. Whilst DMT does not fall under the aforementioned NPS definition, it could be classified as an emerging psychoactive substance in that it is relatively new to Australia's recreational drug scene. 5-Meo-DMT is a powerful psychedelic that is somewhat comparable to DMT in effects (although substantially more potent).

Other NPS

There are a range of other NPS categories including:

Aminoindanes (sold as NPS for their ability to produce empathogenic and entactogenic effects; e.g. MDAI, 5-IAI, 2-AI)

Arylcyclohexylamines (a class of compounds which typically produce dissociative anaesthesia; e.g. 3-MeO-PCE, 4-MeO-PCP, Methoxetamine or MXE)

Novel benzodiazepines (e.g. Pyrazolam, diclazepam, flubromazepam, etizolam)

Novel opioids (e.g. AH-7921; MT-45, fentanyl analogues such as BF, PFBF, 4F-BF)

Plant-based NPS (plants with psychoactive properties; e.g. kratom, khat, salvia divinorum)

Piperazines (described as 'failed pharmaceuticals' and frequently sold as ecstasy due to their central nervous system stimulant properties; e.g. BZP, mCPP, TFMPP). Health harms associated with BZP and TFMPP use may include: headaches, tremors, poor concentration, palpitations, vomiting, anxiety, confusion, hyperthermia, rhabdomyolysis, renal failure, seizures, dizziness, mydriasis, insomnia and urine retention.

How many people use NPS?

According to the **2013 National Drug Strategy Household Survey**, just over one in every one hundred (1.3%) people had used synthetic cannabinoids in the last 12 months, and two in every five hundred (0.4%) Australians (aged 14 or over) had used other NPS in the last 12 months.

The use of synthetic cannabis was highest among 14-19 year-olds, with 2.7% reporting use in the past 12 months.

In a recent survey of over 1,000 Australian Year 11 high school students conducted by NDARC, 12% reported that they had been offered NPS and 3% reported having ever used it in their lifetime. Half of the students surveyed had never heard of NPS.

Are NPS illegal in Australia?

The laws surrounding NPS are complex and vary across jurisdictions.

In order to deal with the rapid growth in the number of NPS, from 2013 onwards some Australian states (including Queensland, NSW, South Australia and Western Australia) introduced blanket bans on possessing or selling any substance that has a psychoactive effect (exempting alcohol, tobacco and food). In other Australian jurisdictions, specific NPS are banned with additional NPS regularly added to the list. Commonwealth laws are also in place that ban any substance with a psychoactive effect that is not otherwise covered by existing legislation.