

Mephedrone

AKA: 2-methylamino-1-p-tolylpropan-1-one; also referred to as 4-methylmethcathinone. Some early retailers and discussion forums dubbed it "**Mephedrone**," and this name stuck. Many users referred to it by the shorter name 'drone'.

The chemical name is often shortened to MCAT, MMCAT or 4-mm. Some retailers and the media have been calling it Meow Meow. When mephedrone was still legal it was widely sold as "Plant Food," so some users just referred to it as such, or fert.

A key product in the early days of mephedrone selling was 'Bubble.' At the time, in the North of England this probably referred to a combination of Mephedrone and Methylone (see below).

In this briefing it will just be referred to as mephedrone.

CONFUSION WITH SIMILAR-SOUNDING NAMES: Although similar sounding, methadone is a completely different substance. It is a synthetic opiate; mephedrone is a stimulant. The name 'mephedrone' could also be confused with methedrine. Methedrine is a brand name for the stimulant *methamphetamine*. While both drugs are made by processing ephedrine, there are big differences in terms of effect and risk.

PROFILE AND RELATIVES: Mephedrone is a member of a family of drugs called **cathinones**. Cathinones are structurally similar to the phenylethylamine family of drugs, which includes amphetamine and Ecstasy.

Mephedrone has a number of siblings including (but not limited to)

Methcathinone ephedrone	(<u>α-methylamino-propiofenone</u>)	CAT, MCAT,
Methylone	3,4-methylenedioxy-N-methylcathinone	M1, MDMC, bk-MDMA "Molly" (also slang for Ecstasy)
Methedrone	<i>para</i> -methoxymethcathinone, 4-methoxymethcathinone	bk-PMMA, PMMC
Ethcathinone	ethylpropion	ETH-CAT
Flephedrone	4-fluoromethcathinone	(4-FMC)
Butylone	β-keto-N-methylbenzodioxolylbutanamine	(bk-MBDB)

ORIGINS: Although considered a "new" drug, mephedrone was first synthesised in by Saem de Burnaga Sanchez. However it was not until around 2003 where an underground chemist called Kinetic 'rediscovered' it and wrote about his synthesis on a drugs discussion forum called the Hive.

Although not yet christened MMCAT, the drug started to crop up in Israel in pills called Neodoves in 2007. The drug was made illegal in Israel on 2008.

Discussion groups in the UK started to pick up on it during 2008 and it became a bigger and bigger subject of discussion. The 2009 festival season was the first year in the UK where mephedrone was both widely available and widely publicised. Availability and use increased over the following year, culminating in it being added to the list of CDs on 16th April 2010.

SOURCE: Mephedrone is a cathinone; it was suggested that it was processed from the African plant khat, which contains methcathinone. It could be used as a starting point for MMCAAT production. However it would be wholly impractical to export fresh Khat from grower countries (like Kenya) to mephedrone-producing ones (like China,) especially as the plant would need to be fresh.

Instead mephedrone was produced synthetically. There are a number of production methods, including some using using ephedrine as a starting point. While synthesis may be taking place in Europe, the bulk of production took place in Asia, especially China.

PLANT FOOD MYTH: Before April 2010 mephedrone was not controlled under the Misuse of Drugs Act 1971. But if it were sold for human consumption as a psychoactive substance, it would have fallen within the terms of the Medicine Act. This would have made it illegal to supply it without a licence. To get round this problem and to avoid risks of legal action if people became ill after consuming it, it was often labelled "Plant Food" and "Not for Human Consumption." It was just a legal get-out. This labelling confused the media, police and even some drugs workers. There were reports of people seeking horticultural products hoping for some psychoactive effects. Sadly some agencies still say it's "plant food," adding to the confusion.

APPEARANCE: Pure mephedrone is supplied a crystalline powder. When it first emerged on the UK market it was typically sold as in self-seal bags, sometimes with printed labels. As the market "matured" it was sold in professionally printed packets. Once it was made a controlled drug, products sold as "mephedrone" reverted to being sold in unlabelled self-seal bags.

Colour is very variable, from white, through off white to yellow or brown. Some MMCAAT has a noticeable and unpleasant aroma - a mixture of crab/shrimp smell with a sweeter, coconut scent. A cross, perhaps between a glass of Malibu and a pot of anchovy paste.

The unpleasant taste, combined with sharp crystals making snorting MMCAAT unpleasant and painful.

PROFILE: Mephedrone is a stimulant/hallucinogen. It elevates levels of dopamine, serotonin and nor-adrenalin.

QUALITY AND PURITY: Prior to the prohibition, purity of 95% was widely claimed by retailers. Since being made a Controlled Drug, it is not clear how much "real" Mephedrone is still sold in the UK.

"Mephedrone" like "ecstasy" is a slang term that has developed a life of its own. Prior to prohibition, "mephedrone" specifically meant the drug 4-mmc. Since prohibition it has become a more general term for unknown white powder stimulants. So products sold as "mephedrone" could contain 4-mmc. But it could also be other cathinones, a mix of legal novel psychoactive compounds, prohibited substances or inert powders.



In short when someone now says that they are using "mephedrone," it is by no means certain that this is really what they have used. If they never used prior to prohibition in 2010, then the odds are the person has never had 'pure' mephedrone and so can't be certain what they have taken.

COST: Prior to the ban, it retailed for around £10/g. Costs haven't increased significantly but quality has dropped significantly.

DOSE RANGE: A typical dose range would be between 75 and 200mg. Experienced users in some drug forums suggest that keeping doses below 250mg is probably sensible to reduce unwanted side-effects.

ROUTES OF ADMINISTRATION: It can be snorted or swallowed. A smaller number of people inject mephedrone. Snorting hurts the nose and may taste unpleasant. It is associated with significant nasal damage. Snorting works relatively quickly, and the fast onset and short duration may encourage compulsive, bingeing patterns of use.

Swallowing seems to hurt the stomach and again, there may be an unpleasant taste. It would typically be put in a capsule or wrapped in cigarette paper. It lasts longer than snorting but needs to be taken on an empty or near empty stomach as eating first seems to reduce the effects substantially. It will take longer to come on when swallowed.

Injecting is not common, and is associated with significant health problems. As a short-acting drug, injectors are likely to inject frequently (up to four times per hour.) Lack of injecting hygiene, repeat injections, poor physical health and contaminants in the drug are likely to result in serious soft tissue infections. Mephedrone also causes constriction of blood vessels (vasoconstriction) which can make it harder to find veins, and slow down healing at injecting sites.

'Real' mephedrone should be water soluble, and no heat or acid is needed. However some of the products sold as "mephedrone" may not be soluble and all products should be filtered to remove contaminants.

ONSET AND DURATION:

Snorted: Onset: 15 minutes Duration: 30-60 mins
Swallowed: Onset: 15-45mins Duration: 2-5 hours.

EFFECTS: These are highly variable, and will vary according to the individual, the dose, experience, route, and other variables.

Especially when taken at moderate doses, orally, and infrequently, some people report it as being Ecstasy-esque, but with a more euphoric, cocaine-like edge.

Snorted, and at higher doses, it is a powerful stimulant euphoriant and can have a more crack-like onset and unpleasant comedown.

Other reported effects include: anxiety, clenching jaws, racing heart, elevated body temperature, reduced circulation to limbs, increased libido, reduced erectile function, hallucinations, tremors or convulsions.

INDICATORS of USE: As with other stimulants, mephedrone can cause: dilated pupils, jaw clenching and tooth grinding, sweating, fast breathing, manic behaviours, talkativeness, anxiety. Other indicators could include muscle spasms, eyelid tremor and discolouration of limbs.

Some heavy users may have a distinctive skin odour – a smell of ammonia and possibly a fishy smell.

People snorting mephedrone may present with nose bleeds.

RISKS: When mephedrone first appeared there was little known about risks of use. Since it first emerged, risks have become much more apparent, but we still don't know as much about long-term effects as we do with more well-established drugs.

- **Dependency:** it became rapidly apparent that mephedrone could cause significant dependency, especially when snorted. Lots of users on discussion forums reported finding it very “moreish.” Where people were buying bulk, it was relatively easy for people to get through a gram an hour, snorting in excess of 10g in a binge. In this respect some people found mephedrone much more crack-like than E-like.
- **Mood/comedown:** Some people have reported low mood, depression and irritability following use, especially extended periods of use. This can include suicidal thoughts and intense craving;
- **Heart:** Some users have reported chest pains, palpitations, and irregular heart beats. There have been fatalities where mephedrone had been used prior to death.
- **Circulatory problems:** mephedrone appears to cause significant vasoconstriction - where blood vessels in the body get narrower. This pushes up blood pressure and can reduce blood flow to parts of the body. Some users have reported coldness and numbness at extremities (hands/feet) suggesting reduced circulation. A small number of people have reported pallor and discoloration of knees, legs and feet, and blotches appearing on skin. This may be related to circulatory problems but the exact cause is not clear.
- **Convulsions:** There have been a small number of reports of people having convulsions following administration of MMCAT.
- **Nose damage:** irritation to lining of nose, burning sensation in nose, nose bleeds, scabbing of inside of nose.
- **Psychiatric problems:** heavy use, especially binges, can cause paranoia and altered states. Users and agencies have reported episodes of psychosis requiring hospital treatment after heavy use.

MIXING MEPHEDRONE:

Stimulants: As mephedrone is a powerful stimulant it is likely to be dangerous in combination with other stimulants including cocaine, amphetamine, ecstasy and currently legal compounds such as MPA or Ethylphenidate.

Heroin: Some injectors report using mephedrone in combination with heroin; regionally this has been referred to as kit-cat (Lanarkshire,) and a Furball (Hull.) This is similar to a snowball or a speedball, where the dopamine 'high' may feel stronger and the unpleasant stimulant crash is balanced by an opiate comedown.

Ketamine: a messy combination where the “get up and go” of a stimulant combines with heavy limbed, anaesthetised, hallucinatory effects of ketamine, and increases risk of accidents.

Cannabis: some users report that using strong cannabis with mephedrone increases anxiety. Others have reported that, rather than making a comedown easier it can increase anxiety and paranoia during the comedown

Alcohol: lots of mixed reports on this one. Some people find low levels of alcohol use with mephedrone pleasant. Others find it very unpleasant. The key risks seem to include increased dehydration and nausea, bad hangovers, significant amnesia.

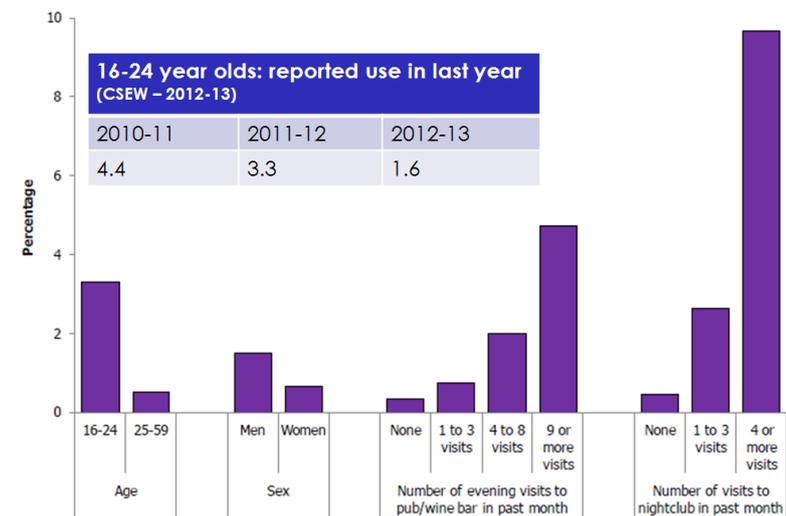
The additional risk is that the disinhibiting effect of alcohol will make it harder to moderate use of MMCAAT increasing the risk of bingeing. Probably a combination best avoided.

HARM REDUCTION: It's as hard as ever to provide harm reduction advice about mephedrone as the odds are that the product on the streets is not pure mephedrone and may not be mephedrone at all.

- All products sold as 'mephedrone' should be treated with great caution, and if used, a small “tester dose” taken rather than larger, mephedrone-sized portions. Don't exceed 250mg.
- Don't use MMCAAT if you have any of the following: history of depression, heart problems, high blood pressure, circulatory problems, are being treated with hypertensives or antidepressants.
- Don't mix with other substances;
- Seek medical advice if you experience chest pains, prolonged numbness of extremities or discolouration of skin.
- Try to space redosing - not using every twenty minutes, but space over longer periods of time.
- Swallow, don't snort. If snorting, don't share snorting tubes; it could spread germs and Hepatitis. Don't inject mephedrone.
- Don't use for extended periods in a single sitting; have long breaks for recovery - at least a couple of weeks, ideally longer. Maintain good diet and self care to help speed up recovery - don't lurch out and just get stoned.
- Drink water to help reduce dehydration; don't drink excessively.

TRENDS: We don't know how popular mephedrone was in the UK prior to prohibition. The annual national drug surveys started monitoring mephedrone rather late in the day and are probably under-estimates of the national figures.

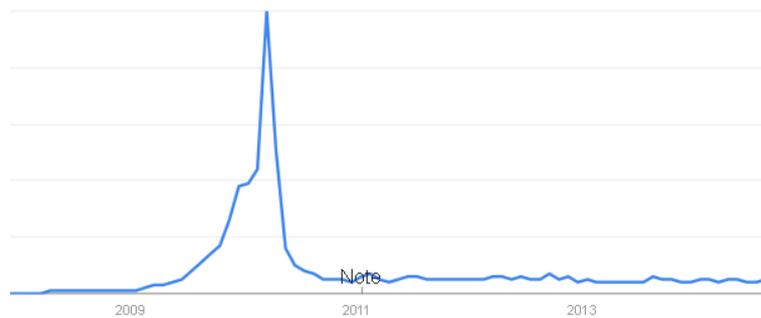
They show use in last year amongst 16-24 year olds dropping from 4.4% to 1.6% in the two years after prohibition. The CSEW for 2011/12 reported that almost 10% of the



most frequent club-goers reported mephedrone use in the last year.

The 2013 Mixmag drug survey reported 13.8% of UK respondents had used mephedrone in the last year, down from 19.5% in the previous year's survey.

Google trends for interest in Mephedrone in the UK shows it peaking in 2010 with declining interest post ban. The high point in 2010 represents the point when the media went in to prohibition overdrive.



LAW: Mephedrone was made a Class B, Schedule 1 compound in April 2010. All Mephedrone's siblings were made Controlled Drugs at the same time. Possession and supply are criminal offences. It becomes a Class A drug if prepared for injection.

OTHER INFORMATION: Mephedrone was the first of the novel psychoactives post MDMA to achieve significant popularity, and also kickstarted new models of retail via head-shops and on-line suppliers.

Mephedrone is now controlled and it is likely residual stocks in the UK are dwindling. It's legacy is not the ongoing availability of the drug, but the new drug production and distribution models that underpinned it's arrival in the UK.