

This information sheet centres focuses on two pre-packaged brands of synthetic cannabinoid smoking mixtures with brand names *Psyclone* and *Exodus Damnation*.

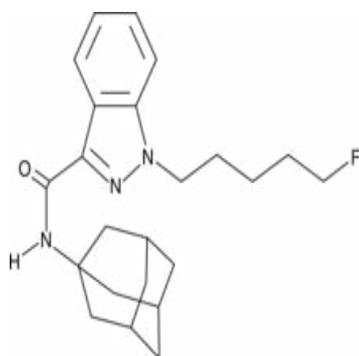
Background: The market for synthetic cannabinoid smoking mixtures (sometimes called 'spice', 'synthetic cannabis' or 'noids') is well established, although UK prevalence is still largely unknown¹. The vast majority of the market is made up of pre-packaged branded products. These branded products contain a non-psychoactive dried plant base that has been dipped or sprayed with one or more of a range of synthetic cannabinoids. Some of these products are marketed as 'ultra potent'².

There are numerous media reports of Accident and Emergency admissions caused by synthetic cannabinoid mixtures. Although there are no available statistics these reports often involve brands such as *Clockwork Orange*, *Sensate*, *Pandora's Box* etc., that are known to be highly potent^{3,4,5}. Recent media reports have associated two products with the brand names *Psyclone* and *Exodus Damnation* with causing a heart attack and the deaths of two people in the UK^{6,7}. There is no confirmation these products caused these deaths as media reports are frequently inaccurate. However, both of these products contain a blend of two synthetic cannabinoids, 5F-AKB48 and 5F-PB22⁸ and both are reportedly highly potent.

Brand: This information briefing looks at what is known about potent brands of synthetic cannabinoid smoking mixtures, focusing on two current brands *Psyclone* and *Exodus Damnation*.

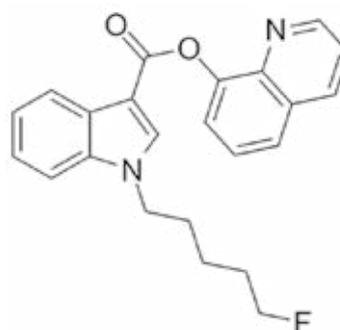
Drug category: Synthetic cannabinoids

Chemical Compounds:



5F-AKB48:

N-(adamantan-1-yl)-1-(4-fluorobutyl)-1*H*-indazole-3-carboxamide ^[17]



5F-PB22:

1-(5-fluoropentyl)-1*H*-indole-3-carboxylic acid 8-quinolinyl ester ^[18]

Potent synthetic cannabinoid smoking mixtures

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Appearance: *Exodus Damnation* (left and *Psyclone* (centre) come in 1gm and 3gm sealed packages. *Exodus Damnation* comes with a suitably apocalyptic image, while *Psyclone* comes in a white, pink and green package. They are both labelled as 'herbal incense'. Smoking mixtures are often made to look like natural cannabis in brands that aspire to be 'cannabis-like', whilst in high potency brands in particular, they tend to look artificial and are often dyed a bright colour (green, blue, orange, red).



Psyclone (Mary Joy) synthetic cannabinoid smoking mixture comes in a white, pink and green packet (centre). This is not to be confused with another 'legal high' made by a different company, 'Psyclone' powder, which comes in a black packet with an image of a 'psycho' clown (far right). One website selling the 'clown' brand of *Psyclone*, claims that it contain ephylphenidate, lidocaine and caffeine¹⁰.

History: in 2012 the UK based company 'Mary Joy UK'⁹ sold a notoriously potent brand of synthetic cannabinoid smoking mixture called *Annihilation*. *Annihilation* was associated with numerous hospitalisations and user alerts^{11,12}. *Annihilation* contained the synthetic cannabinoids MAM-2201 and UR-144¹³. Both these compounds were banned by the amendment to the Misuse of Drugs Act introduced on February 26, 2013¹⁴. This amendment banned all the popular synthetic cannabinoids on sale in the UK market at the time. Despite claims it would take three years before this law would need further amendment¹⁵, within days the shops were re-stocked with scores of different brands containing one or more of four synthetic cannabinoids missed by the legislation: 5F-AKB48, AKB-48, 5F-PB22 and STS-135¹⁶.

Both the brands (Mary Joy) *Psyclone* and *Exodus Damnation* appeared after the February 2013 MoDA amendment. They have both been tested⁸ and both contained a blend of the two synthetic cannabinoids 5F-AKB48 and 5F-PB22.

Cost: Approximately £25 for 3 grams or £10 for 1 gram.

Route of administration: *Psyclone* and *Exodus Damnation* are smoked, often mixed with tobacco in joints, bongs and pipes.

Brain chemistry: The main cannabinoid in natural cannabis is THC. THC is a partial agonist of CB1, whereas some synthetic cannabinoids have been shown to be full CB1 agonists¹⁹ and far more potent than THC. They may also have different affinities; binding more selectively to receptors in one part of the brain rather than others. This may go some way to explaining why the effects of synthetic cannabis can seem both similar to and/or quite markedly different and much more 'trippy' and powerful than natural cannabis.

There is limited information on the action in the brain of 5F-PB22 and 5F-AKB48, let alone a mix of the two. It is reported that 5F-AKB48²⁰ has a strong binding affinity for the peripheral CB2 cannabinoid receptor with the effects thought to be significantly more potent than that of AKB48. 5F-PB22 is reportedly a full agonist of CB1 and CB2 with a higher binding affinity to CB2²¹.

Potency and blend: Different brands of synthetic cannabinoid smoking mixtures can have profoundly different effects²². Although there are reported differences in the subjective effect of various synthetic cannabinoid compounds, the potency of any brand appears to owe more to the ratio of inert plant material to chemical compounds in the mix, rather than any differences in the compounds themselves¹⁹. Some packets contain information as to the volume or ratio of chemical compound present in the mixture, with around the 10% range for standard potency brands²³. However this ratio could be much higher, with one producer estimating that the more potent brands could be up to 45% chemical compound to plant base²³.

Samples of *Psyclone* tested by WEDINOS⁸ were found to have considerable variation in the ratio of 5F-PB22 and 5F-AKB48, although the exact ratio of plant to chemical and the amount of 5F-AKB48 and 5F-PB22 present is difficult to measure because the chemical is not evenly spread on the plant base.

Dose: *Psyclone* and *Exodus Damnation* are both reportedly very potent synthetic cannabinoid smoking mixtures, so doses should be much lower than those used for natural cannabis. A pinch the size of a match-head is an active dose and more than enough for any first time users.

Psychoactive effects: The psychoactive effects of smoking a pre-packaged synthetic cannabinoid mixture can vary considerably²². Effects are dependent on the usual set and setting issues and the potency of the brand. Some brands produce a 'cannabis like' dreamy euphoria and 'stoned' feeling while the more potent brands produce both 'cannabis like' effects and a range of 'un-cannabis' like effects more akin to dissociative or psychedelic drugs. Side effects such as anxiety and panic, disorientation and dysphoria are commonly reported particularly with more potent brands. The duration of effects varies but synthetic cannabinoid smoking mixtures are generally shorter acting than natural cannabis. Short-term memory can be severely impaired.

Physical effects: The physical effects of the more potent brands can be quite overpowering²², with reports of breathing difficulties, tight chest, racing heart, palpitations, shakes and sweats which can lead to severe panic. With higher doses balance and psychomotor skills can be severely impaired. Loss of feeling and numbness in limbs, nausea/vomiting, collapse and unconsciousness has also been reported^[22]. The eyes take on cannabis like pink colour. Sudden skin rashes have also been reported.

Risks and harms: Harms associated with synthetic cannabinoids are well documented¹⁹ and include:

- Agitation,
- Seizures,
- Hypertension,
- Emesis (vomiting)
- Hypokalemia (low potassium levels).
- Epileptic seizures
- Collapse/unconsciousness
- Anaphylactic shock
- Inability to move limbs
- Paranoia
- Symptoms similar to that of psychosis
- Anxiety/fear
- Increased levels of aggression
- Low mood

Although some of these symptoms are similar to high doses of cannabis, researchers have concluded that synthetic cannabinoids are potentially more harmful than cannabis²⁴.

As with natural cannabis, synthetic cannabinoids are associated with triggering psychotic symptoms in those predisposed to the illness^{25,26,27}. Whether the more potent pre-packaged synthetic cannabinoid mixtures are more likely to adversely effect mental health is unknown.

Tolerance to synthetic cannabinoids develops quickly, with increasing dosage and compulsive use commonly reported. It is not thought that synthetic cannabinoids produce physical dependence, but like natural cannabis some people may become anxious about stopping and may experience mild withdrawal symptoms, such as sweating, insomnia and vivid dreams. It is reported these symptoms generally subside between 7-14 days.

There is also some evidence that links synthetic cannabinoid use with acute kidney injury²⁸.

There have been numerous reports of non-fatal intoxications and a small number of deaths associated with their use¹⁹.

As some of the compounds are very potent the potential for toxic effects is high^{29,30}, however 'synthetic cannabis' is not a single chemical compound; there are 84 known synthetic cannabinoids on the European market¹⁹ that have been used in smoking mixtures and potentially hundreds if not thousands more compounds available to manufacturers. Synthetic cannabinoids may or may not have the same potential for harm as each other when smoked on their own or blended with each other.

Harm may also come from adulterants present as a result of the production process. Manufacturers have reported²³ that current synthetic cannabinoids on the UK market are harder to handle than the compounds available before the February 2013 MoDA amendment¹⁴, requiring the use of heated solvents in the production process.

Legal Status: 5F-AKB48 and 5F-PB22 are not currently controlled under The Misuse of Drugs Act.

Comment: People use pre-packaged synthetic cannabinoid smoking mixtures for a variety of reasons. Some choose the more 'cannabis-like' varieties, while others seek out the very potent brands such as *Psyclone* and *Exodus Damnation*. Logic and anecdotal evidence would suggest that the more potent brands are more likely to cause harm than the 'standard' brands, however, evidence is in short supply. We do not know how many people use *Psyclone* and *Exodus Damnation*; we do not know if they are more dangerous than standard brands; we do not know if some synthetic cannabinoid compounds are more harmful than others; we do not know if the adulterants left over from the production process are causing harm. We know next to nothing about the long-term use of synthetic cannabinoids, as quite simply, nobody has ever used them for a long time.

Harm Reduction Advice: In lieu of more detailed information only the broadest of harm reduction messages can be offered, including the following:

- Be aware that the description of contents on the package of any compound may bear no resemblance to the actual contents. Although described as “herbal” compounds the actual psychoactive material is typically synthetic, not herbal;
- Although sold on-line and via ‘head-shops,’ some of the products sold as “legal” may in fact be controlled drugs; often neither the manufacturer nor the retailer are certain as to the identity and legality of the product they are selling; (according to a Home Office report approx 1 in 5 legal high products have actually contained controlled substances³²);
- Potency is hugely variable: start with a very small dose (match-head size or less) and only escalate dose cautiously, giving time for previous doses to wear off e.g. about 30mins;
- Some people report blends containing a mix of different chemicals can have more unpleasant side effects and should only be used with great caution;
- Be cautious about dosing such compounds in pipes or vaporisers: it is harder to regulate intake and easy to take too much; if smoking in a pipe, use small glass or steel pipes which give off less fumes than wood or plastic pipes.
- Be VERY cautious about using such compounds in bongs: it is harder to regulate intake and easy to take too much, water pipes also causes you to inhale more deeply which can cause more lung damage;
- There is a high risk of overdosing if you get into bouts of competitive use (e.g. in bucket bongs etc);
- Be careful with dosing the crystalline powder material in “bottom of the bag”; use a smaller dose, as this is generally stronger than the plant material, which is simply coated with the synthetic cannabinoids;
- If smoking in a joint use thinnest papers and avoid printed card for roach to avoid inhaling additional fumes;
- If smoking with tobacco, try to use low strength tobacco;
- If sourcing pure powder synthetic cannabinoids only use very small doses, calculated using scales and thoroughly mixed in to smoking material;
- Using in conjunction with other drugs, especially other forms of cannabis, alcohol or stimulants, may raise the risk of heart problems. You are best off avoiding these compounds if you have an existing heart problem or are using alongside stimulants;
- As synthetic cannabinoids may exacerbate anxiety and paranoia only use in an environment in which you feel safe, with people who you trust. Avoid using if prone to anxiety or have existing mental health problems;

- In the event of panic or anxiety, often treating as for panic attack will help resolve symptoms; sitting down, head down, regular breathing and reassurance. However more serious symptoms, including delusional behaviour or respiratory distress may require medical assistance;
- If you experience a sustained period of fast heart rate, or experience chest pains call an ambulance;
- Use can cause a comedown, development of tolerance, dependence and withdrawal symptoms. If using these compounds, don't use constantly and take breaks from use;
- Don't drive or operate machinery when using these compounds

(Harm reduction bullet points based on KFX briefing³¹)

As unconsciousness is possible try to make sure a friend is around who is not using the drug. If a user becomes unconscious call an ambulance then place them in the recovery position to prevent choking (see images below).



Start by placing their arm as if they are waving.



Place the other arm across their chest and hold their hand against their cheek.



Lift up the knee that is furthest from you. Continue to hold their hand in place.



Turn them on their side by pulling the knee towards you and down.

Where to get help: We would advise anyone experiencing issues from synthetic cannabinoids or other substances to seek medical support via their GP or the NHS. There are a wide range of local drug services throughout the UK, to find out what is available in your area please use the links below:

England: [Find Support | Frank](#)

Scotland: [Scottish Drug Services](#)

Wales: [Dan 24/7](#)

Northern Ireland: [Public Health Agency](#)

For further information on Overdose & Emergencies see DrugWatch Information Sheet.

References/sources:

1. The main source of prevalence on England and Wales drug usage is the British Crime Survey. This asked about use of Spice in two consecutive household surveys and reported lifetime prevalence levels for adults (16 to 64) at 0.2% in 2010/2011 and 0.1% in 2011/2012. This is regarded as underestimated and does not include areas of potential high use such as prisons and secure mental units. The Mixmag/Guardian Survey shows higher levels of synthetic cannabinoid use than among the general population, with the 2011 Mixmag study, for example reporting 10.3% lifetime and 2.2% last year prevalence levels. Prevalence and/or market shares of individual brands are unavailable.
Smith, K. and Flatley, J. (eds) (2011), Drug Misuse Declared: Findings from the 2010/11 British crime survey. England and Wales, Home Office, London. Office for National Statistics (2012), Drug Misuse Declared: Findings from the 2011/12 Crime Survey for England and Wales. Home Office, London. Mixmag (2012), 'The Mixmag/Guardian drug survey'. <http://www.mixmag.net/words/features/mixmags-global-drug-survey-the-results>
2. <http://www.skunkrevolution.com/mary-joy---exodus-damnation-3g-1285-p.asp> Extracts from [skunkrevolution.com](http://www.skunkrevolution.com) website: "Exodus Damnation The brand new herbal incense with an EXPLOSIVE strength! . . . This new mind blowing ultra potent herbal incense is sure to be loved by everyone. . . There is no hanging about with Damnation her extremely potent effects take over almost instantly creating a mind twisting atmosphere. Exodus Damnation will twist your mind and drag you to the depths of hell! . . . This blend is extremely strong and we do mean extreme, people new to herbal incense should avoid this particular blend. Experienced users should use sparingly"
3. Pandora's Box: http://www.somersetcountygazette.co.uk/news/10730361.Legal_high_user_fights_for_his_life_in_Musgrove_Park_Hospital_Taunton/
4. Sensate & Exodus: http://www.dailyecho.co.uk/news/10756913.Legal_high_drugs_purchased_by_Echo_will_be_tested_by_experts/
5. Clockwork Orange: <http://www.bbc.co.uk/news/uk-england-tyne-22238396>
6. Exodus Damnation: <http://www.dailymail.co.uk/news/article-2470128/Horrific-cost-taking-legal-highs-Mother-releases-shocking-picture-dying-son-20-suffered-heart-attack-smoking-herbal-substance.html>; http://www.kentonline.co.uk/kentish_gazette/news/minutes-from-death-after-taking-7188/
7. Psyclone: <http://www.mirror.co.uk/news/uk-news/man-dies-after-smoking-psyclone-2334291>
8. Samples tested in 2013 from WEDINOS and TicTac: http://www.wedinos.org/substance_information.html.
9. About Mary Joy UK: <http://maryjoyuk.co/about>
According to Wikipedia http://en.wikipedia.org/wiki/Mary_Joy#cite_note-maryjoyukproducts-3
"Mary Joy UK are a company established in 2009 and have sold a range of synthetic cannabinoids such as 'Annihilation' to the US and UK markets. Mary Joy Psyclone is sold by numerous websites, but strangely is no longer sold through the Mary Joy website, although it does sell 'Exodus Damnation'. The website itself has little in the way of information:
10. Black package with psycho clown image <http://www.ukhighs.com/shopping/site/Product/psyclone-1g-research-chemical-powder-psy1gchem-1345804>
11. <http://www.thejournal.co.uk/news/north-east-news/legal-high-lands-tyneside-teenagers-4405887>; http://www.lancashiretelegraph.co.uk/news/darwen/9947927.Legal_high_puts_Darwen_boy_in_hospital/
12. <http://news.stv.tv/scotland/193613-warning-as-nine-people-taken-to-hospital-after-using-legal-high/>
13. TicTac Samples tested in 2013
14. <https://www.gov.uk/government/publications/change-to-the-misuse-of-drugs-act-1971>
15. The Guardian. 11.10.2012. <http://www.theguardian.com/society/2012/oct/11/annihilation-legal-high-targeted-ban>
16. TicTac: Samples brought from UK shops on 28/2/2013
17. <https://www.caymanchem.com/app/template/Product.vml/catalog/12065>
18. <http://en.wikipedia.org/wiki/5F-PB-22>
19. EMCDA <http://www.emcdda.europa.eu/topics/pods/synthetic-cannabinoids>
20. 5FAKB48: <http://www.drugs-forum.com/forum/showwiki.php?title=5F-AKB48>
21. 5FPB22: <http://www.drugs-forum.com/forum/showwiki.php?title=5F-PB-22>
22. Lifeline publications & Research: Ongoing research and contact with users/clients, 2010 - 2013.
23. Lifeline Publications & Research: Research contact with suppliers/manufacturers, Oct 2013
24. Hermanns-Clausen, M., Kneisel, S., Szabo, B., and Auwärter, V. (2013), 'Acute toxicity due to the confirmed consumption of synthetic cannabinoids: clinical and laboratory findings' Addiction. 108, pp. 534-44.
25. Hurst, D., Loeffler, G., and McLay, R. (2011), 'Psychosis associated with synthetic cannabinoid agonists: a case series', American Journal of Psychiatry, 168, pp. 1119.
26. Every-Palmer S: Warning: legal synthetic cannabinoid-receptor agonists such as JWH-018 may precipitate psychosis in vulnerable individuals. Addiction 2010; 105:1859-1861
27. Current Psychiatry Vol. 10, No. 9 .Cannabis, synthetic cannabinoids, and psychosis risk: What the evidence says.
28. Centers for Disease Control and Prevention (2013), 'Acute kidney injury associated with synthetic cannabinoid use — multiple States', Morbidity and mortality weekly report 62, pp. 93-8.
29. Lindigkeit, R., et al. (2009), 'Spice: a never-ending story?' Forensic Science International, 191 pp. 58-63.
30. Uchiyama, N. et al. (2010), 'Chemical analysis of synthetic cannabinoids as designer drugs in herbal products', Forensic Science International, 198 pp. 31-8.
31. KFX. http://www.kfx.org.uk/drug_facts/drug_facts_images_and_pdfs/synthcanna2013.pdf
32. <https://www.gov.uk/government/publications/forensic-early-warning-system-fews-annual-report>



UK DrugWatch is an informal online professional information network established by a group of professionals working in the UK drugs sector. The aim of the group is to raise/establish standards for drug information, alerts and warnings. It is currently an unfunded, bottom-up initiative that works in the spirit of mutual co-operation. A list of current members, and a selection of drug briefings can be found [here](#).



The information in this briefing has been collated from a variety of sources including expert users and information from users via relevant websites and drug forums. This information sheet is to be used as a rough guide only; there is little scientific or medical evidence available on these substances and much of the information has been obtained from service users' reports.