

Presentation located on AFDO website (Association of Food and Drug Officials):

Chemical compounds created through a chemical process by human agency, as opposed to those of natural origin.

NIDA (National Institute Drug Abuse):

a class of lab-made substances that are chemically similar to chemicals found in the cannabis plant

EMCDDA (European Monitoring Centre for Drug and Drug Addiction):

synthetic cannabinoids' are defined as new psychoactive substances that mimic the effects of tetrahydrocannabinol, the major psychoactive substance in cannabis.

UNODC (United Nations Office on Drugs and Crime):

Synthetic cannabinoids are referred to as substances with structural features which allow binding to one of the known cannabinoid receptors, i.e. CB1 or CB2, present in human cells.

ADF (Alcohol and Drug Foundation Australia):

Synthetic cannabinoids are a large group of chemical compounds that target your body's cannabinoid receptors to produce their effects.² (If you're unsure what these receptors are – they are cell receptors located throughout your body that impact on things like how hungry you are, pain-sensation, mood, and memory).⁵ While the technically correct term for these products is 'synthetic cannabinoid receptor agonists' (SCRA), for simplicity we use the term 'synthetic cannabinoids'.

ACMD (Advisory Council on the Misuse of Drugs) – U.K.:

Any compound (not being a compound for the time being specified in sub-paragraph (c) above) structurally related to 1-pentyl-3-(1-naphthoyl)indole (JWH-018), in that the four substructures, that is to say the indole ring, the pentyl substituent, the methanone linking group and the naphthyl ring, are linked together in a similar manner, whether or not any of the sub-structures have been modified, and whether or not substituted in any of the linked sub-structures with a benzyl or phenyl group and whether or not such compound is further substituted to any extent with alkyl, alkenyl, alkoxy, halide, haloalkyl or cyano substituents and, where any of the sub-structures have been modified, the modifications of the sub-structures are limited to any of the following, that is to say—

- (i) replacement of the indole ring with indane, indene, indazole, pyrrole, pyrazole, imidazole, benzimidazole, pyrrolo[2,3-b]pyridine, pyrrolo[3,2-c]pyridine or pyrazolo[3,4-b]pyridine;
- (ii) replacement of the pentyl substituent with alkyl, alkenyl, benzyl, cycloalkylmethyl, cycloalkylethyl, (N-methylpiperidin-2-yl)methyl, 2-(4-morpholinyl)ethyl or (tetrahydropyran-4-yl)methyl;
- (iii) replacement of the methanone linking group with an ethanone, carboxamide, carboxylate, methylene bridge or methine group;
- (iv) replacement of the 1-naphthyl ring with 2-naphthyl, phenyl, benzyl, adamantyl, cycloalkyl, cycloalkylmethyl, cycloalkylethyl, bicyclo[2.2.1]heptanyl, 1,2,3,4-tetrahydronaphthyl, quinolinyl,

isoquinolinyl, 1-amino-1-oxopropan-2-yl, 1-hydroxy-1-oxopropan-2-yl, piperidinyl, morpholinyl, pyrrolidinyl, tetrahydropyranyl or piperazinyl.”

NHS (National Health Service):

Synthetic cannabinoids are lab-made drugs.

CDC:

Synthetic cannabinoids (“synthetic marijuana,” “Spice,” “K2”) are various manmade chemicals that some people may use as an alternative to marijuana. These seemingly innocent little packages of “fake weed” can cause serious side effects that are very different from those of marijuana.

NDI (New Dietary Ingredient) Notification 2016 guidance (FDA-2011-D-0376):

Below are some examples of processes that FDA would likely consider to involve chemical alteration. These processes would also be likely to affect the safety profile of a dietary ingredient. The examples below are intended only for the purpose of illustration and are not a comprehensive list of processes that result in chemical alteration. See question IV.B.5 for further discussion on chemical alteration.

A process that makes or breaks chemical bonds, unless the bonds created by the process are reversed when the ingredient is dissolved in water (e.g., creation of a soluble salt) or during ingestion. Example: hydrolysis.

Removal of some components of a tincture or solution in water, which changes the chemical or molecular composition or structure of the mixture. Examples: chromatography, distillation, and filtration.

Use of solvents other than water or aqueous ethanol to make an extract or tincture. The official legislative history of DSHEA specifies that “solution in water” and “tincture” (solution in aqueous ethanol) are not processes that chemically alter a food.²³ However, other solvents typically alter the composition of the extract in significantly different ways, usually by extracting different types of constituents than are extracted using water and aqueous ethanol.

High temperature baking or cooking of an ingredient that has not previously been baked or cooked, unless the process causes only minor loss of volatile components with no other changes to the chemical or molecular composition or structure of the ingredient.

Changing the manufacturing method for an ingredient such that the chemical or molecular composition or structure is significantly different. Examples: changes that alter the composition of materials used to make the ingredient, use of a different solvent, or use of a chromatographic matrix instead of a passive filter.

Application of nanotechnology that results in new or altered chemical properties of the ingredient.

Changing agricultural or fermentation conditions to alter the chemical or molecular composition or structure of the ingredient. Examples: sprouting garlic or fermenting yeast using a medium containing large amounts of sodium selenite to create large amounts of organic selenium compounds.

Fermentation using a fermentation medium different from the one used to make conventional foods in the food supply. Example: use of a defined commercial growth medium to produce a microorganism previously made by fermenting milk into dairy products like yogurt or cheese.

Use of a botanical ingredient that is at a different life stage than the life stage of the botanical ingredient used as a conventional food. Examples: making an extract from unripe instead of ripe apples or

Some additional thoughts concerning synthetic cannabinoids:

- Does the definition need to say something about lacing/coating/spraying/infusing of carrier material like hemp and herbs etc.?
- Some literature uses the term "Semi-synthetics" (for example Hexahydrocannabinol) for those cannabinoids that maintain the chemical structure of THC but on which small chemical modifications are produced.
- Synthetically created cannabinoids may or may not include natural occurring compounds.

Farm Bill:

"All synthetically derived tetrahydrocannabinols remain schedule I controlled substances" 85 CFR 51639