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Clean labels and hidden additives: an emerging consumer issue

Due to consumer concerns about the health risks of Ultra-Processed Foods (UPFs) including food additives, the Clean-Label movement aims to hide additives from consumers by removing chemical sounding names and numbers and replacing them with health claims and innocent-sounding ingredients.

This means that consumers can no longer rely on regulators to tell them what is in their food, undermines the whole concept of regulating certain additives on safety grounds, and means that previously regulated additives are being used in unregulated amounts.

This Clean-Label approach by the food industry is gaining momentum to the extent that, for some previously regulated additives, there are now more ways in which they are added as unregulated ingredients than as regulated additives. One wonders what regulators will do for a living in the future.

For example, as detailed in Annex A:

- Of the 19 ways in which propionate preservatives E280-283 can be added to food, only 8 are regulated and must appear as additives

- Of the 131 ways in which glutamate flavour enhancers E620-625 can be added to food, only 12 are regulated and must appear as additives

- Of the 14 ways in which nitrate/nitrite preservatives E249-252 can be added to food, only 8 are regulated and must appear as additives

A related issue is the number of Processing Aids seeking regulatory approval where enzymes are used to increase the levels of previously regulated food additives within foods without them appearing on the ingredients label at all, despite these enzymes being clearly intended to perform a technological function.

For example, as detailed in Annex A:

- An enzyme as a Processing Aid which increases the level of flavour enhancer E631 Disodium-5'-inosinate in foods

- An enzyme as a Processing Aid which converts the amino acid L-glutamine to flavour enhancer E621 monosodium L-glutamate "in the manufacture of glutamic acid-rich yeast extracts..."

Why do consumers need to know what is in their food? Taking just the first of these hidden additives in detail, propionates are currently regulated as E280 propionic acid, E281 sodium propionate, E282 calcium propionate, E283 potassium propionate, principally in breads. Increasingly it is hidden in unregulated amounts an ingredient called cultured wheat, cultured flour, cultured wheatflour, cultured dextrose, cultured whey, fermented wheat, fermented flour, fermented wheatflour, fermented dextrose, fermented whey, or starter culture.

Propionate preservatives are now used in

- Oil emulsions GMP
- Fruit and vegetable spreads including jams, chutneys and related products GMP
- Flour products (including noodles and pasta) 4000MPL (in Australia, lower in other countries)
- Solid formulated supplementary sports foods 400MPL
- Fruit and vegetable juices and fruit and vegetable juice products 400MPL
- Formulated Beverages GMP
- Sauces and toppings (including mayonnaises and salad dressings) GMP

Propionates occur naturally in the human body, so in the 1980s food authorities considered them safe and they were approved for use as a preservative. However if you eat processed food, you eat 2-3 times more propionate each day than is produced naturally in your body (1,2).

In the US, brain researchers (3) now say “Excess levels of propionate appear to be problematic”. Such levels of propionates can occur due to

- a metabolic disorder called propionic acidemia whose prevalence is poorly understood
- propionate preservatives in diet
- medications that metabolise to propionic acid

Since approval as a food preservative, studies have linked these chemicals to:

- **behaviour and attention problems in children** (4) based on the Lancet report of behavioural effects on children of propionic acid by Swain et al (5) at Royal Prince Alfred Hospital in Sydney. These results have never been refuted by further studies.

- **autistic type changes in the brains of both rats** (6,7) **and humans** (8,9,10,11). Propionate-treated rats are now used as an animal model of autism in research https://youtu.be/6ejL1B3pVpA . Scientists have even suggested that eating this additive during pregnancy may be linked to autism (12).

- **diabetes and obesity**. A 2019 Harvard study (13) on humans and mice found that a meal containing a low dose of propionate led to a significant increase in plasma levels of propionate in healthy humans and exposure to propionate preservatives resulted in insulin resistance in humans and chronic exposure in mice resulted in insulin resistance and weight gain, with propionate appearing to act as a “metabolic disruptor” that could be contributing to the dramatic increases in diabetes and obesity.

- **dementia**. Researchers (3) suggested that "excess propionate may play a role in dementia, particularly in Alzheimer’s disease”. A prospective study in France (14,15) followed over 6,000 seniors for 12 years looking for metabolic risk factors for vascular dementia. Of seven possibilities they found only propionates increased the chances of cognitive decline. More recently another prospective study confirmed the link between UPFs and dementia (16).

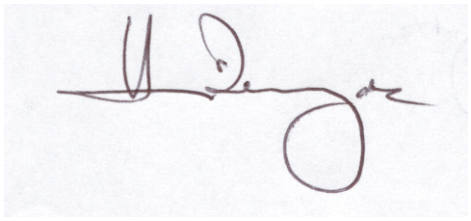
Most persons are exposed to dietary sources of propionate every day through additives in processed food, many of which are hidden. Regulation of this additive and others is becoming irrelevant to consumers.

So it is clear further evaluation of the metabolic consequences of additive consumption in UPFs is urgently required (eg 17). But the wider issues are

- Why are regulators allowing widespread unregulated use of the same additives that they otherwise regulate when added as ingredients to fool consumers?

- What will regulators do when all their regulated additives are being hidden as ingredients?

regards



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PO Box 718, Woolgoolga NSW 2456 AUSTRALIA +61 2 6654 7500 confoodnet@ozemail.com.au www.fedup.com.au The Food Intolerance Network provides independent information about the effects of food on behaviour, health and learning in both children and adults, and support for families using a low-chemical elimination diet free of additives, low in salicylates, amines and flavour enhancers (FAILSAFE) for health, behaviour and learning problems. It has over 21,000 members. ABN 72 705 112 854

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The effects on consumers are briefly collected here, with links to more reports https://www.fedup.com.au/news/blog/harm-from-bread-preservative-confirmed#reports

ANNEX A

Hidden additives

from https://fedup.com.au/sues-blog/hidden-additives

Consumers want to avoid **ADDITIVES**, so food manufacturers have switched to adding innocent-sounding **INGREDIENTS** which contain these same additives, often claiming 'no added whatever'.

Here is how you can recognise this trickery for the two most important additives that people seek to avoid – propionate bread preservatives and MSG.

See also hidden nitrates/nitrites.

The latest scam is to get the additives classified as Processing Aids. These do not appear anywhere on the label. See what is coming in future food products with hidden Processing Aids.

Propionate bread preservatives E280-283

Of the 19 ways in which propionate preservatives can be added to food, only 8 are regulated and must appear as additives. The rest are hidden and so in unregulated amounts.

CLAIM: the package often says 'no artificial/added preservatives/additives'

INGREDIENTS TO LOOK FOR:

- *'cultured' OR 'fermented' AND 'wheat/wheatflour/flour/whey/dextrose/and several other things*
- *OR EVEN 'starter culture' (in some bread products - don't forget that sourdough bread contains high levels of propionates)*
- *AND EVEN in organic products - read the label!*

How many ways can I legally add propionate? Let me count the ways...

One word (4 ways)	280, 281, 282, 283
Two words (15 ways)	propionic acid, sodium propionate, calcium propionate, potassium propionate, cultured wheat, cultured flour, cultured wheatflour, cultured dextrose, cultured whey, fermented wheat, fermented flour, fermented wheatflour, fermented dextrose, fermented whey, starter culture*

*in bread and gluten-free bread products

More https://fedup.com.au/sues-blog/harm-from-bread-preservative-confirmed

Monosodium glutamate MSG E621

Of the 131 ways in which glutamate flavour enhancers can be added to food, only 12 are regulated and must appear as additives. The rest are hidden and so in unregulated amounts.

CLAIM: the package often says 'no added MSG' - if the packaging says anywhere 'no added MSG' then it is very likely that there IS added MSG in another form.

INGREDIENTS TO LOOK FOR:

- If the ingredients label includes any of 131 names in the following table (plus MSG), there MAY be free glutamates (which is the same as adding MSG).

- There is CERTAINLY added MSG in one form or another if these appear: 627, 631, 635, ribonucleotides, nucleotides, disodium guanylate, disodium inosinate, disodium 5'-ribonucleotides.

How can I legally add MSG (without saying MSG on the label)? Let me count the ways...

One word (11 ways)	620, 621, 622, 623, 624, 625, Flavour*, HPP, HVP, Ajinomoto, Yeast* (not baker's yeast)
Two words (37 ways)	Ammonium glutamate, BBQ flavour, Calcium glutamate , Cheese powder, Chinese salt, Corn protein*, Flavour (gluten), Glutamic acid, Hydrolysed casein, Hydrolysed corn, Hydrolysed maize, Hydrolysed protein, Hydrolysed rice, Hydrolysed soy, Hydrolysed vegetable, Hydrolysed wheat, Hydrolysed yeast, Kelp extract, Magnesium glutamate, Maize protein*, Miso powder, Monoammonium glutamate, Monopotassium glutamate, Monosodium glutamate, Natural flavour*, Nutritional yeast, Plant protein*, Potassium glutamate, Rice protein*, Savoury yeast, Soy protein*, Soy sauce, Umami flavour, Vegetable extract, Vegetable protein*, Wheat protein*, Yeast extract.
Three words (63 ways)	Autolysed yeast extract, Natural flavour soy, Nutritional yeast extract, Savoury yeast flakes, Soy sauce powder, Vegetable extract (maize), Vegetable extract (soy), Vegetable extract (wheat), Yeast extract powder; plus any combination of the words below in groups of 3: Autolysed, Hydrolysed, or Lyophilised with Casein, Corn, Maize, Plant, Rice, Soy, Vegetable, Wheat, or Yeast with Extract or Protein eg Hydrolysed rice extract.
Four words (20 ways)	Dehydrated vegetable seasoning (corn), Dehydrated vegetable seasoning (maize), Dehydrated vegetable seasoning (rice), Dehydrated vegetable seasoning (soy), Dehydrated vegetable seasoning (wheat), , Flavour natural (contains corn), Flavour natural (contains maize), Flavour natural (contains rice), Flavour natural (contains soy), Flavour natural (contains wheat), Plant protein extract (corn), Plant protein extract (maize), Plant protein extract (rice), Plant protein extract (soy), Plant protein extract (wheat), Vegetable protein extract (corn), Vegetable protein extract (maize), Vegetable protein extract (rice), Vegetable protein extract (soy), Vegetable protein extract (wheat).

- The list above comprises all legally regulated sources of glutamate, and all known ways in which free glutamates are currently or might be added in Australia and New Zealand, including several (*) which are clearly intended to mislead (eg natural flavour) but are in use by the food industry. In some cases, the presence of MSG-boosters 627, 631 or 635 on the ingredients label

were taken as evidence that some other ingredient (eg soy protein) was in a form upon which the boosters could act.

More https://fedup.com.au/factsheets/factsheets-by-additive/621-msg-msg-boosters-flavour-enhancers-and-natural-glutamates

Nitrate/nitrite preservatives E249-252

Of the 14 ways in which nitrate/nitrite preservatives can be added to food, only 8 are regulated and must appear as additives. The rest are hidden and so in unregulated amounts.

CLAIM: if the label on ham or bacon says "No added nitrates/nitrites" then it almost certainly **DOES** contain added nitrates, usually in the form of a celery extract.

Watch out for "100% or all natural", that is a warning to read the Ingredients Panel closely. Organic products can also contain this hidden additive.

INGREDIENTS TO LOOK FOR:

- celery powder / vegetable extract / beetroot powder / fruit extract / grape extract

How many ways can I legally add nitrates and nitrites?

One word (4 ways)	249, 250, 251, 252
Two words (10 ways)	potassium nitrite, sodium nitrite, sodium nitrate, potassium nitrate, celery powder, celery salt, vegetable extract, beetroot powder, fruit extract, grape extract

More https://fedup.com.au/sues-blog/nitrates-not-on-the-label-in-australia-and-nz-another-hidden-additive

Processing Aids

Food additives classified as Processing Aids do not appear on the ingredients label or elsewhere in a food since they are regarded as inactive having performed their function, even where it is clear that they are intended to perform a technological function.

The international Codex Committee on Food Additives have been asked by Japan to assess two enzymes which increase flavour enhancers inside foods without consumers ever knowing.

One enzyme will increase flavour enhancer E631 Disodium-5'-inosinate in foods but not appear on the label as they want it to be called a Processing Aid.

The second enzyme will convert the amino acid L-glutamine to flavour enhancer E621 monosodium L-glutamate to "in the manufacture of glutamic acid-rich yeast extracts..." This will also not appear on the label as they want to call it a Processing Aid.

New Processing Aid applications

3'-Adenosine-5'-monophosphate deaminase from Aspergillus oryzae by Shin Nihon Chemical Co., Ltd. "AMP deaminase from Aspergillus oryzae is intended for use during food and beverage processing to increase the content of 5'-monophosphate (5'-IMP) in food, beverages or food ingredients to impart or enhance flavour". More https://fedup.com.au/factsheets/factsheets-by-additive/635-msg-boosters-ribo-rash-ribonucleotides-627-631

Glutaminase from Aspergillus niger by Shin Nihon Chemical Co., Ltd. "The enzyme catalyzes the conversion L-glutamine to L-glutamate, and is used in the manufacture of glutamic acid-rich yeast extracts and glutamic acid-rich protein hydrolysates. These, in turn, are added to other foods, including beverages, to impart savoury or umami taste". More https://fedup.com.au/factsheets/additive-and-natural-chemical-factsheets/621-msg-msg-boosters-flavour-enhancers-and-natural-glutamates