

The Chemical Maze



Finding your way

Top tips for removing harmful chemicals from everyday life

An Ebook by Lindy Schneider



Worldwide, over 100,000 chemicals have been developed that are used in the manufacturing of everyday items. Although our focus is on food and cosmetics, it is useful to be aware that we come into contact with thousands of different chemicals every day, and this exposure can build up in our bodies, our food supply chains and our planet's delicate ecosystems.

Chemicals such as pesticides, hormones, fertilisers, preservatives, colours, and flavours are commonly used in the growing and manufacturing process and make their way into our foods, but not onto the labels they carry.

Label reading is an essential skill to develop if you are interested in the additives that may harm our health, and [The Chemical Maze iPhone app](#) or [book](#) are vital tools to unlocking the truth behind the endless sales pitch we face on packaging and through advertising.

The Chemical Maze was first written and published by Bill Statham over a decade ago. It is an easy-to-use reference that details 296 food additives and over 900 cosmetic ingredients approved for use in Australia, their safety and health implications. The Chemical Maze has been a lifeline for those dealing with chemical sensitivities and health complaints such as asthma, eczema and gastrointestinal discomfort. Through Bill's work, many families have found their way through [The Chemical Maze](#) to optimal health and wellbeing.

Congratulations on becoming part of the growing community of people who are aware of chemicals in food, who become educated and make wise choices about what food to feed their family and what household products to use. We know you will find this Ebook a valuable reference.



How to use this guide

This Ebook will help you get started with some practical tips for reducing the chemical load in your household in a few easy steps.

You may choose to action each tip immediately, or make changes one day or week at a time. Every tip you action will decrease your chemical exposure and enhance the health and vitality of your family.

You can start with the tip that you think is most achievable for your family and progress through the tips in whatever order is relevant to your family and needs.

There will be many other actions, beyond this Ebook, you will be able to take as you start to see the results.

Label reading and chemical awareness are guaranteed to become easier as you go along. Whenever you start to feel overwhelmed simply return to these basic tips and refocus.

Optimal health and wellbeing are the greatest rewards for a chemical-free lifestyle.

You are now on your way.



Tip one – ‘No artificial’ or ‘no added’ does not mean none at all!



Just because a label on a product states ‘no artificial’ or ‘no added’ does not mean the product is free of additives or represents a healthier choice.

‘No artificial’ can mean a range of things and manufacturers have caught on to consumers’ growing awareness of just how unhealthy artificial additives are. So the claim on the front of the package might be ‘correct’ but don’t let it distract you from a range of other ways artificial ingredients make their way into our food.

What you need to know

Artificial colours may consist of up to sixty different chemicals and often come with a couple of friends – the artificial flavour and the artificial preservative. Colour is often added to foods to make them more attractive and appetising to us, but can also be used to convince us a product is something that it is not. Brown bread, for example, may be white bread tinted with food colour Caramel (150b). Some foods lose so much colour in the processing phase



that food colour has to be added to restore some semblance to the original product.

Many natural colours can be just as problematic as artificial colours for someone with asthma or food allergies. Natural sounding colours such as Caramel (150a and 150b) or Amaranth (123) are not necessarily going to be better choices.

What you can do

There is some evidence to suggest that artificial colours are the real cause for hyperactivity and other behavioural issues and health impacts in children – much more so than sugar or other additives. Often high sugar foods are also high in colour foods – just think children’s birthday party food.

Nature provides us with many wonderful colours in natural foods.

Raspberries, blueberries and beetroot juice all provide us with healthy alternatives for colouring food should we need to. Try using blueberry juice or puree to make your next birthday cake instead of food colour 102.

Read labels diligently and know which colours you want to avoid. Always read the label extra carefully if a ‘no added’ claim is made anywhere on the packaging.

Of course, fresh fruit and vegetable is naturally full of vibrant colour, so it’s worth asking if our attraction to colour is our body asking for more fresh produce rather than more processed food.

There are over 45 colours listed in the Chemical Maze – only 21 of these colours have a happy face to indicate safety. The rest are problematic and



avoidance is recommended, especially for children. Become familiar with the best and worse of food colours and make informed choices.

Product revealed – no ‘white’ colour



Did you know that even a white product such as ice cream may actually have several artificial colours and flavours in it? This ‘all-natural milk’ product may be far from healthy. The real flavours (additives) on this label are not even listed and a natural colour may be just as problematic to health as an artificial one.

Ingredients: Reconstituted milk, glucose syrup, sugar, water, whey powder, cream, maltodextrin, vegetable origin emulsifiers (477,471-soy), vegetable gum (412), flavours, natural colour (160b).

Ingredient	Rating	Effect on body	Symptom	Derived from
160b Annatto – colour yellow to pink		Irritability, sleep disturbance, restlessness and hypertension, headache	Allergic and hypersensitive reactions, asthma, gastrointestinal ailments, hayfever, hyperactivity, skin ailments (eczema, dermatitis, itching, hives, rash etc) Sleep disturbance	Plant, may be GM

Other food additives on this label are listed as safe, although maltodextrin may be problematic if sensitive to MSG.



Tip 2 – Avoid MSG in all its disguises

MSG, or monosodium glutamate, has a bad reputation and rightly so. Depending on who you consult, it is estimated that between 25–50% of the population experience the classic symptoms of an MSG intolerance after eating foods containing this additive. (These include gastrointestinal discomfort, excessive thirst, fuzzy thinking, mood swings, heart palpitations, migraine, headaches and so on.)

What we may not realise is that MSG is hidden in many foods under different names. It is so pervasive through processed foods that by simply eliminating this additive from your diet, you will eliminate many other bad food additives as well.





What you need to know

Other names for MSG include:

Hydrolysed vegetable protein, potassium glutamate, sodium caseinate, hydrolysed protein, hydrolysed plant protein, autolysed yeast, plant protein extract, calcium caseinate, hydrolysed oat flour, yeast extract, gelatin, textured protein and generally anything hydrolysed.

Other ingredients that MAY contain MSG include:

Broth, malt flavouring, some flavours and spices, seasonings, malt extract, maltodextrin, citric acid, soy sauce, bouillons, stock and stock cubes, and some natural flavours.

MSG use is not limited to Chinese food. It is frequently found in snacks and savoury biscuits, tinned savoury foods and soups, many frozen or packaged meals, sauces, condiments and preserved meats. You will find it in many typical Western foods, even a meat pie or a stew. It might be more apt to call MSG discomfort a 'Western food syndrome'.

MSG (aka processed free glutamic acid) is a manufactured product and is not found in nature. It may be made by extracting glutamic acid from protein or by bacterial fermentation. However, regardless of the way it is produced, MSG always contains unwanted substances referred to as impurities.

What you can do

When reading food labels, look for additives in the range 620-637 and avoid purchasing products that contain any of these numbers. Reduce MSG exposure by avoiding foods with added 'flavours' and don't assume that just because MSG or 621 is not listed on a label that a product is MSG-free. Look for it in its hidden form to be sure. Try making your own stocks and sauce bases so you know what is really in your food.



Product revealed – MSG named

Salt and pepper flavoured rice snacks are advertised as gluten free and oven baked to give us the impression they are healthy. Apparently, salt and pepper flavour is not enough on its own and this product has three problematic flavour enhancers, two of which are MSG-based. The product name suggests 'lite' alternative, but the fat content per 100 gms is well above the prescribed low-fat range. Add a preservative and an antioxidant and this snack is a chemical overload.

Ingredients: Rice flour (55%), maize starch, potato starch (contains preservative 220), tapioca starch, vegetable oil (contains antioxidant 320), sugar, salt, maize, maltodextrin, onion powder, yeast extract, flavour enhancers 621, 627, 631, milk solids, spices, black pepper.

Ingredient	Rating	Effect on body	Symptom	Derived from
220 Sulphur dioxide		Cardiovascular, developmental system, gastrointestinal and liver, nervous system, nutritional depletion and malabsorption, respiratory	Allergic and hypersensitive reactions, asthma, headache and migraines, skin ailments (eczema, dermatitis, itching, hives, rash etc)	Burning sulphur
320 Butylated hydroxyanisole banned in some countries		Carcinogenic, endocrine, system, gastrointestinal and liver, Immune system, nervous system, respiratory	Allergic and hypersensitive reactions, asthma, headache and migraines, skin ailments (eczema, dermatitis, itching, hives, rash etc)	Petroleum
621 MSG		Cardiovascular, gastrointestinal system and liver	Allergic and hypersensitive reactions, asthma, headache and migraines, skin ailments (eczema, dermatitis, itching, hives, rash etc)	Gluten, starch or sugar bi-product, or by bacterial fermentation
627 Disodium 5'-guanylate		Kidneys, behavioural, allergy	Asthma, skin ailments (eczema, dermatitis, itching, hives, rash etc)	Fish, may be GM
631 Disodium 5'-inosinate		Kidneys, behavioural, allergy	Asthma, skin ailments (eczema, dermatitis, itching, hives, rash etc)	Animal, fish, GM



Tip 3 – See through bright colours



If it's too bright then it's probably too fake! Natural colours can be vibrant but are typically more muted. In the USA, artificial colours such as quinolone yellow and carmoisine have been banned. In the UK, new food labelling laws require a

warning to be placed on any products using them. In Australia, their use is still unrestricted and widespread.

What you need to know

Artificial colours are synthetic concoctions that are prepared in a laboratory using a wide range of other chemicals. They are often derived from petroleum and have been linked to a range of health impacts, particularly in children. Manufacturers do not have to list the ingredients of each colour they use and are only legally required to list the additive name (tartrazine) or the INS number (102).

What you can do

Some colours are better than others. Get to know which to avoid and which are acceptable. Avoid foods or beverages that feature bright colours and read your labels when shopping. Be on the look out for:

Sunset yellow (110)	Quinolone yellow (104)	Brilliant blue (133)
Carmoisine (122)	Allura red (129)	Amaranth (123)
Tartrazine (102)	Ponceau 4R (124)	



Product revealed – green cordial



Bright green cordial might be an obvious warning for 'artificial colour' but in this product, it might not be just one colour that's the problem but two. How do you make the colour green? That's right, blue and yellow – the most problematic artificial colours by far.

Ingredients: Sucrose, water, fructose, maltodextrin, Glucose, Flavour, Food acid, vegetable gum (466), Preservative (223), Colours 102 and 133.

Ingredient	Rating	Effect on body	Symptom	Derived from
102 Tartrazine (Yellow)	☹️ ☹️	Musculoskeletal system	Aggressive behaviours, allergy and hypersensitivity, asthma, behavioural problems, confusion, depression, hayfever, headache and migraine, hyperactivity, learning difficulties, skin ailments (eczema, dermatitis, itching, hives, rash etc), sleep disturbance.	Synthetic, petroleum
133 Brilliant Blue	☹️	Carcinogenic	Allergic and hypersensitive reactions, asthma, gastrointestinal ailments, hayfever, hyperactivity, skin ailments (eczema, dermatitis, itching, hives, rash etc)	Petroleum

The preservative in this product Sodium metabisulphite (223) is also cause for concern with one unhappy face in the Chemical Maze guide.



Tip 4 – Get fresh to avoid preservatives and other chemicals

Preservatives allow products to keep longer, extending shelf life beyond what is normal by inhibiting microbial growth and the natural deterioration of food items. Pesticides and fertilisers are used in the growing process to maximise production yields – health impacts are a secondary concern.



What you need to know

Preservatives, including commonly known chemicals such as sulphur dioxide (220) and sodium benzoate (211), are found in everything from fruit juices, wine and dried fruit, to jams and pickles. They are numbered in the range 200-299 and although not all are necessarily harmful, the most commonly used ones (also the cheapest for manufacturers) are associated with more harm than good.

The longer the shelf life of a product, the more likely a preservative (or even several preservatives) will be present in the product.



What you can do

When purchasing fruit and vegetables, buy only what you need for a few days at a time, and buy fresh to avoid preservatives.

You can also avoid many chemicals by choosing organic and seasonal produce – the simplest way to reduce your exposure to chemicals such as pesticides and fertilisers is to purchase organic or biodynamic fruit and vegetables where possible. Packaged organic foods are also more readily available, although it is worth checking what percentage of the product is actually organic – it may be only 5% of ingredients!

You will never have to worry about harmful chemicals that are not on the label if you grow your own. Homegrown produce is not only cost effective, there are also many benefits to be gained from the pleasure of self-sufficiency and a relationship with the environment.

Explore the natural preservatives, such as the ones our grandmothers used to use. Salt, vinegar and sugar, for example, have been used for centuries to preserve foods. Bottling and preserving, and making homemade jams are all excellent ways to avoid manufactured goods laden with preservatives.

Some products are now being offered '220 or preservative-free'. Sometimes this is more a case of clever marketing than truly 'preservative free'. Other preservatives may have been used in substitute, so read the label closely.



Product revealed – no preservative power

The label on this lemonade bottle proudly boasts 'No preservative 220'. But on reading the ingredients list, preservatives are, in fact, in this product. Sodium benzoate (211) can be as problematic as sulphur dioxide.



Here's why:

Ingredients: Carbonated water, sugar, lemon juice from concentrate (2%), citric acid, flavourings, acidity regulator (331), sugar, preservative (211), ascorbic acid.

Ingredient	Rating	Effect on body	Symptom	Derived from
211 Sodium Benzoate		May damage DNA, gastrointestinal, skin. Prohibited in food for infants.	Allergic and hypersensitive reactions, asthma, hyperactivity and learning difficulties, skin ailments (eczema, dermatitis, itching, hives, rash etc), dermatitis, itching, hives, rash etc)	Petroleum



Tip 5 – Clean up your bathroom



products

Now is the time to review your bathroom, kitchen and laundry cabinets for unnecessary chemicals.

Make the switch from harmful chemicals to plant-based cleaners and products that also care for the environment.

What you need to know

Chemicals in cleaning products are often there to make our lives easier – less scrubbing, a cleaner smell, sparkling germ-free tables are all compelling reasons to use them. But every time we spray a chemical, we add to the chemical load for the entire family. Asthma and eczema conditions almost always respond favourably to a change in the use of household chemicals, and nature provides us with many suitable products by simply going back to basics.



Our bodies take in chemicals through the skin and respiratory systems so any initiative we take to reduce chemicals in the family diet, will only be enhanced by the choices we make in the family bathroom.

What you can do

Start from the position that **every** bathroom, laundry or cleaning product is an opportunity to switch to a chemical-free alternative. You may choose to be chemical-free in one go or make your way more slowly, replacing chemical products with suitable alternatives one at a time. Every step is worthwhile.

Seek out the natural and plant-based cleaning products that are now readily available in your local supermarket. There are also many reputable, quality products being made by small businesses that care. You can even make your own cleaning products – vinegar, baking soda, lemon juice and tea tree oil are wonderful bases for a wide range of cleaning tasks.

There is also the added bonus of being environmentally responsible when we make choices that reduce the amount of chemicals we wash down the drain.

Read labels on the cleaning products you are considering as diligently as you read food labels. If, for example, a label claims you should only use the product in a 'well-ventilated room' or 'use gloves' that is a very good signal to put it back on the shelf. Why would you want to be around something that toxic? Don't be convinced that because something has a natural smell (for example pine) that it is a natural product. Fragrance is a minor ingredient in any product and the word 'natural' may be used in liberal terms.



Product revealed – SLS gone for good

Ask anyone with a skin condition, such as eczema, what the most irritating or damaging chemical is in the bathroom cabinet and most likely they will mention Sodium Lauryl Sulphate (SLS). SLS's function is to create bubbles or foam so that shampoos lather up, or bubble bath bubbles, to give us the impression they are working. It is a chemical to avoid and it may not be easy.

An 'all natural' baby shampoo claims to be 98% natural and SLS-free. Sound impressive? Not really, the 2% of 'other' ingredients (ie non-natural) include:



Ingredient	Rating	Effect on body	Symptom	Derived from
211 Sodium benzoate		May damage DNA, gastrointestinal, skin. Prohibited in food for infants.	Allergic and hypersensitive reactions, asthma, hyperactivity and learning difficulties, skin ailments (eczema, dermatitis, itching, hives, rash etc)	Petroleum
Citric acid	 caution with infants	Gastrointestinal	Gastro intestinal ailments, skin ailments (see below)	Bacteria, plant
Sodium hydroxide		Damage to hair and scalp, Suspected skin, sense organ and respiratory toxicity	Skin ailments – eczema, dermatitis, itching , hives, rash	Mineral or synthetic - Caustic soda, a buffer and denaturant



Summary



You now have five top tips to start you on the road to optimal health and wellbeing. A little can go a long way, as even a minor adjustment to your eating and purchasing habits will help.

Label reading is vital if you are going to be chemically aware. Ingredients on food labels are required to be listed in order from the most used to the least used.

This means that the first item on the list will be the major ingredient according to weight.

Manufacturers are not required to list ingredients that make up less than 5% of the total ingredients. Also they are only required to list compound ingredients (like 'fragrance' or 'colours') and not the individual components that make it. This means that some additives may be included that we are never told about.

And remember - always beware of scientific names – a big clue that unwanted chemicals and additives are present.

Your family deserves the best of health, and so do you.



Know your numbers



Here is a ready reckoner that provides an easy to understand classification system for the food additives used today.

Print this chart and keep it in your shopping bag for easy reference.

ADDITIVE	Chemical action
100-199	Colours
200-299	Preservatives and Food Acids
300-399	Antioxidants, Mineral Salts and Food Acids
400-499	Emulsifiers, Humectants, Vegetable Gums, Processing Aids
500-599	Anti Caking Agents, Firming Agents, Stabilisers, Processing Aids
600-899	Flavour Enhancers
900-1201	Sweetening Agents, Bleaching Agents, Propellants, Antifoaming Agents
1400-1450	Thickeners
1505-1521	Sequestrants and Solvents

Of course, not every additive is harmful, but it's helpful to know the broad categories used by manufacturers, especially when they are able to list an additive either as a name or a number.



What next?

If you have specific health concerns you are working with, you may benefit from downloading another App from the Chemical Maze family. For example:



[ADHD](#)



[Baby and Infant](#)



[Headache](#)



[Skin conditions](#)



[Food Additives](#)



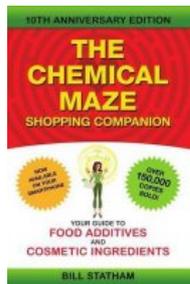
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About



[Bill Statham](#) lives with wife and business partner Kay Lancashire in the picturesque Gippsland region of Victoria. He is a researcher and writer with an interest in health education and a commitment to making a positive difference to the health of people and the environment. Bill studied and practised homeopathy both in Australia and the UK for over ten years. During this time he became increasingly concerned about the detrimental effects on health caused by synthetic chemicals in the foods we eat and the cosmetic products we use every day.



The Chemical Maze family of Apps was developed by [Naturally Being](#) who are a software consultancy company that helps companies create successful mobile products. Product development leaders turn to Naturally Being to develop product strategies, design compelling UI/UX user experiences, and build quality solutions. Naturally Being is unique in its ability to help clients determine, through a number of time-tested processes, what the right software product will be and work to develop it correctly first time.



[Lindy Schneider](#) is a writer and researcher with a keen interest in health, wellbeing and natural childcare. She advocates a chemical-free lifestyle in the best interests of her family, the community and a sustainable world.



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