

WHAT'S REALLY INSIDE

Your Daily Biscuit?

The chemicals hiding behind words like 'Wholesome', 'Nutritious' and 'Goodness of Grains'

A free guide by Diet Swad

Ancient Wisdom, Modern Life

Why You Need to Read This

You pick up a biscuit packet. It says **Wholesome. Nutritious. Goodness of Grains.** You feel okay about it. You give it to your kids. You offer it to your parents with chai. You eat it yourself between meetings.

But flip the packet over. The first ingredient? **Refined Wheat Flour (Maida).** Second? **Sugar.** Third? **Palm Oil or Hydrogenated Fat.** Then a list of codes — INS 322, INS 471, INS 110 — that most people never look up.

This guide translates those codes. No brand-bashing. Just plain facts — so you can decide what goes into your body.

101M	40g	68%	781 ug/kg
Diabetics in India (ICMR 2023)	Sugar in 100g of most cream biscuits	Maida content in India's top biscuit	Acrylamide found in Indian biscuits

"The front of the packet is marketing. The back of the packet is the truth."

Section 1 — The Big Three (Base Ingredients)

These are not additives — they make up **85–95% of every biscuit by weight.** This is where the real damage happens.

MAIDA (Refined Wheat Flour)	HIGH RISK
What it is: Wheat stripped of all bran, fibre, and nutrients. Bleached white with chemicals. What it does to you: GI score of 80-85 (high GI = 70+). Spikes blood sugar fast. Zero fibre. Triggers insulin surges. Feeds cravings. Over time — insulin resistance, obesity, fatty liver, and diabetes. Shocker: A by-product of the bleaching process called Alloxan was detected in 24% of bleached flour samples (Journal of Cereal Science, 2017). Alloxan is used in labs to <i>deliberately induce diabetes in rats</i>.	
REFINED SUGAR	HIGH RISK
What it is: Refined sucrose + often hidden as invert syrup, liquid glucose, or maltodextrin (GI: 95-136 — higher than table sugar). What it does to you: WHO recommends max 25g free sugar per day. Most cream biscuit packs deliver that in one sitting. Sugar activates the brain's dopamine reward path — the <i>same circuit as addiction</i>. That's why one biscuit is never enough. Hidden forms to watch for: Invert Sugar Syrup, Liquid Glucose, Corn Syrup, Maltodextrin	
PALM OIL / VANASPATI	HIGH RISK
What it is: Palm oil (50% saturated fat) or Hydrogenated Vegetable Oil (direct source of trans fats). What it does to you: Raises LDL (bad cholesterol). Partially hydrogenated oils contain trans fats — linked to 71,000 deaths from heart disease annually in India. Shocker: Some biscuits still list 'Hydrogenated Vegetable Oil' on the pack. That is a red flag. Walk away.	

Section 2 — Preservatives & Antioxidants

These extend shelf life. Some are harmless. Others carry flags that regulators in the EU and US are actively investigating.

BHA	HIGH
Code: INS 320 / E320	Purpose: Prevents fat from going rancid
Why it matters: IARC Group 2B — 'possibly carcinogenic to humans' since 1986. Listed as a carcinogen under California's Prop 65. US FDA launched a formal safety reassessment in 2026. India has announced no such review.	

BHT	MEDIUM
Code: INS 321 / E321	Purpose: Synthetic antioxidant, often used with BHA
Why it matters: Potential liver and thyroid effects at high doses. Possible endocrine disruptor. IARC Group 3 (not classifiable as carcinogenic). Concern is cumulative daily intake from multiple packaged foods.	

TBHQ	MEDIUM
Code: INS 319 / E319	Purpose: Prevents rancidity in oils and fats
Why it matters: Immunotoxic and genotoxic at high doses in animal studies. FDA limits to 0.02% of oil content. Some studies suggest it may enhance food allergy sensitivity.	

Sodium Metabisulphite	MEDIUM
Code: INS 223 / E223	Purpose: Dough conditioner; prevents browning
Why it matters: Triggers severe asthma in sulphite-sensitive people — estimated 5-10% of asthmatics. Destroys Vitamin B1 (thiamine). Found in Marie-type biscuits and digestives.	

Section 3 — Artificial Colours (The Most Alarming Section)

Many Indian biscuits — especially chocolate and cream varieties — contain synthetic dyes. Six of these are called the **"Southampton Six"** — directly linked to hyperactivity in children. The EU forces companies to print a **warning label** on any product containing them. **India requires no such warning.**

Sunset Yellow FCF	HIGH
Code: INS 110 / E110	Purpose: Yellow colouring in biscuits and fillings
Why it matters: Part of the Southampton Six. EU mandatory hyperactivity warning. Banned in Norway and Finland. Hepatotoxic effects seen in animal studies.	

Carmoisine (Azorubine)	HIGH
Code: INS 122 / E122	Purpose: Red synthetic dye
Why it matters: Southampton Six. BANNED in USA, Canada, Japan, Norway, Sweden. Still permitted in India with zero warning required on pack. Reproductive organ effects in animal studies.	

Tartrazine	HIGH
Code: INS 102 / E102 Purpose: Yellow dye in lemon/cream biscuits	
Why it matters: Southampton Six. Most allergenic of all azo dyes. Triggers urticaria (hives), asthma in aspirin-sensitive individuals. EU mandatory warning. Recent animal studies show DNA damage.	

Caramel Colour Class IV	MEDIUM
Code: INS 150d / E150d Purpose: Brown colouring in biscuits	
Why it matters: Contains 4-methylimidazole (4-MEI), classified IARC Group 2B — 'possibly carcinogenic'. Listed under California Prop 65. Found in Marie Gold, many cream-filled biscuits.	

"Your child's "chocolate biscuit" may contain a dye banned in five countries — and the pack won't warn you."

Section 4 — Emulsifiers (The Gut Health Concern)

Emulsifiers help mix fat and water to create smooth textures. They're in almost every biscuit. They've long been considered safe — but new research is changing that picture.

Soy Lecithin	LOW
Code: INS 322 / E322	Purpose: Primary emulsifier; creates texture and mouthfeel
Why it matters: Widely considered safe. But a 2024 Nature study found it disrupted glucose metabolism and caused bacteria to penetrate the gut mucus layer in animal models. Present in almost every biscuit on Indian shelves.	
Mono & Diglycerides	LOW-MEDIUM
Code: INS 471 / E471	Purpose: Dough softener; extends shelf life
Why it matters: Also flagged in the same 2024 Nature study alongside lecithin. May contain trans fat by-products as a processing residue. GRAS status but cumulative daily intake from multiple products is the concern.	
Polysorbate 80	HIGH
Code: INS 433 / E433	Purpose: Emulsifier in cream fillings and coatings
Why it matters: A landmark 2015 Nature study found it induced low-grade inflammation, obesity, and metabolic syndrome in animal models. A 2025 Institut Pasteur study found maternal consumption altered offspring gut microbiome and immune development.	
DATEM	LOW
Code: INS 472e / E472e	Purpose: Dough strengthener; improves gas retention
Why it matters: No significant safety concerns per EFSA 2020 re-evaluation. One of the safer emulsifiers on this list.	

Section 5 — Acrylamide: The Hidden Carcinogen

This one doesn't appear on any ingredient list — because it's not added. **It forms during baking itself.**

When maida (rich in the amino acid asparagine) and sugars are baked above 120°C, they react to form **Acrylamide** — a chemical the IARC classifies as **Group 2A: Probably Carcinogenic to Humans**.

Risks documented in studies:

- Neurological damage (peripheral neuropathy)
- Reproductive toxicity (reduced sperm motility in animal studies)
- DNA mutation via its metabolite Glycidamide
- 40% higher breast cancer risk in high-exposure cohort (French study)

Who's most at risk: Children. Their dietary exposure per kg body weight is 2-3x higher than adults. An Italian study found infants aged 6-18 months have an 87-94% probability of exceeding carcinogenic thresholds from biscuits alone.

Worst biscuit types: Dark/chocolate biscuits, wholegrain/digestive biscuits (paradoxically higher than refined), glucose biscuits (reducing sugars accelerate formation).

Levels found in Indian biscuits: 126-781 ug/kg (study, Allahabad 2022). The EU benchmark limit is 350 ug/kg. 64% of bakery biscuits exceeded it.

FSSAI's response: None. Zero regulation. No benchmark. No monitoring. This is the single largest regulatory gap in Indian biscuit safety.

Section 6 — What India Allows vs. What the World Bans

Issue	India	European Union	USA
Southampton Six colour warnings	No warning needed	Mandatory warning	No warning
Carmoisine (INS 122)	Permitted	Permitted with warning	BANNED
Acrylamide in biscuits	No regulation	350 ug/kg benchmark	FDA guidance only
Titanium Dioxide (E171)	Permitted	BANNED (2022)	Permitted
BHA reassessment	None	Permitted with limits	Under review (2026)
Front-of-pack warnings	Not implemented	Traffic light / Nutri-Score	Not mandatory
Potassium Bromate	BANNED (2016)	Banned (1990)	Still legal

Your 30-Second Label Reading Guide

Next time you pick up a biscuit, flip it over. Look for these — and know what they mean.

RED FLAGS — Put it back

- Ingredient #1 is Maida / Refined Wheat Flour
- Contains 'Hydrogenated Vegetable Oil' anywhere on label
- INS 110, INS 122, or INS 102 in the list (linked to hyperactivity in children)
- More than 5 ingredients you can't pronounce
- Sugar appears 2-3 times under different names

YELLOW FLAGS — Proceed with awareness

- Palm Oil (high saturated fat — not the worst, but not good either)
- INS 150d — Caramel Colour Class IV (contains possible carcinogen 4-MEI)
- INS 471, INS 322 — Emulsifiers (ongoing gut research)
- INS 223 — Sodium Metabisulphite (concern for asthmatics)
- Maltodextrin — GI higher than table sugar

GREEN SIGNALS — Safer signs

- Short ingredient list (under 6 ingredients)
- First ingredient is a whole food (oats, dates, nuts, jowar)
- No artificial colours listed
- Sweetened with dates, jaggery, or desi khand — not refined sugar
- No INS codes for preservatives or colours

You've Read the Truth.

Now here's what real food looks like.

At Diet Swad, we make snacks the way your dadi would have — real ingredients, short lists, no codes.

Power Bites

11 superfoods. Dates, nuts, seeds. 7.5g protein. Zero refined sugar.

Millet Cookies

Jowar, Oats, Almond Flour. Naturally sweetened with Desi Khand. Baked, not fried.

Roasted Cashews

2 ingredients only. Cashews + Salt. No additives. No codes.

Peanut-Sesame Delights

4 ingredients. Dates, Peanuts, Sesame, Ghee. That's the entire list.

Try Diet Swad — Pan-India. Free Shipping. Rs 499 per pack.

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