

PROHIBITED SUBSTANCES FOR ORGANIC CERTIFICATION

Chemical Products on Farms — Reference List

44 Prohibited substances	8 Categories covered	4 Standards referenced	Standards covered: USDA NOP — US National Organic Program EU 2018/848 — EU Organic Regulation IFOAM — International Federation SANS 1636 — South African Standard
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This reference list covers substances categorised as prohibited under major international organic certification standards. It is intended for use in organic compliance reviews, input screening, and certification audits. Always verify against the current version of the applicable standard and consult your certifying body for substance-specific guidance.

1. Synthetic Pesticides (10 substances)

Substance / Chemical Name	Reason for Prohibition	Applicable Standard(s)
Organophosphates (e.g. chlorpyrifos, malathion)	Neurotoxic; persist in soil and water	USDA NOP · EU 2018/848 · IFOAM
Organochlorines (e.g. DDT, lindane, endrin)	Persistent organic pollutants; bioaccumulate in food chains	USDA NOP · EU 2018/848 · IFOAM · SANS 1636
Carbamates (e.g. carbofuran, aldicarb)	High mammalian toxicity; cholinesterase inhibitors	USDA NOP · EU 2018/848
Synthetic pyrethroids (e.g. cypermethrin, deltamethrin)	Highly toxic to aquatic organisms and bees	USDA NOP · EU 2018/848 · IFOAM
Neonicotinoids (e.g. imidacloprid, thiamethoxam, clothianidin)	Systemic; lethal to pollinators including bees	USDA NOP · EU 2018/848 · IFOAM
Atrazine	Persistent herbicide; endocrine disruptor; groundwater contaminant	USDA NOP · EU 2018/848
Glyphosate-based herbicides	Prohibited in certified organic production	USDA NOP · EU 2018/848 · IFOAM · SANS 1636
Paraquat / diquat	Non-selective contact herbicides; acutely toxic	USDA NOP · EU 2018/848

Substance / Chemical Name	Reason for Prohibition	Applicable Standard(s)
Methyl bromide (as pesticide)	Ozone-depleting fumigant; banned except critical uses	USDA NOP · EU 2018/848
2,4-D (synthetic formulations)	Phenoxy herbicide; drift damage risk; not permitted in organic	USDA NOP · EU 2018/848 · IFOAM

2. Synthetic Fertilisers (6 substances)

Substance / Chemical Name	Reason for Prohibition	Applicable Standard(s)
Urea (synthetic)	Rapidly releases nitrogen; disrupts soil biology	USDA NOP · EU 2018/848 · IFOAM
Ammonium nitrate	High-N synthetic fertiliser; prohibited in organic	USDA NOP · EU 2018/848
Superphosphate (single/triple)	Processed with sulfuric acid; synthetic phosphorus source	USDA NOP · EU 2018/848 · IFOAM
Potassium chloride / muriate of potash (synthetic)	Synthetic K source; high chloride content harms soil microbiota	USDA NOP · EU 2018/848
Anhydrous ammonia	Compressed gas nitrogen fertiliser; harmful to soil organisms	USDA NOP · EU 2018/848
Synthetic chelated micronutrients (EDTA-based)	Synthetic chelating agents not broken down in soil	EU 2018/848 · IFOAM

3. Prohibited Fungicides (6 substances)

Substance / Chemical Name	Reason for Prohibition	Applicable Standard(s)
Mancozeb / maneb (EBDC fungicides)	Ethylene bisdithiocarbamates; residues persist on produce	USDA NOP · EU 2018/848 · IFOAM
Chlorothalonil	Broad-spectrum fungicide; probable carcinogen; toxic to aquatic life	USDA NOP · EU 2018/848
Propiconazole and DMI fungicides	Demethylation inhibitors; endocrine-disrupting potential	USDA NOP · EU 2018/848
Iprodione / vinclozolin	Anti-androgen properties; banned in EU	EU 2018/848 · IFOAM
Metalaxyl / mefenoxam	Systemic phenylamide; not permitted in organic	USDA NOP · EU 2018/848
Thiram	Dithiocarbamate seed treatment; harmful to mammals	USDA NOP · EU 2018/848

4. Growth Regulators & Hormones (5 substances)

Substance / Chemical Name	Reason for Prohibition	Applicable Standard(s)
Synthetic auxins (e.g. NAA, IBA in synthetic form)	Hormone-like growth regulators not permitted in organic	USDA NOP · EU 2018/848
Ethephon (synthetic ethylene)	Ripening accelerant; synthetic plant hormone	USDA NOP · EU 2018/848 · IFOAM
Maleic hydrazide (synthetic)	Anti-sprouting agent; synthetic origin prohibited	USDA NOP · EU 2018/848
Chlormequat chloride	Synthetic plant growth retardant	USDA NOP · EU 2018/848
Daminozide (Alar)	Synthetic growth regulator; probable human carcinogen	USDA NOP · EU 2018/848

5. Soil Treatments & Fumigants (5 substances)

Substance / Chemical Name	Reason for Prohibition	Applicable Standard(s)
Chloropicrin	Toxic soil fumigant; highly irritating; not organic-approved	USDA NOP · EU 2018/848
1,3-Dichloropropene (Telone)	Pre-plant fumigant; probable carcinogen	USDA NOP · EU 2018/848
Dazomet	Methylisothiocyanate-releasing soil fumigant	USDA NOP · EU 2018/848
Metam sodium / metam potassium	Broad-spectrum fumigant; toxic to soil biota	USDA NOP · EU 2018/848 · IFOAM
Synthetic soil conditioners (e.g. polyacrylamide, except where approved)	Polymer-based conditioners restricted or prohibited	USDA NOP · EU 2018/848

6. Post-Harvest Treatments (5 substances)

Substance / Chemical Name	Reason for Prohibition	Applicable Standard(s)
Diphenylamine (DPA)	Anti-scald treatment for apples; not permitted in organic post-harvest	USDA NOP · EU 2018/848
Thiabendazole (synthetic application)	Benzimidazole fungicide used as post-harvest dip; prohibited in organic	USDA NOP · EU 2018/848
Imazalil / enilconazole	Citrus post-harvest fungicide; systemic triazole	USDA NOP · EU 2018/848

Substance / Chemical Name	Reason for Prohibition	Applicable Standard(s)
Waxes containing synthetic additives	Carnauba wax is allowed; synthetic wax formulations are not	USDA NOP · EU 2018/848
Irradiation (ionising radiation)	Physical treatment; fundamentally incompatible with organic certification	USDA NOP · EU 2018/848 · IFOAM · SANS 1636

7. GMO & Biotechnology Inputs (3 substances)

Substance / Chemical Name	Reason for Prohibition	Applicable Standard(s)
Genetically modified organisms (GMOs) — seeds or plant material	Fundamental prohibition across all organic standards	USDA NOP · EU 2018/848 · IFOAM · SANS 1636
GM-derived microbial inoculants	Inoculants produced via recombinant DNA technology	USDA NOP · EU 2018/848
GM-derived biopesticides (unless specifically approved)	Bt products must be non-GM origin; verify strain approval	USDA NOP · EU 2018/848

8. Antibiotics & Veterinary Drugs (4 substances)

Substance / Chemical Name	Reason for Prohibition	Applicable Standard(s)
Streptomycin / oxytetracycline (except under narrow conditions)	Antibiotic use on plants; mostly prohibited	USDA NOP · EU 2018/848
Synthetic hormone implants (livestock)	Growth promotion via synthetic hormones prohibited	USDA NOP · EU 2018/848 · IFOAM
Routine antibiotic prophylaxis (livestock)	Antibiotics not permitted as preventive treatment in organic livestock	USDA NOP · EU 2018/848
Arsenic-based compounds	Historic use as growth promoters; all now prohibited	USDA NOP · EU 2018/848 · IFOAM

Important Notes

- Standards evolve — always verify against the current version of the applicable organic standard before making compliance decisions.
- Some substances may appear on both prohibited and permitted lists depending on form, source, or concentration (e.g. copper-based fungicides are restricted but not entirely prohibited under certain standards).
- This list is a reference guide and does not replace formal certification body guidance. Consult your certifier's approved inputs list (e.g. OMRI for USDA NOP) for definitive rulings.

- Transition periods apply — some previously permitted substances are subject to phase-out schedules. Check for active exemptions.
- For South African producers, cross-reference SANS 1636 and verify with an accredited South African National Accreditation System (SANAS) body.

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