



# EWG'S LICENSING CRITERIA BABY & ADULT MATTRESSES

EWG's research team has developed a strict set of standards to be met by all mattresses that bear the EWG VERIFIED® mark. The EWG VERIFIED mark demonstrates to consumers that a product meets our strictest criteria, as outlined below.



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# MATTRESS CRITERIA

To be considered for the EWG VERIFIED mark, a mattress must meet the following criteria.

## 1. Mattress shall not include any of the following chemicals or materials linked to health harm.

EWG requires that none of the following chemicals or materials linked to health harm be **intentionally added** to licensed products or used in the manufacturing of the components and raw materials thereof:

- Added chemical flame retardants and any textiles that may have flame retardant chemicals, antimony compounds, vinyl chloride, melamine, modacrylic fibers, or fiberglass incorporated into the fiber itself
- Fragrances and fragrance ingredients, such as essential oils and botanical extracts
- Ingredients or components listed on EWG's Unacceptable List for Mattresses
- Ingredients or components that can cause health harm either directly or due to the presence of known contaminants. Such ingredients include, but are not limited to, brominated, chlorinated and organophosphate flame retardants, polyurethane foam, synthetic latex, vinyl, formaldehyde and phthalates
- Chemicals included in the state of California's Proposition 65 list of known carcinogens and reproductive toxicants
- Substances on the European Chemicals Agency's Candidate List of Substances of Very High Concern that may have serious and often irreversible effects on human health
- Substances designated and restricted under the European Union REACH legislation governing registration, evaluation, authorization and restriction of chemicals
- The European Union's Category 1 designated endocrine disruptors
- Dyes that have been classified as sensitizing or allergenic under the Globally Harmonized System or Dangerous Substances Directive/Dangerous Preparations Directive (DSD/DPD) and as amended in Regulation EC 1272/2008 on classification, labeling and packaging
- Chemicals on the California Department of Toxic Substances Control Candidate Chemical List
- Chemicals classified by the U.S. National Toxicology Program or by the International Agency for Research on Cancer (IARC) as posing a risk of cancer for people. This includes chemicals listed by the National Toxicology Program as 'reasonably anticipated' or 'known human carcinogen' and cancer-causing chemicals listed by IARC under categories 2B, 2A and 1
- Aromatic or halogenated solvent-based adhesives. **Note:** Alternatives to adhesives preferred, such as metal clips, tufting and sewing. Thermal bonding or plant-based, water-based solvents may be used.
- EWG will not license mattresses treated with antimicrobials. EWG reserves the right to evaluate and consider antimicrobials on a case-by-case basis while the criteria are being developed. Textiles treated or processed with substances that can cause harm to human health and the environment, including but not limited to, enzymes derived from genetically engineered organisms; alkylphenols and alkylphenol ethoxylates; ammonia; optical



- brighteners, such as fluorescent brightening agents, disodium diaminostilbene disulfonate, and disodium distyrylbiphenyl disulfonate (Oxygen-based bleaches are acceptable for EWG-licensed products.).
- Polyvinyl chloride (PVC) in the product packaging
- PFAS in any part of the mattress and in compliance with California law ([CA Health & Safety Code § 108970 \(2022\)](#)) for all textiles used in the mattress
- PVC in any part of the mattress

EWG defines “intentionally added” ingredients or materials as substances that manufacturers have intentionally added to their product or those intentionally added to their raw materials that have a functional or technical effect.

PFAS are defined as all compounds with at least one fully fluorinated carbon atom ([CA Health & Safety Code § 108970 \(2022\)](#)).

## 2. Products must comply with EWG’s standards for emissions of volatile organic compounds, or VOCs.

EWG requires products bearing the EWG VERIFIED mark to comply with EWG VOC\* emissions standards, as seen in Table 1, below. More information found on EWG’s Restricted List.

**Table 1. EWG VOC Emissions Standards**

Substance	Maximum limit (ug/m <sup>3</sup> )
Regulation (EC) No. 1272/2008: category carcinogenic 1A & 1B, Mutagenic 1A & 1B, Reproduction 1A & 1B; TRGS905 :K1,K2, M1,M2,R1,R2; IARC:Group1 and 2A; DFG (MAKlist) : Categories III1,III2	≤ 1 (2 day test chamber)
Formaldehyde	≤ 24 (2 day test chamber)
Carbon disulfide	50 (2 day test chamber)
Nitrosamines	≤0.3 (2 day test chamber)
Vinyl chloride	≤0.1 (1 day test chamber)
Total VOC	Report TVOC level.

\* As cited in EU Directive 2004/42/CE, EWG defines VOCs as any organic compound having a boiling point of less than or equal to 250°C measured at standard pressure of 101.3 kPa. Total VOCs is defined as the sum of all detected volatile organic compounds, as outlined in ISO 16000-6 or EN 16516.

Emissions standards can be met with a GreenGuard product certification or equivalent.



### 3. Products must meet EWG’s restrictions on potentially hazardous contaminants and byproducts.

EWG requires products bearing the EWG VERIFIED mark to meet EWG’s restrictions on hazardous chemicals that may contaminate mattresses, as seen in Table 2 below. More information found on EWG’s Restricted List.

**Table 2. EWG Restriction on Contaminants in Mattress covers**

Substance	Maximum limit (ppm)
Extractable free Formaldehyde	N.D. (Japanese law 112 test method)
Heavy metals (extractable)	See Table 3
Phthalates, sum (Table 3)	N.D. concentration
Extractable Nickel and cadmium	For zippers or other external metal (<1.0 mg/kg Ni <0.1 mg/kg Cd) Report results for nickel release (EN 12472)

### 4. Products must meet EWG’s restrictions on pesticides.\*

EWG requires products bearing the EWG VERIFIED mark to be tested for pesticides as determined through testing or certification, as outlined in Appendix A. Pesticide testing must be provided. Fibers must also not be grown using any of the pesticides outlined in Appendix A.

\* This standard acknowledges and recognizes the possibility of pesticide cross contamination through the supply chain.

### 5. Products containing latex or latex coated fibers must contain plant-based latex and meet standards for VOC testing or be certified by the Global Organic Latex Standard.

Latex is restricted to contain no more than 1 ppm of butadiene.

EWG requires products bearing the EWG VERIFIED mark to provide proof of VOC testing or of Global Organic Latex Standard certification.

EWG recommends extended producer transparency for mattresses, packaging, or company websites for individuals who may be sensitive to natural latex proteins. The phrase recommended by the FDA for labeling of medical products is “not made with natural rubber latex.”



## **6. Products must meet the requirements of the Consumer Products Safety Commission's Flammable Fabrics Act for flammability standards as outlined in the parts 1632 and 1633 of the Act.**

All textiles and fabrics must comply with the Consumer Products Safety Commission's Flammable Fabrics Act for flammability standards.

## **7. Products must disclose all intentionally added ingredients and materials on their product specific webpage.**

EWG will license only those products that disclose all their intentionally added ingredients and materials. Ingredients and materials must be listed using a unique chemical name. Registered Trademark names will not be allowed. Any changes to the ingredient list must be disclosed and reviewed.

## **8. Manufacturers must develop, follow and document the use of a quality control system.**

EWG requires that manufacturers of licensed products develop, follow and submit documentation detailing the use of a quality control system. These practices include but are not limited to:

- i. Maintenance of documentation and records
- ii. Procedures for analysis of product specifications and quality
- iii. Process for internal audits
- vi. Assessment of the suitability of buildings, facilities and equipment
- v. Adequate training of all personnel
- vi. Maintenance of adequate cleanliness and pest controls
- vii. Compliance of raw material suppliers with explicit agreements to monitor and meet purity and safety standards, as outlined in EWG's criteria document.
- viii. Safety assessment protocols for materials and raw materials

## **9. Companies must acknowledge that EWG will annually review our criteria, including our Unacceptable and Restricted lists, and update as needed. A phase-in period will be provided to allow companies to comply with any updates.**

EWG will annually review and, if necessary, update our criteria, including our Unacceptable and Restricted lists, to ensure they reflect the latest in science, regulations and other relevant considerations. If changes are made, EWG will alert companies and grant them eighteen (18) months from the time the changes are announced to make the necessary changes to their formulation and packaging. At the end of the 18-month period, companies will no longer be able to manufacture or distribute products with EWG's licensed mark that do not comply with the new criteria. If companies continue to distribute noncompliant products with EWG's licensed mark, this will be treated as a breach of EWG's licensing agreement. In the rare event that scientific evidence emerges demonstrating that a



mattress ingredient or component will pose significant harm to human health, EWG reserves the right to request that companies either remove the ingredient or component or cease distribution of the relevant products with EWG's licensed mark in a shorter timeframe than specified above.

## 10. Companies must acknowledge and agree that EWG has the right to perform product testing.

EWG requires companies with licensed products to acknowledge that EWG has the right to perform random product testing, which may include the use of qualified third-party services, to ensure that products bearing the EWG licensing mark meet the provisions highlighted in this criteria document.

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# DOCUMENTING COMPLIANCE WITH EWG'S HEALTH AND TRANSPARENCY CRITERIA FOR MATTRESSES

To verify a product meets EWG's standards for health and transparency, a company must submit to EWG the following documentation for each EWG VERIFIED criterion.

## CRITERION 1. Products shall not include any of the following chemicals or materials linked to health harm.

**DOCUMENTATION:** Companies must submit a completed Product Submission Form with the product name, a list of all intentionally added chemicals, components and materials, and the function and weight, or percentage composition, of each chemical, component and material listed.

**DOCUMENTATION:** Companies must submit a signed affidavit stating that none of the following chemicals or materials was intentionally added to licensed products or used in the manufacturing of the components and raw materials thereof:

- Added chemical flame retardants and any textiles that may have flame retardant chemicals, antimony compounds, vinyl chloride, melamine, modacrylic fibers, or fiberglass incorporated into the fiber itself
- Ingredients or components listed on EWG's Unacceptable List for Mattresses.
- Ingredients or components that can cause health harm either directly or due to the presence of contaminants. Such ingredients include, but are not limited to, brominated, chlorinated and organophosphate flame retardants, polyurethane foam, synthetic latex, vinyl, formaldehyde and phthalates



- Chemicals included in the state of California’s Proposition 65 list of known carcinogens and reproductive toxicants
- Substances on the European Chemicals Agency’s Candidate List of Substances of Very High Concern that may have serious and often irreversible effects on human health
- Substances designated and restricted under the European Union REACH legislation governing registration, evaluation, authorization and restriction of chemicals
- The European Union’s Category 1 designated endocrine disruptors
- Dyes that have been classified as sensitizing or allergenic under the Globally Harmonized System or Dangerous Substances Directive/Dangerous Preparations Directive (DSD/DPD) and as amended in Regulation EC 1272/2008 on classification, labeling and packaging
- Chemicals on the California Department of Toxic Substances Control Candidate Chemical List
- Chemicals classified by the U.S. National Toxicology Program or by the International Agency for Research on Cancer (IARC) as posing a risk of cancer for people. This includes chemicals listed by the National Toxicology Program as ‘reasonably anticipated’ or ‘known human carcinogen’ and cancer-causing chemicals listed by IARC under categories 2B, 2A and 1
- Aromatic or halogenated solvent-based adhesives. Note: Alternatives to adhesives preferred, such as metal clips, tufting and sewing. Thermal bonding or plant-based, water-based solvents may be used.
- Textiles treated or processed with substances that can cause harm to human health and the environment, including but not limited to, chlorine-based bleaches; enzymes derived from genetically engineered organisms; alkylphenols and alkylphenol ethoxylates; ammonia; optical brighteners, such as fluorescent brightening agents, disodium diaminostilbene disulfonate, and disodium distyrylbiphenyl disulfonate (Oxygen-based bleaches are acceptable for EWG-licensed products.).
- Polyvinyl chloride in the product packaging
- PFAS in any part of the mattress.
- PVC in any part of the mattress

## CRITERION 2. Products must comply with EWG’s standards for emissions of volatile organic compounds, or VOCs.

**DOCUMENTATION:** Companies must submit a laboratory test report demonstrating compliance with VOC-emission restrictions, as outlined in Table 1 in Criterion 2. Compliance can be demonstrated by using a broadly-accepted and standardized tested methodology, such as ISO 16000-9 or the California Department of Public Health’s method: California Department of Public Health. 2017. Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.2. Available: [https://archive.cdph.ca.gov/programs/IAQ/Documents/CDPH-IAQ\\_StandardMethod\\_V1\\_2\\_2017.pdf](https://archive.cdph.ca.gov/programs/IAQ/Documents/CDPH-IAQ_StandardMethod_V1_2_2017.pdf)

Compliance can also be demonstrated by Greenguard certification.

**Note:** other methods might also fit the definition, and will be reviewed by EWG on a case-by-case basis.



### CRITERION 3. Products shall be free from potentially hazardous contaminants and byproducts.

**DOCUMENTATION:** Companies must submit laboratory test reports demonstrating that their product meets the restrictions outlined in the table 3 below.

Heavy metals may be determined by ISO 105-E04 or equivalent for extraction and detection by ICP-MS or ICP-OES. Phthalates may be determined as described by EU Ecolabel for bed mattress (2014/391/EU) or ISO 14389 (GC/MS) or equivalent. Extractable formaldehyde is determined by methods specified in Japanese Law 112. Acceptability of methods, including detection limits achieved, are at the discretion of EWG.

**Table 3: EWG Restriction on Contaminants in mattress fibers**

Substance	Maximum limit (ppm)
<b>Heavy Metals</b>	
Antimony	0.5
Arsenic	0.2
Cadmium	0.1
Chromium	1
Chromium VI	0.5
Cobalt	0.5
Copper	25
Lead	0.2
Nickel	1
Mercury	0.02
Selenium	0.5
Tin	2
Extractable Nickel (zippers)	Report results for nickel release (EN 12472)
<b>Phthalates</b>	No detectable concentration
Di-isononyl phthalate (DINP)	
Dimethyl phthalate (DMP)	
Di-n-octyl phthalate (DNOP)	





Substance	Maximum limit (ppm)
Di-2-ethylhexyl phthalate (DEHP)	
Di-isodecyl phthalate (DIDP)	
Benzylbutyl phthalate (BBP)	
Di-n-butyl phthalate (DBPo)	
Diisobutyl phthalate (DIBP)	
Diethyl phthalate (DEP)	
Di(heptyl, nonyl, undecyl) phthalate (DHNUP)	
Diisoheptyl phthalate (DIHP)	
Dicyclohexyl phthalate (DCHP)	
Di-n-hexyl phthalate (DNHxP)	
Diisohexyl phthalate (DIHxP)	
Dipropyl phthalate (DPrP)	
Dihexyl phthalate (DHP)	
Dinonyl phthalate (DNP)	
Diphenyl phthalate (DPP)	
Other phthalates	
<b>Extractable Formaldehyde</b>	No detectable concentration

#### **CRITERION 4. Products must meet EWG's fiber restrictions on pesticides.**

**DOCUMENTATION:** Companies can provide organic certification, certified laboratory report(s), or equivalent to quantify residues from pesticides. Intentionally used and unintentionally detected pesticides are listed in Appendix A. More information found on EWG's Restricted List.

Pesticides may be determined by § 64 LFGB 00.00-34 (GC/MS) or equivalent.

#### **CRITERION 5. Products containing latex or latex coated fibers must meet emissions testing or be certified by the Global Organic Latex Standard.**

**DOCUMENTATION:** Companies must provide documentation demonstrating compliance with VOC requirements or a Global Organic Latex Standard and Federal Stewardship Council Latex standard.



**CRITERION 6. Products must meet the requirements of the Consumer Products Safety Commission’s Flammable Fabrics Act for flammability standards as outlined in the parts 1632 and 1633 of the Act.**

**DOCUMENTATION:** Companies must submit a signed affidavit stating that they comply with the Consumer Products Safety Commission’s Flammable Fabrics Act for flammability standards.

**CRITERION 7. Products must disclose on their website all intentionally added ingredients.**

**DOCUMENTATION:** Companies must submit a signed affidavit stating that they have disclosed all of the product’s intentionally added ingredients to EWG, disclosed them publicly on the product’s specific web page, and acknowledge that any changes to the ingredient list must be disclosed and reviewed. While not required, EWG encourages companies to provide material lists or QR codes in retail stores to increase ingredient transparency.

**CRITERION 8. Manufacturers must develop, follow and document the use of a quality control system.**

**DOCUMENTATION:** EWG will require companies to submit a signed statement indicating they have a quality control system that meets our requirements.

**CRITERION 9. Companies must acknowledge that EWG will annually review our criteria, including our Unacceptable and Restricted lists, and update as needed. A phase-in period will be provided to allow companies to comply with any updates.**

**DOCUMENTATION:** Companies must submit a signed affidavit stating that they acknowledge that EWG will annually review and update our criteria, and, if companies are unable to meet the updated criteria within 18 months, they will no longer be able to manufacture or distribute products with EWG’s licensed mark that do not comply with the new criteria.

**CRITERION 10. Companies must acknowledge and agree that EWG has the right to perform product testing.**

**DOCUMENTATION:** Companies must submit a signed affidavit stating that they acknowledge that EWG has the right to perform product testing, including through analysis by qualified third-party testing services, to ensure that products meet the provisions outlined in EWG’s Licensing Criteria.



# APPENDICES

## Appendix A. EWG's Standard for Pesticide Contamination on Textile Fibers

Name of pesticide	CAS Registry Number	Applicable for testing in	
		Plant fiber	Animal fiber
2,3,5,6-Tetrachlorophenol	935-95-5	X	
2,4,6-Trichlorophenol	88-06-2	X	
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	93-76-5	X	
2,4-Dichlorophenoxyacetic acid (2,4-D)	94-75-7	X	
Acetamepid	135410-20-7	X	
Aldrin	309-00-2	X	X
Atrazine	1912-24-9	X	
Azinphos	2642-71-9	X	
Azinphos-methyl	86-50-0	X	
Alpha- and beta-Endosulfan	959-98-8, 33213-65-9	X	X
Bifenthrin	82657-04-3	X	
Bendiocarb	22781-23-3	X	
Bioresmethrin	28434-01-7		X
Bromophos-ethyl	4824-78-6	X	X
Buprofezin	69327-76-0	X	
Captafol	2425-06-1	X	
Carbaryl	63-25-2	X	X
Carbosulfan	55285-14-8	X	



Name of pesticide	CAS Registry Number	Applicable for testing in	
		Plant fiber	Animal fiber
Clethodim	99129-21-2	X	
Chlordane	57-74-9		X
Chlordimeform	6164-98-3	X	
Chlorpyrifos-ethyl	2921-88-2	X	X
Chlorpyrifos-methyl	5598-13-0	X	X
Chlorfenapyr	122453-73-0	X	
Chlorfenvinphos	470-90-6	X	X
Chlorfluazuron	71422-67-8	X	
Coumaphos	56-72-4	X	X
Cyfluthrin	68359-37-5	X	X
Cyhalothrin	91465-08-6	X	X
Cyclanilide	113136-77-9	X	
Cypermethrin	52315-07-8	X	X
DDD (op- and pp-)	53-19-0, 72-54-8	X	X
DDE (op- and pp-)	3424-82-6, 72-55-9	X	X
DDT, o,p-	789-02-6	X	X
DDT, p,p-	50-29-3	X	X
DEF/ 2,4 Dichlorodiphenyldichloroethane	78-48-8	X	
Deltamethrin	52918-63-5	X	X
Diafenthiuron	80060-09-9	X	
Diazinon	333-41-5	X	X



Name of pesticide	CAS Registry Number	Applicable for testing in	
		Plant fiber	Animal fiber
Dichlofenthion	97-17-6		X
Dichlorprop	120-36-2	X	
Dichlorvos	62-73-7	X	X
Dicrotophos I	141-66-2	X	
Dieldrin	60-57-1	X	X
Diflubenzuron	35367-38-5		X
Dimethoate	60-51-5	X	X
Dinoseb and salts	88-85-7	X	
Diuron	330-54-1	X	
Empenthrin	54406-48-3		X
Endosulfansulfate	1031-07-8	X	X
Endrin	72-20-8	X	X
Esfenvalerate	66230-04-4	X	X
Ethion	563-12-2	X	X
Fenchlorphos	299-84-3	X	X
Fenitrothion	122-14-5	X	X
Fenthion	55-38-9		X
Fenpropathrin	39515-41-8		X
Fenvalerate	51630-58-1	X	X
Fipronil	120068-37-3	X	
Flumethrin	69770-45-2		X



Name of pesticide	CAS Registry Number	Applicable for testing in	
		Plant fiber	Animal fiber
Heptachlor	76-44-8		X
Heptachlor epoxide	1024-57-3		X
Hexachlorobenzen (HCB)	118-74-1		X
Hexachlorocyclohexane - a-Lindane	319-84-6		X
Hexachlorocyclohexane - b-Lindane	319-85-7		X
Hexachlorocyclohexane - d-Lindane	319-86-8		X
Imidacloprid	138261-41-3	X	
Lindane	58-89-9	X	X
Lufenuron	103055-07-8	X	
Malathion	121-75-5	X	X
MCPA	94-74-6	X	
MCPB	94-81-5	X	
Mecoprop	93-65-2	X	
Metolachlor	51218-45-2	X	
Methomyl	16752-77-5	X	
Mevinphos	7786-34-7	X	
Methamidophos	10265-92-6	X	
Methoxychlor	72-43-5	X	X
Mirex	2385-85-5	X	
Monocrotophos	6923-22-4	X	
Parathion-ethyl	56-38-2	X	X



Name of pesticide	CAS Registry Number	Applicable for testing in	
		Plant fiber	Animal fiber
Parathion-methyl	298-00-0	X	X
Pendimethalin	40487-42-1	X	
PCP/ Pentachlorophenol	87-86-5	X	X
Permethrin	52645-53-1	X	X
Perthane	72-56-0	X	
Phosmet	732-11-6	X	
Phoxim / Baythion	14816-18-3	X	
Pirimiphos-ethyl	23505-41-1	X	X
Pirimiphos-methyl	29232-93-7		X
Profenophos	41198-08-7	X	
Prometryn	7287-19-6	X	
Pymetrozine	123312-89-0	X	
Propetamphos	31218-83-4		X
Pyrethrum	8003-34-7	X	X
Quinalphos	13593-03-8		X
Quintozine	82-68-8	X	
Teflubenzuron	83121-18-0	X	
Thiamethoxam	153719-23-4	X	
Tetrachlorvinphos	22350-76-1		X
Toxaphene	8001-35-2	X	
Telodrin	297-78-9	X	



Name of pesticide	CAS Registry Number	Applicable for testing in	
		Plant fiber	Animal fiber
Strobane	8001-50-1	X	
Transfluthrin	118712-89-3		X
Trifluralin	1582-09-8	X	
Triflumuron	64628-44-0		X
Thiodicarb	59669-26-0	X	
Thidiazuron	51707-55-2	X	
Tolclofos-methyl	57018-04-9	X	
Trifloxysulfuron-sodium	199119-58-9	X	
Glyphosate	1071-83-6	X	
Kelevane	4234-79-1		
Aldicarb	0116-06-03		
Clothianidin	210880-92-5		
Dinotefuran	165252-70-0		

