

United States
Environmental Protection
Agency

Office of Pesticide Programs

Chromated Copper Arsenicals (CCA) and Its Use as a Wood Preservative

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1. What is CCA, and what benefits does it provide?
2. Do CCA treated wood and any arsenic that might be released from the wood pose risks to human health?
3. What regulatory action has EPA taken on CCA in the past?
4. What precautions should be taken when working with CCA treated wood?
5. How should CCA treated wood be disposed of?
6. What future actions might EPA take concerning CCA?
7. Should alternative materials (for example, steel and concrete) replace wood treated with CCA and other wood preservatives?
8. What is EPA's position on the findings of a recent study conducted by Dr. David E. Stilwell and Katja Gorny of Connecticut Agricultural Experiment Station in New Haven, Connecticut, which suggests that arsenic is being released from decks and playground equipment made from CCA treated wood into the soil below?

1. What is CCA, and what benefits does it provide?

CCA is a chemical compound consisting of three elements (arsenic, chromium and copper) registered for use as a wood preservative. The chemical is also referred to as an inorganic arsenical.

Sometimes known by its trade name, Wolmanized wood, CCA protects wood from decay and increases its life expectancy by five times or more over that of untreated wood. The inorganic arsenicals are most commonly used on treated wood found outside the home. Such wood is used for decks, walkways, fences, gazebos, boat docks, playground equipment, as well as for highway noise barriers, sign posts, utility posts, and retaining walls. Not treating these wood products would result in more frequent replacement at a greater expense to the homeowner and the public, as well as a greater loss of trees from our forests each year.

2. Do CCA treated wood and any arsenic that might be released from the wood pose risks to human health?

EPA reviewed the use of CCA in pressure treated wood extensively during the 1980s and concluded that pressure treated wood did not pose unreasonable risks to children or adults, either from direct contact with the wood (e.g., as used for playgrounds and decks) or from contact with surrounding soil where some releases may have occurred. Based on scientific data that EPA has reviewed to date, the Agency has not identified any significant health concerns from short or long-term exposure to arsenic residues from pressure-treated wood. EPA reached this conclusion based on studies that evaluated dermal contact (absorption through the skin), inhalation, and ingestion for both children and adults. EPA also reviewed a study that concluded that CCA does

not pose a short or long-term toxic hazard to children playing on playground equipment. However, the Agency was concerned about the health effects on workers who come in contact with CCA on a daily basis. Based on these concerns, the Agency issued new requirements for protecting workers.

3. What regulatory action has EPA taken on CCA in the past?

In October 1978, EPA initiated a special review of the inorganic arsenicals and two other major wood preservatives, creosote and pentachlorophenol. Following conclusion of the special review in June 1988, the Agency required new protective measures for workers using inorganic arsenical wood preservatives to reduce their exposure and subsequent health risks. These protective measures included the following:

CCA is now classified as a "Restricted Use" pesticide, meaning that this chemical is for sale and use only by certified applicators or persons under their direct supervision and only for those uses covered by the applicator's certification.

Protective clothing requirements for workers must be specified on labels. All exposed arsenic treatment plant workers are required to wear a respirator if the level of ambient arsenic is unknown or exceeds a Permissible Exposure Limit (PEL) of 10 ug/m³ averaged over an 8-hour work day. Manufacturers and formulators must use a closed system for mixing powdered inorganic arsenicals. Applicators may not eat, drink, or use tobacco products during the application process. Applicators must also wash thoroughly after skin contact with the pesticide.

A Consumer Awareness Program was instituted requiring wood pressure-treaters to provide Consumer Information Sheets to all lumber yards and other retailers. The information sheets instruct consumers about handling procedures, such as the use of protective gloves, coveralls and face masks when sawing treated wood products.

EPA also registers individual products containing CCA used for treating wood. As part of this registration process, EPA has required specific instructions for using these products. These instructions require the use of diluted solutions (0.5 - 10%) only in closed, vacuum-sealed cylinders. Industry treatment standards must be strictly adhered to in order to minimize worker exposure and environmental contamination.

4. What precautions should be taken when working with CCA treated wood?

The following precautions for working with CCA treated wood resulted from the special review and are included on the Consumer Information Sheets, which should be available at all establishments where CCA treated wood can be purchased. These efforts are especially important when conducting activities that generate sawdust from treated wood, since there is a greater likelihood of exposure to CCA from such activities than there is from ordinary contact to wood surfaces.

Consumers working with CCA treated wood should wear long-sleeve shirts, long pants, and gloves impervious to the chemicals, such as vinyl-coated gloves. If sawdust accumulates on clothes, wash them separately from other household clothes before reuse. Avoid frequent or prolonged inhalation of sawdust from treated wood. Wear a dust mask when sawing and machining. Always wear goggles to protect your eyes from flying particles when power-sawing and machining.

If possible, work outdoors to avoid indoor accumulation of sawdust from treated wood. Wash exposed body areas thoroughly with soap and water after working with CCA treated wood. Clean-up thoroughly before eating, drinking or using tobacco products.

5. How should CCA treated wood be disposed of?

CCA treated wood may be thrown-out with your ordinary trash or it may be buried. It should never be burned in open fires, stoves, fireplaces or residential boilers because toxic chemicals may be released as part of the smoke and ashes.

6. What future actions might EPA take concerning CCA?

CCA will be reassessed as part of EPA's ongoing reregistration program. All pesticides first registered before November 1984 must undergo reregistration review to ensure that the data supporting their use meet current standards. As part of the reregistration review, EPA is requiring manufacturers (a.k.a., registrants) to submit additional data, including exposure data on wood treatment plant employees and surrounding populations. Once the required studies are submitted and reviewed, EPA will complete its analyses and issue a Reregistration Eligibility Decision (RED) on the continued uses of CCA.

7. Should alternative materials (for example, steel and concrete) replace wood treated with CCA and other wood preservatives?

Since CCA treated wood does not pose a significant risk to human health and the environment, EPA does not recommend replacement solely on that basis. When selecting materials to use for decks, playgrounds, and other outdoor uses, consumers and communities should consider other factors in addition to the environment, such as cost, strength, and durability. From an environmental standpoint, however, the production of plastic, steel, and concrete also have environmental impacts that should be considered when choosing a material.

8. What is EPA's position on the findings of a recent study conducted by Dr. David E. Stilwell and Katja Gorny of Connecticut Agricultural Experiment Station in New Haven, Connecticut, which suggests that arsenic is being released from decks and playground equipment made from CCA treated wood into the soil below?

The Agency has reviewed Dr. Stilwell's recent article and, to assess the significance of its findings, has requested all the data generated as part of his study. It is worth noting that, over long periods of time, almost any wood preservative may be released in minute amounts as the wood weathers. In addition, any sampling of arsenic in soil must take into account the variability of naturally-occurring levels of arsenic already present in the soil. Following EPA's review of the complete study, the Agency will be in a better position to determine its significance and to take any action necessary to protect public health.

Stilwell, D.E. and K.D. Gorny. "Contamination of Soil with Copper, Chromium, and Arsenic under Decks Built from Pressure Treated Wood." *Bulletin of Environmental Contamination and Toxicology*: 8.1 (1996): 22-29. [Back to Text](#)