

# Chemical Moss Control for Roofs, Decks, and Sidewalks

## *Zinc Strips*

**General Information:** Zinc strips are usually considered the long-term solution to controlling mosses: skylights are surrounded by galvanized flashing that has suppressed the growth of mosses below the skylights. The remaining parts of this cedar shake roof are covered mainly with the moss *Dicranoweisia*. Zinc strips and galvanized flashing are apparently relatively safe and inexpensive. They effectively kill or retard the growth of mosses and fungi and appear to have effect up to 15 feet below the zinc flashing along the length of the flashing. To use: apply the rolled zinc or galvanized flashing to each side of ridge caps along the roof peaks. Place a nail down each foot of the zinc strip. With each rain zinc is released from the strip and kills the mosses below the strip. For best results remove the existing mosses prior to treatment. The active ingredient is metallic zinc.

**Effectiveness:** Zinc strips are considered to be effective for up to one year for most brands. The effect of galvanized flashing (example above) can persist for decades. Success rates vary with the degree of moss development and weather. Zinc strips or flashing are most effective before mosses are well developed. Physical removal of existing moss followed by installation of zinc strips or flashing is an effective long-term strategy for suppressing moss growth.

**Negative Side Effects:** Direct runoff from the zinc strips or flashing to surrounding vegetation, fish ponds, or water supplies should be avoided, because some contamination by zinc is likely to occur. Zinc strips should not be used with strong acids or bases.

**Possible Alternatives:** Consider periodic physical control.

## *Potassium salts of fatty acids*

**General Information:** This product is non-staining on most surfaces and is for use on decks, fences, roofs and lawns. This product will not harm bordering plants. This kind of moss killer is formed from naturally occurring, biodegradable fatty acids. It is water based non-corrosive to metals and contains no zinc or iron. This product is available in liquid form in several brands. One brand is Safer Brand for moss and algae. To apply this product, attach bottle to hose and spray liberally over infected area.

**Effectiveness:** Many people have reported varying degrees of success with the use of potassium salt products. Experimental trials on *Racomitrium* on old asphalt resulted in very little kill, even at concentrations well above the recommended dose (Ash 1999).

**Negative Side Effects:** Because this product occurs naturally in the environment and is biodegradable the environmental side effects are small. This product is toxic to aquatic invertebrates. Potassium should not be applied directly to water and should not come into contact with water sources.

**Possible Alternatives:** Before treating mosses one should consider whether it is necessary to treat the mosses or not. Please see our site on whether or not to control mosses as well as the page related to applying bleach to mosses.

## *Zinc Sulfate*

**General Information:** The active ingredient for some moss killers is zinc sulfate monohydrate usually at concentrations of 99%. One brand name is Moss B Ware. Zinc sulfate will not stain roofs or corrode aluminum and galvanized gutters. To use zinc sulfate one can apply powder directly to moss areas. Manufacturers recommend that powder should be applied thoroughly - for example, up to three pounds for every 600 square feet. For spraying combine three pounds to five gallons of water and apply to 600 square feet. This product needs to be applied on a calm day.

**Effectiveness:** Powder application has been known to control mosses for two years and spraying application may need to be applied annually. Some roofing companies will guarantee no mosses for up to five years after using this product while treating roofs.

**Negative Side Effects:** This product is toxic both to fishes and aquatic invertebrates. Zinc sulfate should not be applied to water. If zinc sulfate comes into contact with neighboring plants, damage may occur. Plants and shrubbery should be draped when this chemical is being used.

**Possible Alternatives:** Though this product is effective in controlling mosses, it is not entirely environmentally safe or smart. Consider the need to control -- is there a different perspective or solution to your moss problem without polluting the environment?

## *Zinc Chloride*

**General Information:** Zinc chloride comes in two different concentrations, 13% and 62%. The 13% concentration can be applied directly to moss without mixing with water. Spray directly from nozzle six to ten inches away from target. Make sure to wet the area thoroughly. The 62% concentration needs to be mixed with water before applying to an affected area. Mix one pint of concentration to three gallons of water. Using a backpack sprayer, one manufacture recommends using one gallon for every 100 sq ft. Zinc chloride should be applied just prior to fall rains or in the early spring.

**Effectiveness:** Zinc chloride is effective in controlling mosses from one year up to five years. Increased application concentrations may be needed in areas of higher moss concentration.

**Negative Side Effects:** Avoid drift and runoff when using this product. Zinc chloride will affect other plants and lawns. Application should only take place when air is still and when no rain is expected within 24 hours. Zinc chloride is corrosive and should not be used when copper fixtures are present. This product is toxic to fishes and aquatic invertebrates. Avoid contaminating water sources with zinc chloride. If zinc chloride comes into contact with a painted area damage is possible.

**Possible Alternatives:** Considering the toxicity of this chemical, it may be possible to use a less corrosive and less dangerous product. Please see other chemicals on this web site as well as considering reasons to control or not.

### *Zinc - Copper sulfate mix*

**General Information:** Zinc and copper sulfate comes dry, but can be applied as a powder or mixed with water. This product reacts electrolytically with water to stimulate a slow release reaction. Zinc and copper sulfate will not stain patios, decks, walls, walkways, buildings or roofs. However, zinc and copper sulfate may react with red bricks. This product is not harmful to lawns, ornamental shrubs, trees, turf or other vegetation such as flowers and vegetation. To apply simply sprinkle areas thoroughly with powder when it is wet, either after a rain or when early morning dew is present. Do not use this product in high wind. For spray application a wet applicator may need to be purchased. It is not clear if this product is still available commercially. According to information from one manufacturer, apply one pound of moss killer to 1000 sq ft. This product may be applied anytime during the year, but should not be applied while it is raining. Since this product specializes in the slow release reaction; allow plenty of time for the chemical to act. This product is corrosive and should not be used if copper fixtures are present.

**Effectiveness:** Applications of zinc and copper sulfate are said to last for up to one year depending on the concentrations of moss. Annual application is generally needed.

**Negative Side Effects:** Though this product is supposedly safe for surrounding plants, it is toxic to fishes and aquatic invertebrates. Do not apply this product to water or let the product come into contact with water sources. When applying this product or any product to rooftops it is essential to avoid runoff. Collecting the runoff in a fashioned trap would greatly reduce the negative effects on the environment.

**Possible Alternatives:** Based on the manufacturer's information, this chemical would seem to be a slightly better chemical to use when considering the environment. Considering the components, however, leads us to doubt this. See the section on zinc sulfate above. The toxicity of copper sulfate is well known. Deciding whether or not to control is still a good question to consider.

### *Bleach*

**General Information:** Chlorine bleach (sodium hypochlorite) can be used on a number of surfaces contaminated with mosses including decks, patios, walks and roofs. When used to proper concentrations bleach is non corrosive to metals and will not stain treated areas. One should, however, avoid contact with clothing. Brand names of bleach especially for mosses can be found in the moss control area in garden centers - one brand is 30seconds brand. To apply bleach mix one part water with one part concentrate. Use a backpack sprayer and spray liquid to dry area infected with mosses. Keep surface wet for at least 30 seconds. After finishing application rinse thoroughly with water. If applying to wood keep wet for at least 15 minutes. An alternative to this concentration is to use four times the water. When applying one will need to keep the surface wet for four times as long. This concentration will cover 600 sq ft on porous surfaces or 1800 sq ft on non-porous surfaces.

**Effectiveness:** Bleach applications remain effective for up to one year, but annual applications are usually necessary.

**Negative Side Effects:** Bleach at these concentrations will be toxic to plants if left on for more than ten minutes. After ten minutes, injury or "burning" of foliage will occur. Since this product is toxic to fishes and aquatic invertebrates contact with water sources should be avoided.

**Possible Alternatives:** Bleach is a good alternative to many other chemical controls, being less toxic to plants and aquatic ecosystems. Additionally, one could consider not controlling the mosses at all.

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