Tackling Moss

Mosses flourish in our moist, temperate environment and easily establish themselves in undesirable areas like roof tops and sidewalks. Although there are commercial moss-control products available, most of them contain ingredients that are very harmful to fish and other aquatic organisms. When products that contain zinc, copper, and other harmful chemicals mix with rainfall and then flow into storm drains, they eventually end up in our local river system.

Mosses spread in multiple ways, but unlike flowering plants, they depend on moisture to reproduce. An opportunist, mosses grow on trees, sidewalks, gardens, rooftops, and everywhere in between. Moss has minimal requirements to survive—sufficient moisture and accessible nutrients. A rooftop shaded by trees is a very desirable combination. A shaded rooftop often stays moist and nutrients can also be supplied from any ash that a fireplace chimney produces. As moss thickens, it gets under shingles, raising them upward. Mosses will be at their best in the winter when there is plenty of water, little light, and low temperatures. When summer arrives, mosses dry out and become dormant until the next moisture cycle comes along.

First Steps

Start with these physical measures first. Moss growth can be limited in the future by decreasing the amount of shade and increasing light exposure on a roof, sidewalk and deck. Prune overhanging trees to allow more light and air circulation. Regularly remove organic debris, such as leaves and branches to reduce moisture retention on the surface of a roof, deck, or sidewalk . Manually remove moss with a stiff push broom brush or a tool with a flat edge. Keep in mind that too much force or pressure with a tool or broom can damage shingles. To prevent moss from returning, you need to alter the conditions that moss favors. If you plan to replace an old roof, consider using metal (other than copper or galvanized roofing that contains zinc). Moss has a hard time growing where there is nothing to hold on to.

If physical measures just aren't enough, choose the least toxic chemical controls for moss available. Always read the label, apply to manufacture's specifications, and if possible, redirect downspouts to drain to a vegetated area rather than the storm system. Most products can be toxic to fish and aquatic invertebrates. Biodegradable is a better choice and still needs to be used with care.

What You Should Know About Product Ingredients

Active ingredients listed in a variety of brands we pulled off the shelf at several garden stores include: sodium laurel sulfate, potassium salts of fatty acids, zinc sulfate, citric and acidic acids and copper and zinc strips. While biodegradable products are a better choice, it is important to keep in mind that they need to be applied with care. Some biodegradable soap contains phosphates. As the soap decomposes, phosphorus is released into the environment. Phosphorus is a nutrient that has the potential to create toxic algal blooms. These algal blooms deprive the water of oxygen vital for aquatic life and grow in populations so dense that they block sunlight that is needed for other aquatic life. Biodegradable soaps do not deteriorate immediately and have the potential to form a film on the surface of the water. This film destroys habitat needed for macro-invertebrate populations which are vital to a healthy aquatic community. When the soaps finally begin to deteriorate the decomposition process exhausts the surrounding water of dissolved oxygen, which is also needed for macro-invertebrates.

See reverse for a list of product ingredients

Active Ingredient	General Information	Effectiveness	Side Effects
Sodium laurel sulfate	Soap-based product	Varying degrees of success	
Potassium soap of fatty acids	Soap-based product that is more soluble in water. Non-staining. Won't harm bordering plants.	Varying degrees of success	Toxic to aquatic inverte brates. Should not come into contact with water sources.
Citric and acidic acids	Lemon and vinegar components. Acidic ph is neutralized quickly when it mixes with rain.	Most effective when applied after physically removing moss. Annual applications required.	Acidic components can be corrosive to metal gutters.
Zinc strips	Effectively kill or retard growth up to 15 feet below strip.	Most effective before mosses are well developed. Can last up to 1 year.	Runoff from zinc flashing may cause contamination to surrounding vegetation and water supplies.
Zinc sulfate	Zinc sulfate monohydrate usually at concentrations of 99%. Doesn't stain roofs or corrode aluminum or galvanized gutters. Safe for plants. Corrosive to copper.	Powder application can control moss for two years. Spraying may need to be done	Toxic to fish and aquatic invertebrates. Should not come into contact with water sources.
Bleach	Chlorine bleach applied in a 1–1 ratio of water and bleach. Keep surface wet at least 30 seconds. (15 minutes for wood shingles) Rinse thoroughly with water when done.	Annual applications usually necessary.	Toxic to fish and aquatic invertebrates. Avoid contact with water sources.

In Summary

Always apply these products according to manufacturer's instructions. Products should be applied in dry weather to avoid having them run off into streets and storm drains. Exercise restraint when using toxic chemicals and resist the urge to over apply a product. If a little is good, it doesn't mean more is better. Use physical measures first. If more treatment is needed, sparingly apply the least toxic chemical treatment and then only if it will not mix with water running off the roof. When it comes to moss control, patience could make a big difference to the health of our fish, other aquatic organisms and our rivers.

Eugene Public Works
Stormwater Program

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