

# Insecticidal Soap

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Insecticidal soap is made when a strong alkali is combined with fatty acid animal or plant oils. They are potassium salts of fatty acids. They are used as an insecticide in some cases. The insecticide resistance action committee does not classify insecticidal soaps. Insecticidal soaps that are produced commercially are versions of liquid dish soap that are highly refined. Insecticidal soap mixtures can also be made by individuals; however, the risk of plant injury is much greater. The additives in clothes washing detergents and dry dish soaps are too harsh to use on plants. Additionally, other detergents and soaps are not effective as insecticides.

Insecticidal soaps are effective on small, soft-bodied insects, but they do not kill many beneficial insects or other insects. These products' modes of action include suffocation of the insect, dehydration, removing waxes from the cuticle of the insect, and disrupting cellular membranes. Thorough coverage of the plant resulting in contact with the pest is important to kill the pest insects. Soaps may remove debris, honeydew, and sooty mold. There is no preharvest interval; they may be used postharvest, and they may have a reentry interval of several hours. There is no residual kill of soaps, and they will not kill insects after they dry. Thus, a repeated application may be needed every three to seven days. Repeated applications may result in a burn of some plants.

Additionally, some plants are sensitive to soaps and will burn. Plants with hairy leaves tend to be more sensitive to burn from soaps than plants lacking hairy leaves. Under drought conditions, plants such as conifers may be sensitive. Soaps should not be applied to the tender new growth of ornamentals. The bluish color may be lost from the waxy leaf coat of some plants when the wax is washed off. Sensitive plants include gardenias, portulaca, nasturtiums, some tomato varieties, lantana, hawthorn, Easter lilies, sweet pea, plum, crown of thorns, cherry, horse chestnut, maidenhair fern, mountain ash, bleeding heart, and Japanese maple. Other plants may be somewhat sensitive, including impatiens, geraniums, begonias, azaleas, and fuchsias. If plants show signs of browning of the leaf edge or wilting a few hours after treatment with soap, rinse them with clean water. Plants may be tested for sensitivity. This is done by spraying a small area, waiting for 24 hours, and inspecting the area for burn. Water-stressed plants should not be treated with insecticidal soaps.

Read and follow the label! Insecticidal soaps are usually applied as a 1 to 2 percent solution (2½ to 5 tablespoons per gallon). Concentrations greater than this will burn plants. Soaps should not be applied in full sun or when temperatures are greater than 85 degrees Fahrenheit. Plants may be more stressed in high temperatures and high humidity, making them more sensitive. Plants may be treated in the early morning or late in the day. Drying conditions will be slower and make the soaps more effective.

It is very important to spray both the upper and lower leaf surface. The effectiveness of insecticidal soaps is reduced when water is hard. Iron, calcium, and magnesium will result in the precipitation of fatty acids out of the solution, making the soap ineffective. The soap and water may be mixed in a glass jar, agitated, and allowed to stand for 15 minutes. The quality of the water is fine for spraying if the mix remains milky and uniform. If scum forms on the surface of the water, then distilled water should be used.

Insecticidal soaps are contact insecticides. They are not stomach poisons, are not systemic, and do not move through the leaf (translaminar). Even though soaps are considered to have low toxicity, the signal word on insecticidal soap 49.52 CF is a warning.

Insecticidal soaps may be used for treating soft-bodied insects. They do not kill many beneficial insects. Coverage of the plant resulting in contact with the pest is extremely important, and there is no residual. Repeat applications may be needed. Caution should be exercised when using soaps because they may burn plants. They may be used with other insecticides and other insect management methods as part of an IPM management plan.