Kool Ray™ Spray-Applied Semi-Permanent Liquid Greenhouse Shading Concentrate

Kool Ray™ is a spray-applied liquid shading concentrate designed for seasonal application on the exterior of both plastic and glass-covered greenhouses. The bright, highly-reflective color of Kool Ray is a cost-effective alternative to mechanical greenhouse shading. It's also a great way to lower the inside temperature of a greenhouse during the warmer spring and summer growing seasons. This is a great way to keep combination retail/growing facilities comfortable for both plants and people.

Kool Ray liquid greenhouse shading is a concentrated formula that must be diluted with water to the desired shading level prior to application. Once applied, Kool Ray's environmentally friendly ingredients are designed to wear off slowly and gradually throughout the growing season. This gradual wearing-off lets more light enter the greenhouse as the days grow shorter and the weather gets colder. Since the speed at which Kool Ray wears of is completely dependent upon Mother Nature, precipitation frequency, duration and strength will impact its performance. Ray works best when spray applied but it can also be applied with a brush or a roller.

Packaging

- 1 GAL can
- 5 GAL pails
- 55 GAL drum

Features & Benefits

- Bright for better heat reduction
- Safe for a clean environment with no heavy metal pigments, composed of only the purest clays, minerals & non-hazardous ingredients
- Easy to mix & apply
- Economical
- Cooler temperatures plus UV protection
- Sprays evenly
- Compatible with most standard plastic glazing. *When regularly used, Kool Ray will actually prolong the service life of plastic glazing because of its UV resistant qualities. Please check with plastic manufacturer for compatibility.*

Color

- White

Properties

- Appearance: white or green
- Density: 10.15 LB/GAL
- VOC: 0.0 lb/gl
- Odor: mild
- Freezing Point: approximately 40ºF
- Odor: mild
- Solubility in Water: readily soluble
- Flashpoint: above 200ºF setaflash
- pH: 7.25

Applications

- Greenhouse

Density & Coverage Guide

SHADE DENSITIES

Ratios indicate 1 part of Kool Ray mixed into various parts of water.

KOOL RAY GALLONS	WATER GALLONS	SHADING DENSITY
1	20	11%
1	15	14%
1	12	19%
1	10	21%
1	8	26%
1	6	35%
1	4	48%
1	2	70%

COVERAGE GUIDE

KOOL RAY GALLONS	WATER GALLONS	COVERAGE Sq. Ft / Gal	KOOL RAY GALLONS Per Acre	AMOUNT PAILS Per Acre
1	20	3675	11.9	2.4
1	15	2800	15.6	3.1
1	12	2275	19.1	3.8
1	10	1925	22.6	4.5
1	8	1575	27.7	5.5
1	6	1225	35.6	7.1
1	4	875	49.8	10.0
1	2	525	83.0	16.6
1	1	350	124.5	24.9

Application Guide

Intended for Professional Use Only – NOT FOR SALE TO THE GENERAL PUBLIC

COVERAGE: Coverage will vary according to application, applicator, & dilution ratio. Spray will normally provide the best coverage of approximately 175 sq. ft. per gal. after dilution.

Example: a standard 1:8 dilution of 1 gallon of Kool Ray to 8 gallons of water yields 9 gallons of shade. A denser shade at a 1:5 ratio (1 gallon Kool Ray to 5 gallons of water) yields 6 gallons. Multiply the diluted amount by 175 to determine coverage.

1:8 = 9 gallons x 175 = 1575 square feet.

1:5 = 6 gallons x 175 = 1050 square feet.

Note: Higher dilution ratios (less concentrated) will result in a lighter shade. Lower dilution ratios (more concentrated) will result in a darker shade.

HOW WE TESTED: Kool Ray was poured over standard clean greenhouse glass and allowed to drain at a 65 to 70 degree pitch. Shade density (opacity) was measured using Byk meter. The opacity percentage (shading density) of the various Kool Ray dilutions was derived by averaging 9 readings taken from top to bottom of the coated glass. The intent of the study was to provide relative values of Kool Ray's shading capacity for the grower to use as a reference only. Kool Ray's shading density is influenced by many variables including accuracy in measurement and mixing of Kool Ray and application technique. Additionally, plastic glazing is translucent and has inherent light diffusing characteristics that should be taken into account when calculating shade requirements.

MIXING: After determining mixing ratios, select a suitable size vessel for mixing. COLD WATER TEMPERATURES WILL PREVENT A GOOD BLENDING OF Kool Ray & result in an uneven & splotchy application. To insure a uniform mixture & even coverage, water temperature should be no lower than 60ºF (16ºC). To achieve a thorough blending, add Kool Ray into a PARTIAL amount of water & mix well. Then add the remainder amount of water & mix thoroughly.

APPLICATION: Kool Ray can be applied to glass, rigid plastc, or plastic films. Before application, the surface must be free of dust, dirt, pollen, and other debris. Power washing or washing with clean water is recommended. The surface must be dry before applying the product. May be applied by brush, roller or spray. Spray application is usually more time saving & will generally result in a more uniform shade density & will wear more evenly. Spray tip sizes of 0.03 – 0.08 & angles of 65º - 85º work well. Apply to top of greenhouse peak & work down each side.

TIME, TEMPERATURE & WEAR: Best to apply in the morning above 50ºF (10ºC), after dew has lifted or in late afternoon. The surface must be dry. Application within 12-24 hours of rain may result in premature wash off. Frost & snow will also loosen shade. Residues on new plastic can act as a release agent causing lack of adhesion & early wash off of Kool Ray. A mist coat of Kool Ray over new plastic followed by a regular application has proven effective in promoting normal adhesion & wear. Application during hot, midday sun over plastic will tend to more firmly bond the Kool Ray to the surface & as a result last longer. In addition, plastic glazing heated by the sun and/or worn by time & weather is more porous & will promote greater adhesion. Rate of wear is also dependent on weather conditions.

USE Continental's X-tra Stick Binder to increase adhesion & extend wear of Kool Ray. X-tra Stick is a special adhesive additive, when used with Kool Ray will increase adhesion, wear & overall life. X-tra Stick is primarily used when shading glass greenhouses. X-tra Stick can be used for plastic, but caution should be taken because of the possibility of removal problems when used over plastic surfaces.

To insure a uniform blending of the X-tra Stick Binder with the Kool Ray, it is best to add the X-tra Stick Binder after partially diluting the Kool Ray with water. Mix thoroughly. Then add the remaining amount of water & continue mixing until thoroughly blended.

RECOMMENDED X-TRA STICK ADDITIONS:

- Light Adhesion – Add **4 ounces** of X-tra Stick Binder to each gallon of Kool Ray concentrate used.
- Medium Adhesion – Add **8 ounces** of X-tra Stick Binder to each gallon of Kool Ray concentrate used.
- Strong Adhesion – Add **12 ounces** of X-tra Stick Binder to each gallon of Kool Ray concentrate used.

Note: Only calculate X-tra Stick additions to the corresponding amount of concentrate used BEFORE dilution with water.

X-TRA STICK ADDITIONS FOR USE OVER PLASTIC: In most instances X-tra Stick Binder is NOT needed when shading plastic glazing with Kool Ray. However, if longer wear over plastic is desired, it is recommended to first start out at the Light Adhesion amount of 4 ounces of X-tra Stick for each gallon of Kool Ray concentrate used in order to lessen potential removal problems later.

Note: Be careful to avoid adding too much X-tra Stick to Kool Ray (unless removal is not a concern) when shading plastic. Otherwise removal of Kool Ray by mechanical and/or chemical means may be necessary which could cause damage to the plastic.

SHELF LIFE: If stored in a climate-controlled environment in the original, unopened containers, Kool Ray has a shelf-life of one year from the date that it was made. Any Kool Ray that doesn't mix properly, has an off odor or color, or just generally doesn't look right, is probably beyond its acceptable shelf life limit. If you're unsure about the age of your Kool Ray, contact the place of purchase or Continental Products.

KEEP FROM FREEZING: Kool Ray is not freeze thaw/stable. Freezing will ruin Kool Ray & make it unmixable. If frozen, the damaged Kool Ray will have a curdled appearance similar to cottage cheese.

Limited Warranty

Our recommendations for the use of this product are based on data believed to be reliable. This limited warranty will be void if the proper procedure (outlined in the "application" and " time, temperature, and wear" section of this document) is not followed. The use of this product being beyond control of the manufacturer, no guarantee, expressed or implied is made. If product is shown to be defective due to material and workmanship, replacement of material up to the amount used or refund of the purchase price of the amount used will be made at the manufacturer's option with the proof of purchase. Unused and unopened portions of defective material will also be replaced or refunded. In no event shall the manufacturer be responsible for damages in excess of the purchase price. Product discoloration or breakdown caused by poor building design, inadequate surface preparation, improper or unusual environmental and substrate conditions, substrate-caused failures, long term or improper storage, or improper handling and application methods is not covered by this warranty. Additionally, this warranty does not cover ANY labor costs or indirect, direct, incidental, special or consequential damage or emotional distress incurred, including but not limited to repair and reapplication labor. This warranty gives you specific legal rights and you may also have other rights that vary from State to State. To make a claim under this warranty, contact your distributor or Continental Products, Ltd.

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