

PRODUCT DESCRIPTION

This specification covers requirements for a reflective coating supplied in a liquid form for use as a retroreflector. The coating compound is comprised of resins, thinners, pigments, glass beads and various additives.

The coating is available in Silver White, Bright White, Yellow, and Black. Blue, Green & Red are available upon special requests.

The coating should be applied over a white or off-white background for the true color to best show. As the IllumiFlect is mostly transparent, and is easily masked by a darker or colored background.

The coating compound in a freshly opened, full container, shall show no grit, skinning, curdling, or excess pigment flotation and shall show no more settling or caking than may be easily re-dispersed with a paddle to a uniform consistency.

The previously unopened package of product shall meet all of the requirements specified herein for a period of one year, provided that the daily mean temperature of the ambient air at the storage location falls within the range of 35°F to 90°F and the peak ambient temperature does not exceed 115°F.

APPLICATION DATA SUMMARY

IllumiFlect must be mixed vigorously and thoroughly, preferably with a mechanical paint mixer or shaker until uniform throughout. However, hand stirring and shaking will do an adequate job.

IllumiFlect will be in a semi-gel state as received; however, thinning is not normally recommended since mixing reduces the viscosity of IllumiFlect. If thinning is necessary it may be done very sparingly with VM&P Naphtha, mineral spirits, xylol or heptane as may be indicated under specific applications, up to a maximum of a half pint per gallon of IllumiFlect. If allowed to stand, IllumiFlect will return to the semi-gel state.

SURFACE PREPARATION

IllumiFlect is very similar to most paints, and preparation for application should follow standard practices. The surface must be clean and dry. Maximum durability will be obtained on surfaces which you have previously repainted with a high quality exterior alkyd enamel or alkyd primer (white or off-white). If a surface has been primed with paint the final paint coat must be thoroughly dried before the application of IllumiFlect.

Application on cement or asphalt should include a white base coat/primer. The primer must be thoroughly dry before the application of IllumiFlect product.

For continuous coat galvanized steel or for black iron, preparation should include a light crystalline phosphate coating. Aluminum surfaces which have been anodized, crystalline phosphate coated, or prepared with amorphous chromate-type coatings are generally satisfactory. For exterior grade fir plywood, sanding, cleaning and sealing are recommended. For more specific information, consult Wolverine Coatings Corporation or your authorized Wolverine representative.

PRIMING

Surface should be primed with a white or off-white quality primer for enamels before application of the reflective liquid. High density overlaid plywood, aluminum or continuous coat mill galvanized phosphate coated steel should be primed on the face surface only. Exterior grade fir plywood and black iron should be primed and then covered with at least one coat of high quality alkyd enamel on both sides and all edges.

SPRAY APPLICATION – GENERAL

When using hand spray guns you should apply IllumiFlect with a nozzle .087 inches in diameter using a pressure pot as follows:

1. Prepare IllumiFlect and the surface to be reflectorized as previously mentioned.
2. The spray gun should be held 6 to 8 inches from the surface to be sprayed and an even single coat should be applied until the area is uniformly covered. A properly adjusted spray gun will finely splatter the reflective material onto the application surface. When you have incomplete atomization this minimizes overspray and gives best coverage and sharp edges.
3. The IllumiFlect coating should be heavy enough to be wet but not so heavy as to sag. If sagging occurs the coating is being applied too heavily and the gun should be moved faster when spraying. Maximum reflectivity, true daytime appearance, and opacity are achieved only when the coating is completely dry.
4. You will find that occasional agitation of the reflective liquid will provide a more uniform application.
5. Reflectivity of IllumiFlect may be checked by sighting down a flashlight held at eye level while standing at least 50 feet from the reflective surface in a darkened area. However, do not check the reflectivity until the IllumiFlect has dried completely.
6. Following the use of IllumiFlect all spray equipment, stencils, etc, should be cleaned thoroughly with mineral spirits or xylol.

Spray applications on abutments, bridges, curbing, small panels, etc. IllumiFlect may be applied to properly prepared surfaces of this type by spraying. If application is made at temperatures below 50°F initial reflectivity of the coating will be lower. Best results will be obtained on applications made at room temperatures above 50 °F.

APPLYING ILLUMIFLECT TO LARGE PANELS BY SPRAYING

1. Maximum reflection may be obtained from IllumiFlect by force drying the coating at 250°F. Please see the instructions under "Drying".
2. Spray the panels in a vertical position for best coverage. To keep overspray minimized when you have more than one panel to do, put the edges of the panels almost together and trigger the gun at the end of each pass.
3. Sometimes for best results it may be necessary to thin IllumiFlect before use. However, never use other thinners or thin in excess of what has been previously mentioned.

HAND BRUSHING

Hand brushing of IllumiFlect should be done generally in non-critical applications on smooth surfaces or on rough textured or porous surfaces. The reflective coating should be applied in full even strokes with a good quality paint brush. Brushing is not recommended over large areas.

SMOOTH SURFACES

Best results can be obtained with a soft, fine bristle brush such as a muslin brush. Close range appearance may be somewhat uneven but reflection and appearance will be adequate at uniform and normal viewing distances.

HAND ROLLER COATING

Hand roller coating of IllumiFlect is recommended only for uses where close range appearance and durability are not of prime importance such as construction signs, temporary markings, etc. The coating will appear mottled at close range but will provide a very adequate uniformity of reflection and appearance at distances beyond 100 feet.

1. The surface to which IllumiFlect will be applied should be prepared as previously mentioned "Surface preparation".
2. Apply IllumiFlect in the standard conventional manner with good quality dense fiber fleeced roller. To minimize mottled appearance, roll back and forth until liquid is quite evenly deposited and then roll carefully in one direction only perpendicular to first application.
3. Clean roller carefully with mineral spirits to recover IllumiFlect absorbed during application..

DIPPING

1. IllumiFlect must be agitated in the tank to maintain a constant viscosity. Viscosity depends on temperatures of IllumiFlect and the article being dipped and should be adjusted to provide a light even coat. Too high a viscosity results in too heavy a coating. Viscosity too low results in excessively light, streaked coatings.
2. Viscosity measurement should be taken on moving liquid in dip tank. If thinning is necessary to adjust viscosity mineral spirits should be used.
3. Dipped articles must be allowed adequate dipping time, generally 2 to 5 minutes before entering curing overran. For best results coatings should be forced cured at 200°F according to the schedule under "Drying".

DRYING

IllumiFlect reflective liquid will dry to a tack-free surface in 1 to 2 hours under normal drying conditions. Coating may be forced dried according to the following schedule:

After 10 minutes air drying, use 24 hours air dry, or 2 hours at 150°F, or 1 hour at 200°F, or 30 minutes at 250°F. Under normal drying conditions these drying times will harden the coating sufficiently for handling, although additional air dry continues to harden the coating. After drying, opaque legends or pictorials may be applied to the reflective coating by roller coating embossed areas with standard enamel type colors. Heavy color lay is necessary to cover exposed lens surface. A clear finishing or varnish coat should NEVER be used over IllumiFlect. Loss of reflection will occur in any overcoated area of the reflective surface.

COVERAGE

As with any paint material the coverage obtained will vary depending upon the application, the applied, the method and the surface. Screen processed on smooth non-porous surface, coverage will be approximately 100 square feet per gallon. Spraying, brushing and dipping will generally result in a reduced coverage per gallon as will applications on rough textured or porous surfaces. Best results are obtained with a single 15 wet uniform mil coating. Coatings lighter than recommended will result in reduced brilliance and durability. However, heavier coatings than recommended will not provide a corresponding increase in brilliance, and may actually result in reduced brilliance. Maximum opacity and true daytime appearance are achieved only when the coating is completely dry.

AVAILABLE COLORS

- Red
- Silver
- White
- Yellow
- Blue
- Black

REFLECTIVE INTENSITY

When measured according to Federal Test Method Standard 370, the specific intensity per unit area shall be a minimum of:

Color	Divergence Angle(in degrees)	Incidence Angle		
		4°	5°	30°
Silver-White	0.2	20.0	18.0	15.0
Silver-White	0.5	12.0	10.0	8.0
Yellow	0.2	6.5	5.3	3.2
Yellow	0.5	3.9	3.4	1.9
Bright White	0.2	16.4	13.8	8.1
Bright White	0.5	7.3	7.2	4.4

The reflective coating shall air dry, tack free, in no more than two (2) hours and have a maximum hard dry time of twenty-four(24) hours.

The material shall be nontoxic under normal conditions of usage.

Color is to be checked on Gardner Color Meter or equivalent should be +/-5% of the values listed in the following chart.

Color is to be noted in L A B values.

Color	L	A	B
Silver-White	+47.4	-1.6	+0.0
Yellow	+59.7	+15.6	+35.2
Bright White	+77.8	-1.4	+60.0

STORAGE

IllumiFlect should be stored in a cool, dry place below 90°F and should be used within one year of date of manufacture.

The date of manufacture will be clearly marked on all labels so that you will be able to maintain proper rotation of your stock.

SAFETY

For your safety, all required personal protection equipment should be used when operating machinery or handling chemicals. Concrete dust is a source of silica particles and other hazardous materials that can cause silicosis and other illnesses. Proper safety equipment and methods are the responsibility of the installation company, general contractor, and/or facility owner.

WARRANTY

Wolverine Coatings Corporation warrants its products to be free from defects in material and workmanship. Wolverine Coatings Corporation's sole obligation and Buyer's exclusive remedy in connection with the products shall be limited, at Wolverine Coatings option, to either replacement of products not conforming to this Warranty or credit to the Buyer's account in the invoiced amount of the nonconforming products. Any claim under this warranty must be made by the Buyer to Wolverine Coatings in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life, or one year from the ship date, whichever is earlier. Buyer's failure to notify Wolverine Coatings of such nonconformance as required herein shall bar Buyer from recovery under this warranty.

Wolverine Coatings makes no other warranties about the product. No other warranties, whether expressed, implied, or statutory, such as warranties of merchantability or fitness for a particular purpose, shall apply.

Any recommendation or suggestion relating to the use of the products made by Wolverine Coatings, whether in its technical literature, or in response to specific inquiry or otherwise, is based on data believed to be reliable; however, the products and information are intended for use by Buyers having requisite skill and know-how in the industry, and therefore it is for the Buyer to satisfy itself of the suitability of the products for its own particular use and it shall be deemed that Buyer has done so, at its sole discretion and risk. Variation in environment, changes in procedure of use, or extrapolation of data may cause unsatisfactory results.

LIMITATION OF LIABILITY

Wolverine Coatings Corporation's liability on any claims based upon Wolverine Coatings Corporation's negligence or strict liability, for any loss or damage arising out of, connected with, or resulting from the use of the products, shall in no case exceed the purchase price allocable to the products or parts thereof which give rise to the claim. In no event shall Wolverine Coatings Corporation be liable for consequential or incidental damages.

LITERATURE REVISION - TDS: IllumiFlect 3031 - Rev. 220103

Published literature is subject to change without notice. Wolverine Coatings Corporation is constantly engaged in the testing of existing formulations, the development of new innovative technologies, and the evaluation of the latest practices. The latest literature should always be consulted at www.wolverinecoatings.com.



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