Cold Glaze Item.-No. 0030311

Cold Glaze is a two-component material (mixing ratio 1:1) and consists of resin modified to epoxy and hardener (cycloaliphatic diamine). If the two components are mixed, the result is a high-quality, varnish type liquid plastic, which hardens into a shiny coating, e.g., solid form with many properties at room temperature (18-20°C).

Transparent Cold Glaze can be applied as a scratch-proof, chemically-based varnish on tiles, terracotta dishes, tabletops, imitation jewelry, relief-type pictures, self-cast sculptures, and ceramic casting material or modeled earthenware, wooden containers, decoration articles made of glass, metal, stone, ceramic, cardboard, etc. It is transparent and can be toned with resin toners in order to create transparent colored and opaque (enamellar) glaze surfaces.

Cold Glaze is free of solvents, which widens the field of application considerably. It can be applied to form parts made of styropore, e.g., to glue styropore with other materials (GFK, metal, etc.).

How to mix glaze

Weigh the same amount of Cold Glaze resin and hardener in separate mixing bowls and pour both materials into one mixing bowl. (Example: 50 g Cold Glaze resin and 50 g Cold Glaze hardener). Now mix both components thoroughly. The glaze is now ready-to-use.

It is quite liquid in this state, but is excellently suited to impregnate textiles, e.g., lampshades. You can also add objects to the impregnated textiles for a special touch. If the Cold Glaze is too thick it can be diluted (refer to „Diluting Glaze“).

In time the finished, mixed Cold Glaze's viscosity changes. While it is quite liquid in the beginning, the consistency is comparable to honey after 30 minutes and after 90 minutes it is already thickly liquid. Through this process the glaze can be used for numerous crafting techniques. The glaze, for example, cannot be used to coat jewellery items, e.g., brooches, pendants, etc. until it has thickened. Dish glaze into brooch shell to make the filling look like valuable jewels.

Transparent Glaze is also suited to restore enamelled surfaces. Use colored Cold Glaze in a syrupy viscosity to repair valuable porcelain objects, e.g., a coffee pot's broken-off spout. Simply apply glaze thinly to the area in need of repair and conceal break perfectly with glaze.

Use transparent or colored Cold Glaze in a honey-type consistency on vertical surfaces, e.g., vases, bottles, or bowls. Spread evenly with a spatula. It will flow slightly downward and forms a thin coating. Close holes or hard to glaze areas by ‚scraping' the glaze into these spots with your spatula to attain an evenly flat glaze surface.

You can also apply this glaze in a teardrop shaped manner, e.g., an irregular thickness with different lengths of ‚teardrops' on the vessels, which is quite attractive particularly if you use different colored glazes. Proceed as follows: Apply the first coat of glaze to the edge of the vessel in a syrupy consistency and let it run slowly downward. Now apply the second or third „thick-liquid“ coat of glaze next to or directly onto the previous coat. You can also apply the glaze below the previous coats and let the top coats flow into this new layer of glaze. This mixture results in fascinating color effects.

The technique described above shows the vast creative possibilities and turns vases and bowls, in particular, into unique artistic creations. This technique proves for certain that no work of art is identical - you create fantastic, unique items and each one is a treasure in itself!

Important: If you do not use the glaze immediately it must be filled into a flat mixing bowl to react. The filling height should not exceed 15 - 20 mm because it will react too quickly and turn hard within minutes. (If Cold Glaze is filled into a vessel too high, the reaction is too fast. A polyaddition sets in, whereby heat develops from top to bottom and vice-versa and causes a chain reaction, which again results in immediate and quite solid hardening).

The reaction time (hardening time) for Cold Glaze can be accelerated by heat, e.g., delayed by cold. When this glaze is heated it liquefies first, and then hardens quite rapidly. Depending on the heat influence, e.g., from a hairdryer or tempering in a baking -or heating oven the hardening time can be shortened by 5 - 10 minutes.

These features are an advantage when making jewellery, e.g., to coat a ring with this glaze. Simply slip the ring over a slowly rotating ‚shaft'. Apply the thickened Cold Glaze to the ring at the same time. The glaze warms and liquefies because of the carefully aimed heat influence. It will spread evenly onto the ring and because of its viscosity, will harden after only a few minutes.

Of course, this technique calls for a certain know--how and extensive experience. However, once you view the fantastic jewellery items you have created you'll find that your efforts have been rewarded.

Transparent glaze

The transparent, colourless glaze can be used to coat beautifully grained wooden surfaces (table tops, wooden disks, clock faces, and handles). Artistically painted or inlayed wooden lids on valuable boxes, cases for musical clocks, jewellery boxes, chess boards, handles, painted or stained and made of crude ceramic, porcelain, terracotta, colored saucers made of casting -or modelling paste, artistically created mosaic pictures, etc. all attain a non-yellowing, scratch-resistant and smooth coating. If you apply the glaze when it is thick the depth in pictures, ornaments, or grains will be enhanced, additionally.
The glaze can also be employed for other purposes as a chemical-resistant protective varnish, e.g., on selfmade, artistic serving trays. Trays can be decorated with cut-out napkin designs, dried flowers or grasses, stamps, coins, or other objects, whether they are made of wood, glass, or thin metal. First glue these decorative items onto the tray with Cold Glaze in a liquid form and then coat the tray's bottom with a thicker coat of Cold Glaze to attain a smooth, even surface.

A Chinese style, golden tray has a subtle effect. First paint the tray entirely with black paint. When it is completely dry glue image fields with Metallicoll (77 816) randomly with special glue onto tray. It is important to leave spaces of approx. 1 - 3 mm between individually glued fields and these should also be at random. Metallicoll dries within 15 minutes. Now cover the tray with fine Metal Foil (42 901) in .81 silver, .84 gold, or .85 copper. The extremely fine and fragile foil should be applied to the tray's surface with a brush. It will only adhere to the fields, where you have previously added glue. Spaces without glue remain untouched, which means that the black background reappears, as intended. Let dry for approx. 30 minutes and then coat tray with transparent glaze. When the glaze dries you have a valuable and useful object, which you won't want to give away because it is so treasured!

Glass Painting

Paint a nicely formed glass, a vase, or bowl with transparent glass paint. When the paint dries, completely coat the object with Cold Glaze. When this glaze hardens your object is dishwasher-safe!

How to tone Cold Glaze

Mix Cold Glaze with Resin Toners (50 116) or Metal Powder Pigment (70 121) .10 red, .17 red violet, .21 dark blue, .38 green, .81 silver, .84 gold, and .87 copper. You can also use dry paints (pigment paints insofar as they combine with the glaze, e.g, Flitter (74226, 27, 28, 30) .10 red, .13 violet, .22 light blue, .26 dark blue, .36 green, .46 yellow, .62 orange, .81 silver, .84 gold, .90 rainbow, and .91 iridescent.

How to use Resin Toners:

These are high-quality pigments, which have been mixed with cold glaze resin. The colors are quite intensive so you will only need a small amount of paint to tone the glaze. Therefore, only mix a small amount of colorant into the glaze. If you add more color you must add the same weight amount Cold Glaze so the mixing ratio (1: 1) is upheld.

You can mix Resin Toners with one another to make any desired color hue. The toners are available opaque and transparent.

Transparent Resin Toners

Transparent Resin Toners are preferably used to coat self-cast or modelled relief's and figures and the glaze creates a porcelain-type coating. Figures made of darker, e.g., terracotta colored earthenware, should be primed with a lighter color first so the glaze you apply later has the desired effect. Untreated figures made of ceramic casting paste or plaster must be painted first with Paint Primer (56 801) because otherwise the glaze would seep into the porous material. When you apply the glaze it will run into the small fissures and cracks in the form part and settle there to give the object an effective, „dark-light-effect" and at the same time enhances the object's 3-dimensional appearance clearly. The result is a valuable, glazed sculpture, which can hardly be distinguished from a genuine porcelain figure.

The following basic colors are available for this technique:
05 golden yellow, 11 cherry red, 21 dark blue, 29 blue-green.

The following color shades can be mixed with these colors:

golden yellow + cherry red	= light red to orange
golden yellow + dark blue	= light green to medium green
golden yellow + blue-green	= green to dark green
cherry red + dark blue	= red-violet, violet to purple
cherry red + blue-green	= reddish brown to violet shades
cherry red + blue-green + golden yellow	= light brown to dark brown to light grey

The transparent, toned colors can also be mixed with Metal Powder Pigment (70 121) to attain a metallic effect.

Opaque Toners

Use opaque toners to cover surfaces, e.g., to coat vases, wooden boxes, and metal, table tops, matchboxes, handles, key chains, door plates, clock faces, saucers, picture -and mirror frames, etc.

The following colors are available for this technique:
08 light red, 10 dark red, 23 medium blue, 38 grassgreen, 47 yellow, 54 brown, 68 white, and 78 black.

These colors can also be mixed with one another - and with transparent Resin Toners:

White + yellow	= pastel yellow
White + green	= pastel green
White + red	= pink
White + blue-green (transparent)	= sea green - ice green
White + blue	= light blue
White + black	= grey
White + black + blue	= blue-grey
Yellow + red	= orange
Yellow + green	= light green
Red + blue	= violet - purple
Red + green + yellow	= brown - dark brown - reddish brown

Mix the colors into the finished glaze and paint your object so the colors run into one another slightly, e.g., combine them subtly to attain unique color effects in your coating.

Resin Toners are also suited to tone all resins such as polyester and polyurethane resin.

Samples of application:

Simple objects like a matchbox, a jar of cream, etc. can be coated with Cold Glaze. This is just one possibility. A more clever approach is if you apply two adjoining colors. You can let the colors run into each other where they adjoin with a match or toothpick to attain a zigzag effect. This is quite attractive with numerous color properties. It is even more interesting if you drip a contrasting color onto the glazed surface. Example: prime your object with blue Cold Glaze and drip a few drops of glaze on top. Let dry for approx. 1 minute. During this time the drops will spread slightly into the blue glaze. You can then add another color glaze in white or light red, for example, onto the yellow color drop to attain another creative effect.

This is not the limit, however. If you place a match in the middle of the color drop and draw a line to the adjoining blue color field the colors from the color drop mix with the blue glaze, resulting in gorgeous color hues. Repeat this process with other color drops and create a star-type picture. You can draw loops with a pencil or toothpick, as well. Just remember to guide the wooden point from the centre of the color drop and draw it outward into a loop and then back to the middle of your drop of color. Repeat this technique at other points. The lines in the glaze reflect the desired colored threads and then blend into an even, smooth surface, again.
These are only a few examples of what you can create with this impressive glaze. The play between glaze and color is exciting and offers never before available creative perceptions. The saying, „Cold Glaze is a magic varnish, which turns simple objects into valuable gems“ is quite true in this case.

The candle trick

Coat an object (e.g., matchbox) with white Cold Glaze. Let glaze react for approx. 60 minutes. Now add a small color drop, e.g., red. Turn the object over so the coated surface points downward and hold it over a burning candle shortly (at a distance of approx. 4 - 5 cm). This must be done quickly. The glaze liquefies slightly from the candle's heat and the candle flame slightly blackens the glaze from a greyish to black color. The warm glaze changes in texture when the object is turned right side up onto a worktable. The blackened surface crackles and mixes with the white and dotted, red areas. The glaze blends in and forms an even, smooth surface. This effect is unique and cannot be duplicated. The candle's black soot covers the surface of the glaze like a very delicate mist and the red of the glaze drops shines through the crackles every now and then.

The decoration effects you can attain with this technique are only feasible with this material. Of course, a certain amount of experimenting is necessary because you can combine three or four colors at random in order to attain a desired effect.

How to dilute Cold Glaze

Cold Glaze contains no solvents so it does not shrink when it hardens. However, it may not be liquid enough for all applications when it is mixed and must be diluted with Cold Glaze Thinner (50 106) to impregnate textiles (lampshades, set decorations, cloth) or in order to harden these objects or materials.Simply mix Cold Glaze Resin up to 10 % with Cold Glaze Thinner. Then mix the extremely liquid Cold Glaze Resin 1: 1 with Cold Glaze Hardener, as usual. Stir well before use. Of course, the thin, liquid glaze can be toned, as well.

How to apply Cold Glaze by using the spray technique

In modeling, Cold Glaze is used for numerous, other decoration purposes in a very liquid form and is applied with an airbrush or spray gun. Use a 1.5 nozzle. It is important to clean the spray gun and paint container thoroughly within an hour with Resin-Cleaner (51 111). The glaze will not harden in your work tools, then.

How to thicken Cold Glaze

At times it's practical to thicken the glaze regardless of the natural viscosity changes to coat and decorate large, vertical surfaces. This can be attained by mixing the finished glaze with Thixo-Thickening-Powder (75 695). Add 1 - 3 % thickening powder to make the desired drip-free, thixotrope glaze. The glaze's hardening time does not change because of this additive.

How glaze hardens

The glaze requires at least 18 hours to harden. After 48 hours it is completely hard. In order to avoid dust or flying insects from spoiling the glaze surface you should keep the object in a separate room or cover it with a protective wrapping. The glaze reminds one of high-quality lacquered surfaces as in Chinese lacquer painting. The Chinese took the object out to sea while the varnish was drying in order to make certain that no dust particle would blemish the surface.

The glaze surface

The glaze surface should be brushed lightly with a soft brush after a reaction time of approx. 60 - 120 minutes during the hardening process. The fine brush eliminates any air bubbles trapped in the material when the glaze was mixed. The brush should barely touch the surface during this process. The surface now looks like a cratered landscape. Shortly thereafter the glaze will spread again and the surface is again smooth as a mirror and the air bubbles are gone.

Other examples of application:

Cold Glaze wall lamps
Cut out a form for your wall lamp from a styropore block. You now have the opportunity to create a very personal form. Then coat the finished styropore block with Cold Glaze. Make certain that the glaze coats any recesses and hard-to-get at surfaces. Cold Glaze contains no solvents so it will not damage the styropore. When this basic coat is dry, e.g., a day later, apply the next coat of glaze; either colorless or transparent color shades. You can also coat certain areas with opaque toned glaze. It depends on the contrast or effect you wish to attain.

Metallic toned glazes are also quite suited. It is only important to coat the largest part of the styropore surface with transparent glaze because this part will be used as a see-through lampshade later.
Let the second coat of glaze harden for approx. 48 hours and then turn your work of art upside down; now pour a solvent, e.g., nitro etc. onto the styropore surface from behind. The styropore coat dissolves completely, leaving only the colored glaze film, which will not be damaged by the solvent. The lamp cover is finished.

You can also laminate surface shear wool or glass cloth onto the styropore surface to give the lamp shade a sturdy support and simultaneously add an interesting structural touch to make the finished lampshade more interesting optically when it is lit.

Modeling

If you combine glass cloth with Cold Glaze to model airplanes, car models, boats, you can craft sturdy, elastic, and, above all, quite lightweight GFK constructions and they can be stained and coated with a colored glaze for an end-touch. The coating is free of chemicals and even flight petrol cannot damage it. You can also use this glaze as glue for styropore to balsa wood (airplane wings). It is also quite suited to glue polyester form parts reinforced with glass cloth and to bind pre-poured polystyrole and to coat foamed polystyrole with glass cloths, as well as to glue styropore parts to metals, polyester (modelling), stone, glass, ceramic etc.

Landscape Modelling

Cold Glaze is excellently suited to imitate lakes and rivers. You can create moving waters, spray, etc. with the nearly liquid glaze. Stir the glaze thoroughly when it thickens to create the desired waves or spray structure. You can also tone the glaze for color.

Cold Glaze's adhesive effect

A characteristic of Cold Glaze is that it adheres firmly to the object. It is, therefore, preferred to glue objects if they must adhere firmly and one must takes into account that the object cannot be moved during the gluing process (approx. 12 hours). Cold Glaze adheres to all materials with the exception of plastics. You can glue glass with metal, wood with ceramic, metal with plaster, polyester resin, etc.

Electronic

Cold Glaze is used to embed and case transformers, spools, throttles, relays, motor windings or entire HF construction groups. It is either toned or changed into a non-transparent thick pasty material with filling agents such as marbled meal (Marmorit Art. 52 353) to encase the object securely. Blackbox - the electric values such as specific volume resistance, spec. dielectric constants, surface resistance, etc. are especially suited because of the hardened resin. Parts are also made for installation in construction machines, cranes, lifts and other devices, which undergo extreme shocks and must, therefore, remain intact.

Galvano Technique

Coat parts with Cold Glaze and then galvanize them. The glaze will not loosen in a galvano bath, which is a particular advantage when making jewelry. If you wish to coat pewter parts with Cold Glaze, roughen them slightly with hydrochloric acid first and then apply glaze.

Technical Data:

Cold Glaze resin		
Colors by Gardner up to 25°C	max. 4	DIN 53403
Viscosity in poise at 25°C	- 10	DIN 53217
Flame point	138 1C	DIN 52 213
Refractive index /n. D. 20°C	1.485	DIN 53491
Cold Glaze hardener		
Density 20°C g 1cm3	0.98	DIN 51757
Flame point	110°C	DIN 52213

Technical characteristics of hardened cold glaze

Refractive index at 20°C	1.48	DIN 53491
Tensile strength kp/cm2	550	DIN 53455
Flexural strength kp/cm2	1100	DIN 53452
Compressive strength kp/cm2	1200	DIN 53454
Impact strength m/kp/cm2	15	DIN 53453
Impact value cm/kp/cm2	2.2	DIN 53453
Dielectric constant E	50 Hz, 1 kHz, 1 MHz	DIN 53483
Spec. volume resistance cm	6.10/14	DIN 53482
Surface resistance	2.10/14	DIN 53482
Dielectric strength	kV/mm 30	DIN 53481
Creep resistance	T5	DIN 53480

Chemical characteristics

Hardened Cold glaze is generally resistant to chemicals, acids and alkaline solutions and is also water -and weather resistant. Articles made of ceramic, stone, terracotta, or porcelain and coated with this glaze are dish-washer-safe.

Physiological characteristics

Avoid contact with skin, if possible, when working with Cold Glaze (wear protective gloves). It is imperative to wear protective glasses when working with spray guns etc. If larger quantities of Cold Glue are used the regulations stipulated by the employers' liability insurance association for the chemical industry in „Leaflet for work with polyester -and epoxy resin" must be complied with.

First Aid

If cold glaze resin, cold glaze hardener, or cold glaze mixtures get into eyes or on skin, rinse immediately with cold water. If resin or hardener gets into eyes contact a physician immediately for further assistance and inform him that this is a mixture, which contains a slightly alkaline reacting hardener (cycloaliphatic diamine).

Storage

Keep container closed and store in a dry and cool place.
Safety Regulations:
R rulings:

R 36/37/38	Irritates eyes, respiratory tract and skin
R 43	Sensibility if contact is made with skin

S rulings:

S 26	If product gets into eyes rinse thoroughly with water and contact physician.
S 36/37/39	Wear suitable protective clothing, gloves, and glasses when handling.

The above rulings correspond with the present standing of our technical experience. However, we cannot assume responsibility if applicable. This also applies to other consulting activities.