

## Variofill VF

### Product description

Variofill VF is a water-dilutable, white pigmented filler of the latest generation of water-based varnishes. It can either be processed as one-pack or as two-pack product. Variofill VF distinguishes itself by outstanding drying times and, as a two-pack product, by its insulating effect against humidity and wood contents. The product is excellently suitable for water-based surface construction with Variocryl® Color VCC/colour.

### Range of application

#### Variofill 1K → unhardened as filler for normal load:

Common wood with little wood contents and wood material (also MDF) in living areas for normal requirements. Further construction also with one-pack products such as Variocryl® Color VCC/colour and, as an option, Variocryl® Wasserklarlack VC 8, 9, 0, TM unhardened.

#### Variofill 2K → hardened as premium insulating filler:

When PUR-Wasserlackhärter PWH 3200 is added, Variofill is suitable for elevated requirements as insulating filler for all types of wood and wood material, also for moisture-proof applications such as kitchen and bathroom. It is not necessary to apply an additional barrier coat. For applications on priming foil or plastic foil we also recommend using the hardened product. Variofill VF hardened is also used when further construction shall be made with hardened two-pack products, such as Variocryl® Color VCC and, as an option, Variocryl® Wasserklarlack VC 8, 9, 0, TM hardened or Duocryl Top-Wasserklarlack DC-T 8, 9, 0.

### Surfaces

All common types of wood and wood material, hardened also for moisture-proof applications. Wood rich in resin and wood rich in ingredients (e.g. pine, teak, oak or ash) should be insulated twice with Variofill VF hardened and with appropriate intermediate sanding. Can also be used as adhesion promoter for many common metals and plastics.

### Preparation

In case of raw wood surfaces, carry out wood sanding in several steps (120/150/ perhaps 180 grit paper) and dust well. The finer the wood sanding, the slighter the roughening. When Variofill is used on priming foil or on plastic foil, the surface must be thoroughly sanded and Variofill VF must be applied as hardened two-pack product, in order to optimize the adherence. When the product is used as adhesion promoter on plastics or metals, the surfaces must be cleaned (degreased) and slightly sanded before. Adherence must be checked!

### Hardening, optional

Hardener:	PUR-Wasserlackhärter PWH 3200	
Mixing ratio (varnish/hardener)		
By weight	10:1	(10% PWH 3200)
By volume	100:15	(15% PWH 3200)
Processing time as two-pack product	approx. 3 hours at 20°C, 65% rel. humidity	
Pot life as two-pack product	approx. 6 hours at 20°C, 65% rel. humidity	

Caution: If the hardened Variofill VF is used as two-pack insulating filler, it is important to strictly adhere to the maxing ratio. Underhardening will reduce the insulating effect of the product! The hardener must be intensively and immediately mixed with the product. When the hardener is added, the viscosity is increased. Thinning with water, if required, is made after the hardener has been added and thoroughly mixed. For best results, varnishing must be made within the pot life period.

### Thinner

Variofill VF one-pack: Not required. If necessary, add up to 5 % of tap water.

Variofill VF two-pack: 5% to max. 10% of tap water. (After being mixed thoroughly with the hardener.)

## Application

**Stir well before use! Define the range of application and then optionally harden the product.**

Application is made by means of spraying, see 'Application methods'.

After drying and intermediate sanding with 280/320 grit paper, further processing with Variocryl® Color VCC/colour can be made. If the layer is ground through during intermediate sanding, e.g. when sanding strongly roughening surfaces such as MDF, we recommend applying another coat of Variofill VF. When the product is used as adhesion promoter, it must be sprayed on once as a thin layer. Ideal processing conditions: approx. 15-25 °C (environment, varnish/paint material and workpiece) and approx. 30 - 65% relative humidity of air.

## Application methods

	Spraying	
	High/Low pressure	Airless / Airmix
Spray pressure (bar)	1,5 - 3	110 - 130
Nozzle size (mm)	2,0 - 2,5	0,33 - 0,38
Thinner to be added (%)		
as one-pack variant	0 - 5	-
as two-pack variant	5 - 10	5 - 10
Processing viscosity DIN 4 mm (sec.)	approx. 100 - 140	approx. 120 - 140
Coverage per application (g/m <sup>2</sup> )	120 - 200	120 - 200
Yield (m <sup>2</sup> /l)	4 - 7	4 - 7

## Drying time (at room temperature 20°C and 65% relative humidity)

dust dry	touch dry	sandable
approx. 30 min.	approx. 2 hours	approx. 6 hours

The drying time strongly depends on the quantity applied, the temperature, air humidity and air movement. High application quantity and air humidity has a negative effect on the drying process. Higher temperature and air blast has a positive effect.

## Aftertreatment

After a drying time of 5 - 6 hours, Variofill VF can be sanded and coated with the same material or with Variocryl® Color VCC/colour.

## Product data

Batch sizes VF	4 kg, 25 kg
Batch sizes Hardener PWH 3200	0.5 l, 2.5 l
Viscosity at delivery DIN 4 mm	approx. 140 seconds
Shelf life in unopened original batches	approx. 1 year
VOC directive	
EC limit value for this product (Cat. A/d):	150 g/l (2007) / 130 g/l (2010)
The unhardened product contains max.	50 g/l VOC.
The hardened product contains max.	82 g/l VOC.

Further information can be obtained from the label and the Safety Data Sheet according to 91/155/EWG, which can be downloaded from our Internet site "[www.zweihorn.com](http://www.zweihorn.com)" or requested from us.

### Special notes

- Only use working equipment made from non-rusting material.
- Material is frost sensitive - do not store and transport under 5°C.
- After use, immediately clean the working equipment with water and then with Universalreiniger UR.
- Do not process and dry the materials below 15°C.
- As two-pack variant, Variofill VF adheres to many common metals and plastics. Due to the great number of products being on the market, adhesion cannot be guaranteed generally. For that reason, adhesion on special surfaces must always be checked.
- When directly coating coated boards such as primer foils, melamine resin coats or HPL with Variofill VF, we recommend using the material as a two-pack variant after careful sanding of the surfaces in order to obtain optimum adherence.
- An insulating effect against water and wood contents is achieved by adding the hardener Härter PWH 3200. Please note the different amount of hardener to be added when mixing by weight and by volume. Strictly adherence to the indicated amount of hardener will ensure sufficient insulating effect.
- When changing from water-based varnish to solvent containing varnishes thoroughly rinse the spray guns with water and then with Universalreiniger UR.
- Always keep the containers closed. Protect contents against dehydration (skinning). In case of skinning, remove the skin through filtration prior to the application (e.g. through a nylon mesh).
- Caution: The product must not be drained into the sewage system.

### Meets the following test standards

- EN 71-3 Free from soluble heavy metals (CE approval)
- Requirements to the surfaces of kitchen furniture according to DIN 68930 regarding the resistance under changing climatic conditions (as two-pack variant only)

Please follow the relevant test certificates for our products, which can be downloaded from our Internet site "[www.zweihorn.com](http://www.zweihorn.com)" or requested from us.

Zweihorn® products are produced for the professional user, who has a basic knowledge of the use and the application of stains, varnishes, glazes and glues. The user information for our qualities given in the leaflets should be regarded as non-binding recommendations. They are based on our test series and experiences and should facilitate and promote the work of our clients. Any adjustment to the individual working conditions, which might be possible, lies within your responsibility. If in any doubt, our material experts as well as our application and laboratory technicians will try to help you as best as they can. We guarantee of course the impeccable quality of our products based on our General Sales and Delivery Conditions. The use of the final product lies entirely within the responsibility of the buyer. As long as we have not guaranteed in writing specific characteristics and suitability of the products for a contractually agreed purpose, any advice or information given regarding the application, even if the advice or information is given to the best of our knowledge, will be non-binding. Nor does it relieve the buyer, either from his own inspection, and if need be through a trial processing. Furthermore, we are only liable according to our General Conditions for advice either given or rejected, which does not refer to the characteristics and use of the delivered product.

Applicable is the current Technical Data Sheet, which can be downloaded under [www.zweihorn.com](http://www.zweihorn.com). Previous technical data sheets are voided with the issue of a new version.

Date of issue: 23.03.2009