

# Adhesion Resin LTW

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## General description

A soft, special-purpose supplementary resin with a wide compatibility range, designed to improve the initial, long-term and intercoat adhesion of paints based on vinyl chloride copolymers and in a number of other binders to metallic and mineral substrates and to certain plastics. Depending on the binder, it also improves the flexibility at normal and low temperatures.

## Specification

Property	Value	Unit	Test method
Nonvolatile matter <sup>1)</sup>	59 – 61	% by wt.	DIN EN ISO 3251 (1h 160°C)
Viscosity at 23°C <sup>1)</sup>	350 - 650	mPa s	DIN EN ISO 3219
Acid number <sup>2)</sup>	20 - 30	mg KOH/g	DIN EN ISO 2114

## Typical data

Colour (Gardner) <sup>1)</sup>	approx. 2	-	DIN ISO 4630
Density at 20°C <sup>1)</sup>	approx. 1.045	g/cm <sup>3</sup>	DIN 51 757/ISO 758
Density at 20°C <sup>2)</sup>	approx. 1.19	g/cm <sup>3</sup>	DIN 53 479-B/ISO/R 1183
Refractive index <sup>1)</sup>	approx. 1.5180	n/20 D	DIN 51 423 / ISO 5661
Hydroxyl number <sup>2)</sup>	approx. 30	mg KOH/g	DIN EN ISO 4629

<sup>1)</sup> supply form

<sup>2)</sup> solid resin

## Chemical Classification

A special-purpose polyester resin.

## Storage Stability and Packaging

Screw cap drum, net contents: 25 kg

Iron drum, net contents: 200 kg

When protected against light and humidity and at storage temperatures of less than 25 °C, Adhesion Resin LTW has a storage stability of 6 months.

## Supply Form

60 % solution in xylene with a lightly yellowish colour.

## **Solubility**

The resin is dilutable with most of the normal paint solvents, but not with aliphatic hydrocarbons.

## **Properties and Applications**

Adhesion Resin LTW is a highly lightfast and weather resistant soft resin. At 20 °C the pure form is an extremely viscous, only slightly tacky, vitreous substance which flows with increasing ease as the temperature rises. It is a supplementary resin which improves the adhesion of numerous paints to metallic and mineral surfaces and to certain plastics. The gloss is simultaneously increased and a higher solids content is achieved without any significant rise in the viscosity.

The improvement to be achieved in the adhesion is largely dependent on the nature of the binders employed. It is significantly higher in pigmented paints than in clear paints. Adhesion Resin LTW as supplied is generally used in quantities equivalent to 10 – 20 % of the binder. The paint film becomes somewhat softer and the flexibility at ambient and low temperatures may be improved as the amount added to the binder rises. It should be noted that when larger amounts are added, these may, under certain conditions and depending on the binder, result in an undesirable softening of the paint film, an effect which may become even more pronounced due to solvent retention. It is recommended to use Adhesion Resin LTW in delivery form in amounts of approx. 2 %, related to the total formulation, to avoid compatibility problems in highly pigmented stoving paints, especially in those based on polyester resins and polyisocyanate resins.

Among binders, it is particularly vinyl chloride copolymers whose adhesion can be increased most effectively. The use of Adhesion Resin LTW may be indicated even for vinyl chloride terpolymers which already possess good adhesion on account of their free carboxyl groups. In most cases this will markedly increase the long-term adhesion during prolonged outdoor weathering.

Adhesion Resin LTW is also used in combination with other binders and paint systems in order to improve the adhesion. Good results can be achieved in alkyd melamine resin based stoving paints, paints based on acrylic resins and polyurethanes and in a large number of special combination paints.

Adhesion Resin LTW enters into the reaction mechanism of two-component paints via its free hydroxyl and carboxyl groups or its double bonds. Adhesion Resin LTW is particularly suited to this application on account of its comparatively high acid and hydroxyl numbers and its high flexibility.

Owing to its adhesion promoting effect Adhesion Resin LTW is a suitable supplementary resin for primers. The adhesion of printing inks on numerous substrates can be improved by the use of Adhesion Resin LTW. The additional use of Adhesion Resin LTW in paints, and partly also in two-component paints, frequently enables improved adhesion.

## Compatibility

### Compatibility with binders:

Adhesion Resin LTW is noted for a comparatively good compatibility with many paint binders. It is compatible with vinyl chloride copolymers, polyvinyl chloride, chlorinated rubber, nitrocellulose, ketone resins, some alkyd and acrylic resins, saturated polyester resins, as well as a number of other binders and resins. Adhesion Resin LTW is incompatible with other styrene-based, unsaturated polyester resins.

A detailed compatibility table is available upon request.

It is best for the processor himself to check the compatibility of Adhesion Resin LTW in any given varnish or clear lacquer because composite binders are often still compatible when individual constituents alone are incompatible with Adhesion Resin LTW. The required amounts of Adhesion Resin LTW can frequently be incorporated without difficulty while larger quantities are incompatible.

### Compatibility with pigments and fillers:

Adhesion Resin LTW is readily compatible with most pigments and fillers.

## Food Contact

Actual information regarding national and international regulation for the use of Adhesion Resin LTW in food packaging is available on request.

## Safety and Handling

Please refer to our Safety Data Sheet.

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