

# Acronal<sup>®</sup> TC 1015

**Product description** Thermally self-crosslinking acidic acrylic dispersion suitable as binder for stoving coatings on glass or metal.

- Key benefits**
- Novel formaldehyde free thermal cross-linking technology
  - No additional crosslinkers needed
  - Similar hardness and mechanical properties as compared to amino resin crosslinked systems
  - Zero add-on of biocide
  - Excellent adhesion on glass and metal

**Chemical nature** Aqueous dispersion of a styrene-acrylic polymer modified with a polycarboxylic acid

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## Properties

**Physical form** White emulsion

|   |                                  |                                     |                          |
|---|----------------------------------|-------------------------------------|--------------------------|
| <b>Technical data</b><br>(not supply specification) | Solid content                    | DIN EN ISO 3251                     | ~ 50 %                   |
|   | pH value                         | DIN ISO 976 (23 °C)                 | ~ 3.5                    |
|   | Viscosity, dynamic               | DIN EN ISO 3219<br>(23 °C, 100 1/s) | 300 - 800 mPa.s          |
|   | Density (as supplied)            | DIN 53217                           | ~ 1.11 g/cm <sup>3</sup> |
|   | Acid value (solids)              | Calculated                          | ~ 300 mg KOH/g           |
|   | OH number (solids)               | Calculated                          | ~ 120 mg KOH/g           |
|   | Minimum film forming temperature | DIN ISO 2115                        | < 0 °C                   |
|   | Freeze/thaw-stable               |                                     | no                       |

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## Application

Acronal® TC 1015 is employed as a formaldehyde-free self-crosslinking binder for water-dilutable stoving coatings on glass or metal.

### Formulation guideline

#### Curing / stoving

Acronal® TC 1015 crosslinks at temperatures of 160 °C (20 min) or higher. Production processes can be sped up by increasing the curing temperature to 180 – 200 °C, because the higher degree of crosslinking ensures that the substrate has optimum water resistance and heat resistance. It is also suitable for coil coating conditions, e.g. with a peak metal temperature of 250 °C for 30 s.

Neutralizing Acronal® TC 1015 with bases (caustic soda or amines) impairs the crosslinking reaction, especially if the pH is > 5 which is why we recommend formulating at given acidic pH value.

#### Coalescents

In order to improve film formation, coalescents like butyl glycol, butyl diglycol, Loxanol® CA 5308 or combinations thereof may be employed.

#### Additives

Various additives can be used in combination with Acronal® TC 1015 in order to obtain specific features. For instance, epoxy silanes can be added to improve the adhesion of the binder on glass or other mineral substrates. Optical brighteners, e.g. Tinopal® NFW liquid may be used for white paints to intensify the brilliance of white.

All additives used should be suitable for acidic pH. As dispersant for pigment grinding we recommend Dispex® Ultra PA 4483 (acidic phosphate emulsifier), with regard to defoamers non-ionic ones like Foamstar® PB 2724 or silicon types (e.g. Foamstar® SI 2210) are suitable. Wetting agents should also be non-ionic like Hydropalat® WE 3120. As rheology modifier Rheovis® VP 1231 (Vinylpyrrolidon-based) is suitable.

Reactive substances such as polyfunctional epoxy resins, phenol-formaldehyde resins, isocyanates or melamine resins can be added to increase the reactivity of the binder at low temperatures. Acronal® TC 1015 can also be mixed with other polymer dispersions in order to modify its mechanical properties etc.

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## Storage

Acronal® TC 1015 shall be stored in its tightly sealed original packaging at temperatures between 5 °C and 40 °C.

This product must be protected from frost.

### Safety

When handling this product, please comply with the advice and information given in the safety data sheet and observe protective and workplace hygiene measures adequate for handling chemicals.

### Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. The agreed contractual quality of the product results exclusively from the statements made in the product specification. It is the responsibility of the recipient of our product to ensure that any proprietary rights and existing laws and legislation are observed.

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