

Product Information

# Dynasylyan® AR

**Binder for ceramic casting molds and 2-pack zinc rich paints**

## CAS NUMBER

confidential

## PRODUCT DESCRIPTION

Dynasylyan® AR is a milky-white, low-viscosity, pre-hydrolyzed ethyl polysilicate hybrid binder, that contains a mixture of silica derived from TEOS, ethanol, sulfuric acid catalyst and other components. The silica content ranges from 19-21%.

Dynasylyan® AR is especially suited for use in:

- Ceramic casting molds (precision casting, lost wax or casting shell methods) and ceramic molding (ceramic form or SHAW molding processes)
- Refractory materials
- 2-pack zinc dust anti-corrosion paints, (e.g. shop-primers).

Dynasylyan® AR in conjunction with especially refractory forming materials results in ceramic casting molds that have highly precise surfaces and dimensions.

In zinc rich paints with a zinc content above 95% Dynasylyan® AR binds the zinc and allows for the formation of hard coatings with an effective galvanic protection.

### Typical Properties

Property	Unit	Value
<b>Appearance</b>		milky white liquid
<b>Boiling Point, min.</b> (1.013 hPa)	°C	78
<b>Density</b> (20 °C) DIN 51757	g/cm <sup>3</sup>	~0.93
<b>Flash Point, min.</b> DIN EN ISO 13736	°C	21
<b>Viscosity</b> (25°C) dynamic	mPa·s	<5

The data represents typical values (no product specification)

## TYPICAL APPLICATIONS

Dynasylyan® AR can be used as delivered to make ceramic slips, immersion/ramming mixes, and 2-pack zinc dust anti-corrosion paints.

The degree of hydrolysis and acidity have been optimized for the required reactivity and sufficient storage stability.

By the addition of alcohol and/or water it is possible to vary the SiO<sub>2</sub>-content and the curing properties. The hydrolysis and condensation process starts during the production of the binder.

By a shift of the pH-value this process can be modulated. This shift is achieved by addition of fillers, pigments, additives, or by the evaporation of solvent or exposure to atmospheric moisture.

The resulting silicic acid gel cures rapidly at ambient temperatures in air. The process of curing can be accelerated through the addition of alkaline catalysts.

## Product Composition

Product Composition	Unit	Value
<b>Silicon Dioxide (SiO<sub>2</sub>) Content</b>	wt%	19-21
AN-SAA 0851		

The data represents typical values (no product specification)

## BENEFITS & ADVANTAGES

When using Dynasylan® AR as a binder in zinc dust paints, the curing process is much faster compared to Dynasylan® XAR. This may lead to the formation of cracks (mudcracking) in a thicker coating. Thus Dynasylan® AR is recommended for thinner coatings such as shop-primers. By proper application and formulation zinc dust paints on the basis of Dynasylan® AR can yield excellent corrosion protection.

## HANDLING & PROCESSING

The storage stability of Dynasylan® AR is 6 months. It is determined by the degree of partial hydrolysis and the pH value. Nonetheless, the condensation and hydrolyzation proceeds during storage, as these reactions can not be suppressed, only reduced in speed.

The further the hydrolysis has proceeded, the faster the condensation (and thus gelation) occurs, when the product is used. As a consequence, the reactivity depends on the age of the binder which needs to be considered during use.

The reactivity of the slurries and 2-pack zinc dust paints depends on the age of the binder and may be tested prior to use for optimal performance.

Before considering the use of Dynasylan® products please read its Safety Data Sheet (SDS) thoroughly for safety and toxicological data as well as for information on proper transportation, storage and use.

The Safety Data Sheet is available on our website <https://silanes.evonik.com/en> or upon request from your local

representative, customer service or from Evonik Operations GmbH, Product Safety Department, E-MAIL [sds-hu@evonik.com](mailto:sds-hu@evonik.com).

## PACKAGING

Dynasylan® AR is supplied in 185 kg drums or 850 kg IBC.

## STORAGE

The storage stability of Dynasylan® AR is 6 months. It is determined by the degree of partial hydrolysis and the pH value. Nonetheless, the condensation and hydrolyzation proceeds during storage, as these reactions can not be suppressed, only reduced in speed.

Dynasylan® AR is a pre-hydrolyzed binder and thus will age, especially close to heat sources. The containers should not be stored in direct sunlight.

Local regulations have to be followed and applied.

## SHELF LIFE

In the original unopened container Dynasylan® AR has a shelf life of at least 6 months from delivery.

## Registration Listings

Registry	Status
<b>Australia (AIIC)</b>	Yes
<b>Canada (DSL)</b>	Yes
<b>China (IECSC)</b>	Yes
<b>European Union (EINECS/ELINCS)</b>	Yes
<b>Japan (ENCS)</b>	Yes
<b>South Korea (KECL)</b>	Yes
<b>Philippines (PICCS)</b>	Yes
<b>United States of America (TSCA)</b>	Yes

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