

# Palatal® A400-972

## Isophthalic Polyester Resin for Structural Layer of FRP

Components based on Palatal® A 400-972 feature excellent mechanical and electrical properties, with good rigidity, dimensional stability and impact resistance.

### Benefits

- Cost effectiveness
- Good impact strength
- Excellent mechanical and electrical properties
- Balance of rigidity and flexibility, dimensional stability
- Good water resistance

### Chemical/physical nature

Palatal® A 400-972 is unsaturated polyester resin based on isophthalic acid and standard glycols, dissolved in styrene. The resin has a medium viscosity and a high reactivity.

### Major applications/Principal properties

Palatal® A 400-972 is suited for a wide range of applications. Moldings made from this resin exhibit excellent mechanical properties, high resistance to heat deformation and high impact resistance.

Palatal® A 400-972 is particularly suitable for the production of pipes, profiles and tanks in plant construction, for building infrastructure and for boats and automotive bodies. It is a versatile resin suitable for use in hand and spray lay-up, filament winding, pultrusion, grating mouldings, cold press moulding and resin injection processes.

### Certifications and Approvals

Cured unreinforced Palatal® A 400-972 conforms to type 1140 according to DIN 16946/2 and is classified in group 2B according to EN 13121-1.

The mechanical properties of Palatal® A 400-972 and its accelerated aging performance in hot water meet the requirements for structural layer resin in GB/T 21238-2016 Glass Fiber Reinforced Plastics Motar Pipes.

### Liquid resin typical properties

Property	Value	Unit	TM
Flash point	33	°C	TM 2800
Stability, no initiator, dark, 25 °C	6	Month	-

### Product Specification

Property	Value	Unit	TM
Appearance	clear	—	TM2265
Acid value	8-14	mgKOH/g	TM2401
Viscosity, 23°C	400-550	mPa.s	TM2013
Solid content	55-61	%	TM2033
Gel time, 25-35°C	15-25	minutes	TM2625

### Remarks

Reactivity measurement @25°C: 1.5 g Butanox® M50 (Nouryon) and 1.0 g Accelerator NL 49P (Nouryon) added to 100 g resin.

### Properties of cast unfilled resin (typical values)

Property	Value	Unit	TM
Tensile strength	80	MPa	ISO527-2
Tensile E-modulus	3300	MPa	ISO527-2
Elongation at break	4.0	%	ISO527-2
Flexural strength	140	MPa	ISO178
Flexural E-modulus	3300	MPa	ISO178
Impact res.-unnotched	20	KJ/m <sup>2</sup>	ISO179
HDT	95	°C	ISO75A

### Test conditions

Cured with 1.0 g Butanox M50 and 0.2 g Accelerator NL 49P added to 100 g of resin. After 24h at room temperature followed by post curing for 24 h at 80°C.

Test at 23±2°C and the relative moisture with 50±5%.

## Processing Guide

- A. Keep full strength catalyst levels between 1.0% - 2.0% of the total resin weight.
- B. Maintain shop temperatures between 18°C and 32°C and humidity between 40% and 90%. Consistent shop conditions contribute to consistent gel times and will help the fabricator make a high quality part.
- C. Palatal® A 400-972 normally does not exhibit tack-free cure. To ensure tack-free cure of surfaces exposed to air, suitable additives (e.g. 10% solution of 5% paraffin wax with MP 46-48°C solution in styrene ) should be added to the last resin layer.
- D. Post-curing is mandatory for food contact applications to reduce residual styrene to the range of 0.01-0.2%. The final state of cure may be optimized by post-curing at elevated temperatures (e.g. 80°C) for several hours.

## Guidelines before Use

Before use, the resin should be conditioned at a well defined application dependent temperature (usually 15°C minimum for a MEKP / Co cure).

## Storage Guidelines

The resin should be stored in a dark and dry place at temperatures between 5°C and 30°C. Shelf life is reduced when resin is stored at higher temperatures and the properties of the resin might change during storage. The shelf life of styrene containing Vinyl ester will be significantly reduced when exposed to light. Therefore, store in dark and in 100% light tight containers only. Exposure to direct sunlight should be avoided.

## Brochures

You can find additional information through the AOC Product Selection Guide. For detailed information on the chemical resistance and other data of this resin, please consult our local Business Technical Supports Engineer and Account Manager.

## Material Safety

A Material Safety Data Sheet of this product is available on request.

## Test Methods

Test methods (TM) referred to in the table(s) are available on request.

## ISO 9001:2015 Certified

The Quality Management Systems at every AOC manufacturing facility have been certified as meeting ISO 9001:2015 standards. This certification recognizes that each AOC facility has an internationally accepted model in place for managing and assuring quality. We follow the practices set forth in this model to add value to the resins we make for our customers.

## About AOC

AOC is the leading global supplier of resins and specialty materials which enable customers to create robust, durable and versatile products and components. With strong capabilities around the world in manufacturing and science, the company works closely with customers to deliver unrivaled quality, service and reliability for today, and create innovative solutions for tomorrow. Partner with AOC and we will work together to find the right solutions for your business.

**AOC. Trusted Solutions**

## AOC CHINA

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