

### TYPE

UP-resin based on ortho-phthalic acid  
pre-accelerated, enhanced shelf life, low styrene emission, thixotropic

### REACTIVITY

medium reactive

### SPECIAL PROPERTIES

can be widely used because of its good mechanical strength properties;  
low internal strain after curing, fulfills the specification of Lloyd's Register of Shipping.

### USE

for moulded parts off all types, e .g. boats, vehicle bodies, container etc;  
ready-to-use for hand lay-up and spray-up-technique

### PRODUCT DATA

#### Determined per batch:

#### Non-Volatile Matter DIN 55671

|                        |     |             |
|------------------------|-----|-------------|
| non-volatile matter    | [%] | 53,5 - 57,5 |
| (120 °C; 5 min; 0,8 g) |     |             |

#### Dynamic Viscosity DIN EN ISO 3219

|                   |         |           |
|-------------------|---------|-----------|
| dynamic viscosity | [mPa.s] | 190 - 290 |
| (500 1/s; 23 °C)  |         |           |

#### Dynamic Viscosity DIN EN ISO 3219

|                   |         |           |
|-------------------|---------|-----------|
| dynamic viscosity | [mPa.s] | 690 - 990 |
| (2,5 1/s; 23 °C)  |         |           |

#### Gel Time (UP-Resins) DIN 16945 / 6.3.1.2

|                |       |         |
|----------------|-------|---------|
| gel time       | [min] | 11 - 21 |
| 2 % MEKP (33%) |       |         |
| (20 °C)        |       |         |

#### Not continually determined:

#### Density (Liquids) DIN EN ISO 2811-2

|         |         |      |
|---------|---------|------|
| density | [g/cm³] | 1,06 |
| approx. |         |      |
| (20 °C) |         |      |

#### Flash Point DIN EN ISO 1523

|             |      |    |
|-------------|------|----|
| flash point | [°C] | 34 |
| approx.     |      |    |

### PROCESSING NOTE

The product has to be homogenized well in the original packing shortly before processing, either by stirring or by rolling the drums.  
The resin contains a peroxide indication system, which effects a colour change from bluish to browngreen after addition of catalyst. The resin contains wax, which gives the cured laminate a tack-free surface. When a laminate is built up in several stages with intermediate curing, the following must be considered:

1. The primary laminate must be finished with a normal ratio UP-resin/glassfibre, so that the fibre pattern clearly shows up on the surface.
2. Any resin-rich areas and laminates built-up with too long time intervals must be grinded before overlamination.

### CURING

Curing is possible at room temperature by addition of a suitable peroxide, at room temperature for instance by addition of a suitable ketoneperoxide. Curing should take place above 18 °C.

### PROCESSING TIME

By adding a commercial inhibitor (e. g. Additol VXL 5918) the processing time can be considerably extended without significant effect on hardening (when adequate amounts of hardener and accelerator are used).

### POST-CURE

To achieve optimum curing of mouldings, an elevated temperature post-cure is normally required, but this will depend on temperature, time and thickness of the parts used in actual processes. As a guide value for mouldings with 3 mm thickness produced at room temperature post-curing for at least 2 hours at 70 °C is recommended. Longer post curing at lower temperature, for example 16 hours at 60 °C will improve the results.

### PRODUCT DATA OF CURED RESIN

**Determined per batch:**

**Not continually determined:**

#### Hardness (BARCOL) DIN EN 59

|                       |    |
|-----------------------|----|
| Barcol-hardness 934-1 | 40 |
|-----------------------|----|

#### Tensile Test (Unreinforced Plastics) DIN EN ISO 527-2

|                     |         |
|---------------------|---------|
| tensile strength    | 65      |
| breaking elongation | [%] 2,3 |

#### Flexural Test (Unreinforced Plastics) DIN EN ISO 178

|                  |            |
|------------------|------------|
| bending strength | [MPa] 125  |
| flexural modulus | [MPa] 3400 |

#### Impact Strength (Charpy) DIN EN ISO 179-1

|                 |           |
|-----------------|-----------|
| impact strength | [kJ/m²] 7 |
|-----------------|-----------|

#### Heat Deflection Temperature DIN EN ISO 75-2

|                                                                 |         |
|-----------------------------------------------------------------|---------|
| heat deflection temperature                                     | [°C] 65 |
| (annealing: 16 h at 70 °C; outer fiber stress 1,80 MPa, on end) |         |

#### Glass Transition Temperature DIN EN 61006

|                                        |         |
|----------------------------------------|---------|
| glass transition temperature           | [°C] 86 |
| (dynamic mechanical analysis; 2 K/min) |         |

Not continually determined data do not constitute a quality description, but correspond to single values, determined on a random sample. Deviations caused by production are possible.

### STORAGE

At temperatures up to 25 °C storage stability packed in original containers amounts to at least 180 days.

The product should be stored under exclusion of direct sunlight in the original, undamaged and closed packaging in a dry and cool place. Geltime and curing time can change during progressive storage. Shelflife is reduced at higher storage temperatures.

To prevent possible setting phenomena it is recommended to stir the resin in the storage tank or container before use. In storage tanks the use of circulating pumps is recommended.

### PRECAUTIONS

Please notice the information in the material safety data sheet (MSDS).

### TANK CLEANING

If a storage tank is used, it is recommended to clean the tank at least once per year.

### ACCELERATOR

The resin contains Cobalt-accelerator. Prolonged storage can reduce the effect of the accelerator. An addition of 0.5 - 1.0 % Co 1 may be necessary to restore the original potlife.