# BECKOPOX™ EM 460/60IBX

Technical Datasheet

## TYPE

Modified epoxy resin

## FORM OF DELIVERY (f.o.d.)

60 % in isobutanol / xylene (60IBX)

## SPECIAL PROPERTIES AND USE

**Excellent adhesion to steel and nonferrous metals, high corrosion protection, best recoatability.**

**With polyvinylbutyral for one- and two-component washprimers, weldable shop primers.**

## PRODUCT DATA

**Determined per batch:**

| | | |
|---|---|---|
| **Dynamic Viscosity DIN EN ISO 3219** | | |
| dynamic viscosity (500 1/s; 23 °C) | [mPa.s] | 800 - 1400 |
| **Iodine Colour Number DIN 6162** | | |
| iodine colour number | | <= 15 |
| **Non-Volatile Matter DIN EN ISO 3251** | | |
| non-volatile matter (1 h; 125 °C; 2 g) | [%] | 58 - 62 |

**Not continually determined:**

| | | |
|---|---|---|
| **Dynamic Viscosity DIN EN ISO 3219** | | |
| dynamic viscosity (500 1/s; 25 °C) | [mPa.s] | 600 - 1100 |
| **Density (Liquids) DIN EN ISO 2811-2** | | |
| density approx. (20 °C) | [g/cm³] | 1,02 |
| **Flash Point DIN EN ISO 1523** | | |
| flash point approx. | [°C] | 23 |

## DILUTABILITY

| | | | |
|---|---|---|---|
| xylene | ⦿ | methoxypropyl acetate | ● |
| solvent naphtha 150/180 | ⦿ | methoxypropanol | ● |
| acetone | ● | ethanol | ○ |
| methyl ethyl ketone | ● | isopropanol | ○ |
| ethyl acetate | ● | isopropanol/xylene 1:1 | ● |
| butyl acetate | ● | butanol | ○ |

● = unlimited dilutability
⦿ = limited dilutability
◉ = substantial dilutability
○ = very limited or no dilutability

## COMPATIBILITY

| % Beckopox EM 460 | 90 | 75 | 50 | 25 | 10 |
|---|---|---|---|---|---|
| % other binder | 10 | 25 | 50 | 75 | 90 |
| **Phenolic resins** | | | | | |
| Alnovol PN 430 | ● | ● | ● | ● | ● |
| Phenodur PR 263 | ● | ● | ● | ● | ● |
| **Epoxy resins** | | | | | |
| Beckopox EP 116, Epoxy type 1, 7 | ● | ● | ● | ● | ● |
| **Other binders** | | | | | |
| Butvar B-98 | ● | ● | ● | ● | ● |

● = definite compatibility
○ = very limited or no compatibility

## SUGGESTED USES

Beckopox EM 460 is used preferably in combination with polyvinyl butyral (PVB) for the production of wash primers and finish coatings. The ratio of Beckopox EM 460 to PVB should be 1 : 3 to 2 : 1. Wash primers based on this binder combination can be produced both as one-pack and two-pack systems.

The solids content of primers based on polyvinyl butyral can be greatly increased by the use of Beckopox EM 460. It also improves adhesion and corrosion protection, especially in wash primers with chromate-free pigmentation. Primers based on the combination of Beckopox EM 460 with PVB cause no complications when overcoated with paints based on alkyd resins drying by oxidation, PVC mixed polymers, nitrocellulose and isocyanate-crosslinking acrylic resins. Even in the case of stoving enamels they cause no discolouration of the topcoat.
Two-pack epoxy paints should be tested from case to case.

**Weldable shop primers**

Beckopox EM 460 is also suitable for the manufacture of weldable shop primers. In this case the PVB component should predominate in the combination. The effect of these primers on pore formation in the weld is slight, as is the odour problem, since no formaldehyde is given off.

## PROCESSING

Beckopox EM 460 improves the wetting of pigments and fillers and should be added to the dispersing binder. Zinc phosphate pigments and/or zinc chromate are partly involved in the chemical reaction in the hardening of wash primers with phosphoric acid and affect adhesion and corrosion protection. In selecting other pigments and fillers, resistance to phosphoric acid should be taken into account.

**Acid catalysis**

Added phosphoric acid has an affect on the adhesion and corrosion-protection properties of primers. A distinction is made between one-pack and two-pack primers.

In one-pack primers the hardener is added to the primer immediately after it is manufactured. The proportion of phosphoric acid should be about 5 % relative to total binder. One-pack primers must always be supplied in containers made from or lined with material resistant to phosphoric acid.

In the case of two-pack primers the phosphoric acid is supplied in a separate container. It should be pre-diluted with solvents in such a way that after the two components have been mixed the quantity of phosphoric acid relative to solid resin does not exceed 5 - 10 %. After the hardener is added, the pot life of the two-pack primer decreases with increasing content of phosphoric acid.

## STORAGE

At temperatures up to 25 °C storage stability packed in original containers amounts to at least 365 days.

## DISTINGUISHING FEATURES

Beckopox EM 460 has been specially developed for the formulation of wash primers and shop primers. Compared with phenolic resols, which are also used for this purpose, Beckopox EM 460 has better adhesion and often better corrosion-protection properties and does not tend to cause discolouration even when overcoated with stoving enamels.