PHENODUR® PR 612/80B

Technical Datasheet

TYPE

Curable phenolic resin

FORM OF DELIVERY (f.o.d.)

80 % in butanol (80B)

USES

Heat-curable phenolic/epoxide resin combinations, high-adhesion, chemically resistant protective coatings for apparatus, vessels and pipelines. PHENODUR® PR 612 also for wire insulation varnishes.

PRODUCT DATA

Determined per batch:

Dynamic Viscosity (23°C) 60% B [mPa.s]	80 - 125	DIN 53177
Non-Volatile Matter (1 h; 135°C; 2 g; n-butanol) [%]	78 - 82	DIN EN ISO 3251
Iodine Colour Number [mg I / 100ml]	≤ 30	DIN 6162

PHYSICAL PROPERTIES

Density (20°C) [g/cm³]	1.05	DIN EN ISO 2811-2

DILUTABILITY

xylene	○	methoxypropyl acetate	●
white spirit	○	butyl acetate	●
methyl ethyl ketone	●	methoxypropanol	●
methyl isobutyl ketone	●	ethanol	●
ethyl acetate	●	butanol	●

● = unlimited dilutability ⊙ = limited dilutability

⊙ = substantial dilutability ○ = very limited or no dilutability

COMPATIBILITY

% other binder	10	25	50	75	90
% PHENODUR® PR 612	90	75	50	25	10
PHENODUR® PR 217, PR 285	●	●	●	●	●
PHENODUR® PR 612, PR 722	●	●	●	●	●
PHENODUR® PR 401	●	●	●	●	●
Polyvinylbutyral solution (PVB)	●	●	●	●	●

● = definite compatibility ○ = very limited or no compatibility

PROPERTIES AND USES

PHENODUR® PR 612 is preferably used as curing resin in combination with high molecular weight epoxide resins to formulate interior can coating systems. PHENODUR® PR 612 is additionally used in electro-insulation varnishes and magnetic wire enamels.

Can coating

After being stoved, combinations of 30 - 45% PHENODUR® PR 612 and 70 - 55% BECKOPOX EP 307 or EP 309 (based on solids in each case) yield highly flexible films with good adhesion and chemical resistance for the interior coating of cans, tubes and other packaging containers used in the food and luxury commodity industries.

The addition of acid catalysts, e. g. up to 6% CYCAT® XK 406 (based on solid resin) increases the reactivity of the lacquers and the adhesion (especially on aluminium) of the stoved films, as well as their hardness and resistance to sulphur compounds. The gold colouring can be intensified by adding 5 - 10% PHENODUR® PR 308 (based on solids content).

Chemically resistant protective coatings

PHENODUR® PR 612 can be used as sole binder for relatively brittle, highly resistant pigmented stoving enamels on rigid substrates, e. g. for chemically resistant interior linings for vessels, apparatus and pipelines. Polyvinyl butyral grades in additions of only 5 - 25%, improve the film flexibility without impairing the resistance of the protective coatings to chemicals. In the case of multiple-coat paint applications as required for protective coatings of this type, the first coats are not fully cured initially, but only cured completely together with the last coat.

Wire coatings, electroinsulation varnishes

PHENODUR® PR 612 can be used as binder in such coatings, specially in combinations with (poly) vinyl formal resins. The mixing ratio between PHENODUR® PR 612 and the (poly) vinyl formal resin is approx. 40 : 60, the "solvent" mixture contains phenol/cresol and alcohol. Such lacquers can be used as wire coating systems and applied by a multi layer process and cured between 300 and 350°C.

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PROCESSING

Glycol ether, ester, diacetone alcohol and ketones are suitable solvents/diluents for PHENODUR® PR 612. This resin can be pigmented with inert pigments and fillers like titanium dioxide, iron oxide red talk and spars. Pigmented systems are preferably used in acid and alkaline resistant systems.

Stoving conditions

Depending on the form of use and required coating thickness, the stoving conditions are between 30 and 10 minutes at 180 - 220°C. The upper temperature limit where overstoving begins to occur and flexibility accordingly starts to decline is 220°C For thin films such as can coatings, conditions of 10 - 15 min/190 - 200°C are adequate, or 90 s/265°C (shock-drying). Good resistance to chemicals is obtained as from 190°C.

Catalysis

The addition of acidic catalysts increases the reactivity and the film hardness. At the same time, this catalysis improves the adhesion on aluminium and tinplate.

STORAGE

At temperatures up to 25°C storage stability packed in original containers amounts standard to 730 days. The expiration date may be extended and COA updated after QC testing of retained samples, only for material in allnex possession.

DISTINGUISHING FEATURES

PHENODUR® PR 612 is less reactive than the PHENODUR® grades PR 217, PR 285, PR 401, PR 515, VPR 1775 and VPR 1776. PHENODUR® PR 612 is lower viscous compared to the PHENODUR® grades PR 217, PR 285, PR 373, PR 722 and PR 723.

U.S. Environmental Protection Agency restrictions and requirements

The importation, processing or use of this product in the United States of America is subject to a Significant New Use Rule (SNUR) issued by the U.S. Environmental Protection Agency (US EPA). Among other conditions, the SNUR prohibits the predictable or purposeful release of the product to waters of the U.S. from manufacturing, processing or uses and imposes certain notice and recordkeeping requirements. Please see 40 CFR 721.5905 [or 40 CFR 721.5908 as applicable] for further information. This product may also be subject to export notification under TSCA Sec. 12(b).

SAFETY AND HANDLING

Please consult the Safety Data Sheet (SDS) for safety, health, and environmental data available from allnex.

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