

NBDA

Bicyclo[2.2.1]heptanebis(methylamine), cas 56602-77-8

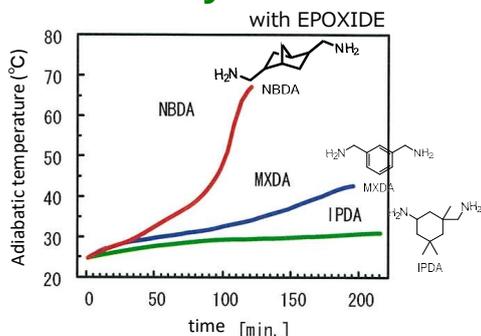


Workability

Following evaluations are not guaranteed exactly

- **safety**: NOT VOC compound (Low vapor pressure <1Pa @ 20°C, non-GLP)
- **handling**: EASY by both low viscosity 20mPa·s @ 20°C and low solid point <10°C

Reactivity



Epoxide: jER828 (Mitsubishi Chemical Holdings)
 Reaction ratio (Amino group/Epoxy group: 1.0 (mole ratio) as 100g

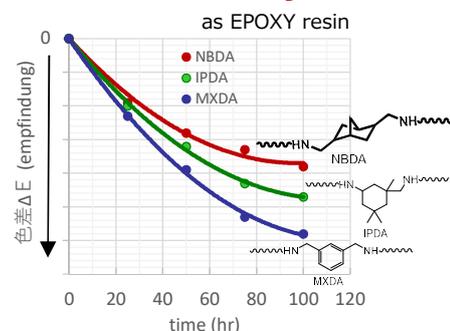
Chemical resistance

NBDA as EPOXY resin

CHEMICALS	IMMERSION test
Water	◎ NO change
10%-NaOH (aq)	◎ NO change
5%-HCl (aq)	◎ NO change
5%-NaCl (aq)	◎ NO change

test condition: A week at room temperature
 Epoxide: jER828 (Mitsubishi Chemical Holdings)
 Reaction ratio (Amino group of NBDA/Epoxy group: 1.0 (mole ratio), cured by 80°C×2hrs and 120°C×2hrs.

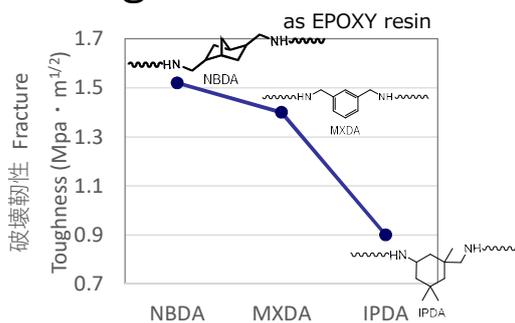
Weatherability



test condition: UV-irradiation 8hrs and showering 4hrs were repeated
 Epoxide: jER828 (Mitsubishi Chemical Holdings)
 Reaction ratio (Amino group/Epoxy group: 1.0 (mole ratio), cured by 80°C×2hrs and 120°C×2hrs.

Toughness

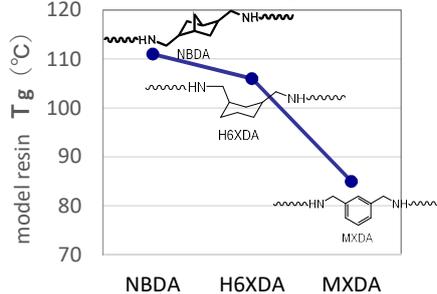
ASTM D5045-91



Epoxide: jER828 (Mitsubishi Chemical Holdings)
 Reaction ratio (Amino group/Epoxy group: 1.0 (mole ratio), cured by 80°C×2hrs and 120°C×2hrs.

Thermal resistance

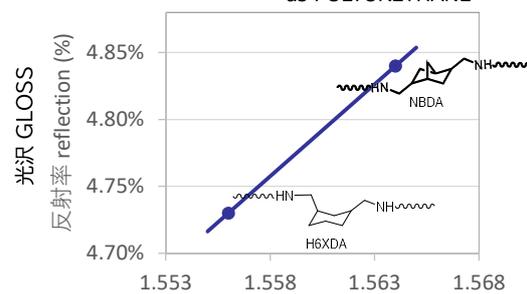
as PLYURETHANE



Model resin having URETHANE bond

Gloss (reflection)

as POLYURETHANE



片面反射率 REFLECTION one-side = $\{(n_0 - n_1) / (n_0 + n_1)\}^2 \times 100$ (%)

Guiding applications

Concrete repair



Workability
 Reactivity
 Toughness

Plant coating



Reactivity
 Chemical resistance
 Weatherability

Anti-corrosion



Reactivity
 Chemical resistance
 Weatherability

Wind power generation



Workability
 Reactivity
 Toughness

Fiber Reinforced Plastic

Form Urethane/Urea



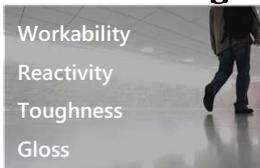
Workability
 Reactivity

Sealant



Workability
 Reactivity
 Chemical resistance

Floor-coating



Workability
 Reactivity
 Toughness
 Gloss

Ship inner face coating



Workability
 Reactivity
 Chemical resistance
 Weatherability

Electron board



Thermal resistance
 Toughness
 Low dielectric constant

CCL(Copper Clad Laminate)