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**Type** Water dispersible low temperature curing blocked polyisocyanate

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## Features

- # Water dispersible
  - # Low temperature curing (90°C ( × 30minutes ) )
  - # Short time curing (120°C ( × 5minutes))
  - # Good storage stability in waterborne coating application
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## Applications

- Waterborne one-component applications
  - # Automotive OEM (waterborne primer, base) coatings
  - # Plastic coatings
  - # Adhesive
  - # Coil coatings
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## Typical properties

Appearance	Colorless to slightly yellowish clear liquid
Non-volatile	70 wt%
Solvent	Dipropylene glycol dimethyl ether
Blocked NCO content	5.3wt% (as such)
Viscosity	2100 mPa · s at 25°C
Color value	< 1 (Gardner)
NCO equivalent weight	Approx. 700
Flash point	59.6°C
Density at 20°C	1.06

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These values provide general information and are not part of the product specifications.  
WM44-L70G must be used solely for research and development.

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## Storage

DURANATE™ WM44-L70G should always be stored in sealed containers.

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**●Directions**

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**1. As main hardener**

- Recommended baking condition
  - I .Low temperature condition (90°C×30min、 120°C×5min. etc. )
  - II .Short time condition (20sec.×200°C、 2min.×150°C etc. )
- Recommended formulation NCO/OH=0.3~1.0 (mol ratio)  
(optical NCO/OH ratio depends on polyol)

**2. As auxiliary hardener**

- Main hardener: melamine, other BI etc.)
- Expected effect :
  - I . Improvement of adhesive strength, water resistance,  
solvent resistance, Appearance of film etc.
  - II . To minimize (lower temperature or shorter time) baking condition
- Recommended baking condition (90~120°C×30min etc.)
- Recommended ratio main hardener / X3249=50/50 ~ 80/20

## ● Evaluation results of waterborne 1K-PU coating

### 1. Curability

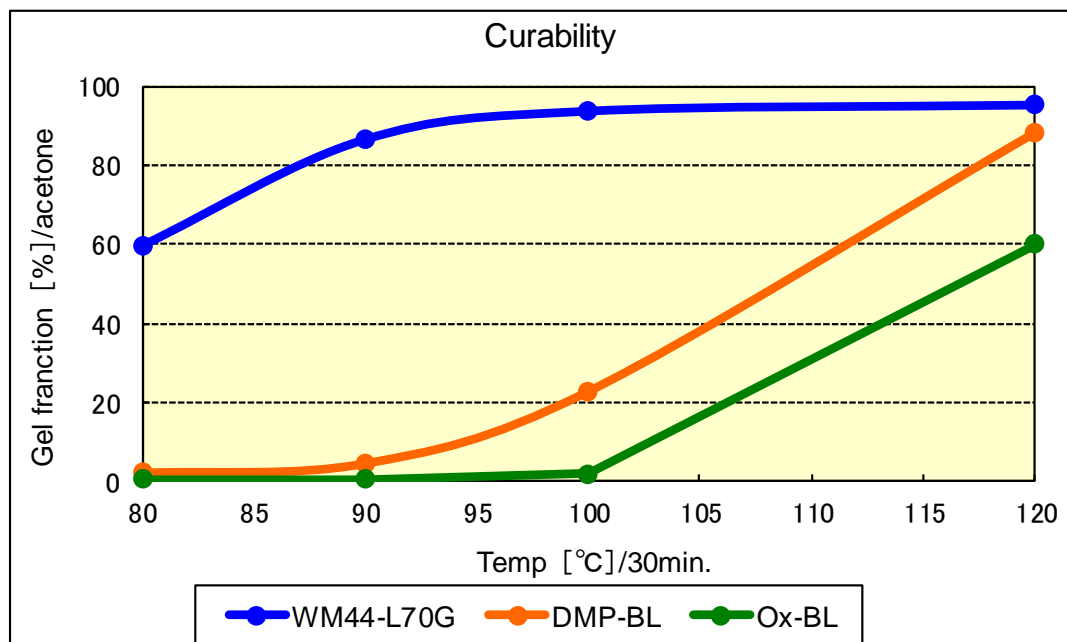
#### ① Low temperature curing condition

Formulation & Film :

- Polyol; Acrylic Polyol(primary dispersion type), , N.V.;42% , OHV:40mgKOH/g(on resin), AV:13mgKOH/g(on resin), Mn:100,000
- counteragent; Dimethylethanolamine(DMEA)
- BI; WM44-L70G,  
as comparison  
DMP-BL(blocking agent; 3,5-dimethylpyrazol, PI: same as WM44-L70G),  
Ox-BL(blocking agent; methyl ethyl ketone oxime, PI: same as WM44-L70G)
- pH; 8.6
- NCO/OH=0.3
- No Catalyst
- Paint N.V.;38%
- Mixing ; 1000rpm/5min. (Labo-agitator with dispersion blade)
- Dry film thickness; 40  $\mu$  m

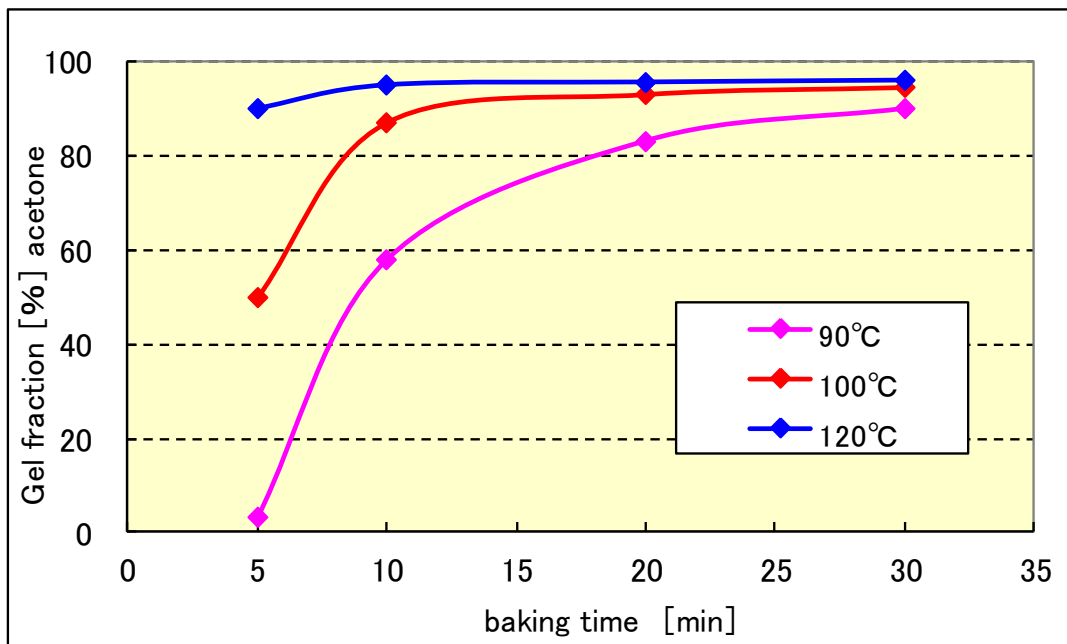
Method:

- Gel fraction; Ratio of the insoluble film weight in acetone before and after 24Hr at 23°C

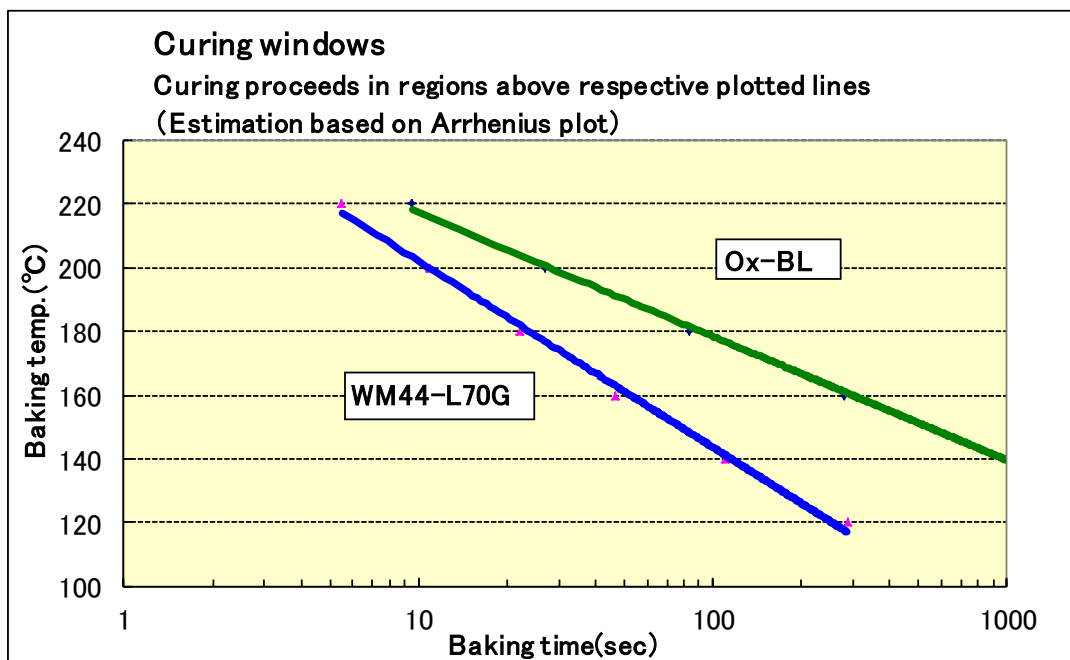


**WM44-L70G shows excellent low temperature curability compared with DBP-BL and Ox-BL.**

② Short time curing condition I



③ Short time curing condition II



WM44-L70G shows excellent curability at short time curing condition, too.

## 2. Storage stability

### Formulation & Film :

- Polyol; Acrylic Polyol(primary dispersion type), , N.V.;42% , OHV:40mgKOH/g(on resin),  
AV:13mgKOH/g(on resin), Mn:100,000)
- counteragent; ①Dimethylethanolamine(DMEA)  
②N-ethylmorpholine
- BI; WM44-L70G,  
as reference  
past trial sample( blocking agent; different type, PI; same as WM44-L70G)
- pH; 8.6
- NCO/OH=0.3
- No Catalyst
- Paint N.V.;38%
- Mixing ; 1000rpm/5min. (Labo-agitator with dispersion blade)
- Dry film thickness; 40  $\mu$  m

Storage condition; 40°C for 10 days

### Method:

- Curability(before & after storage 40°C for 10days)  
By measurement of Gel fraction; Ratio of the insoluble film weight in acetone before  
and after 24Hr at 23°C
- Gassing under storage
- pH degradation under storage

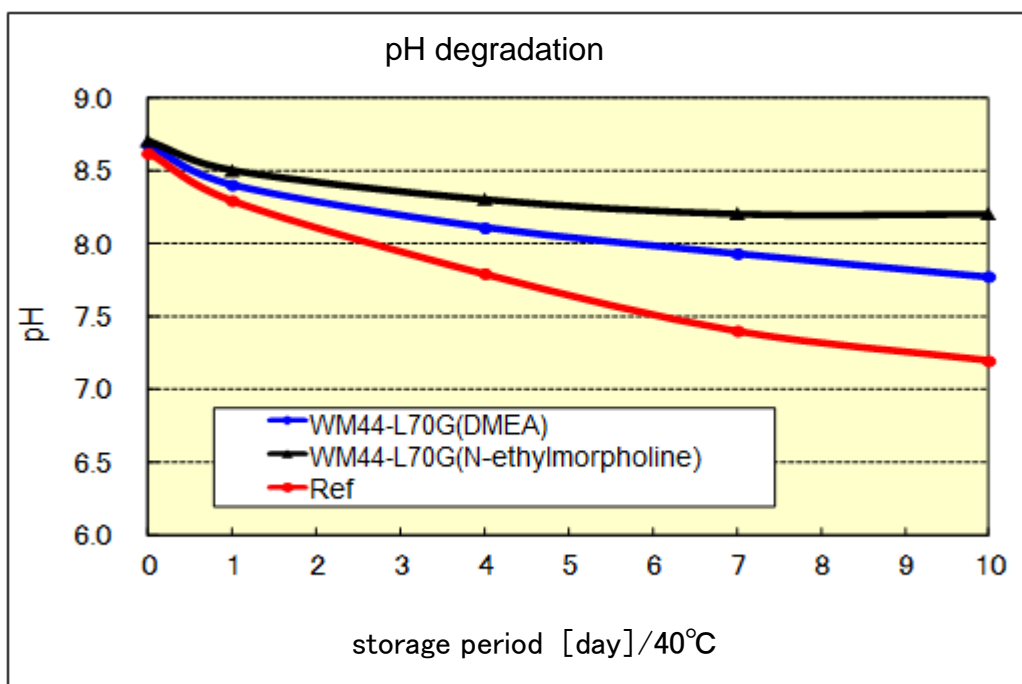
### ① Curability before & after storage

Gel fraction (before & after storage 40°C/10days)

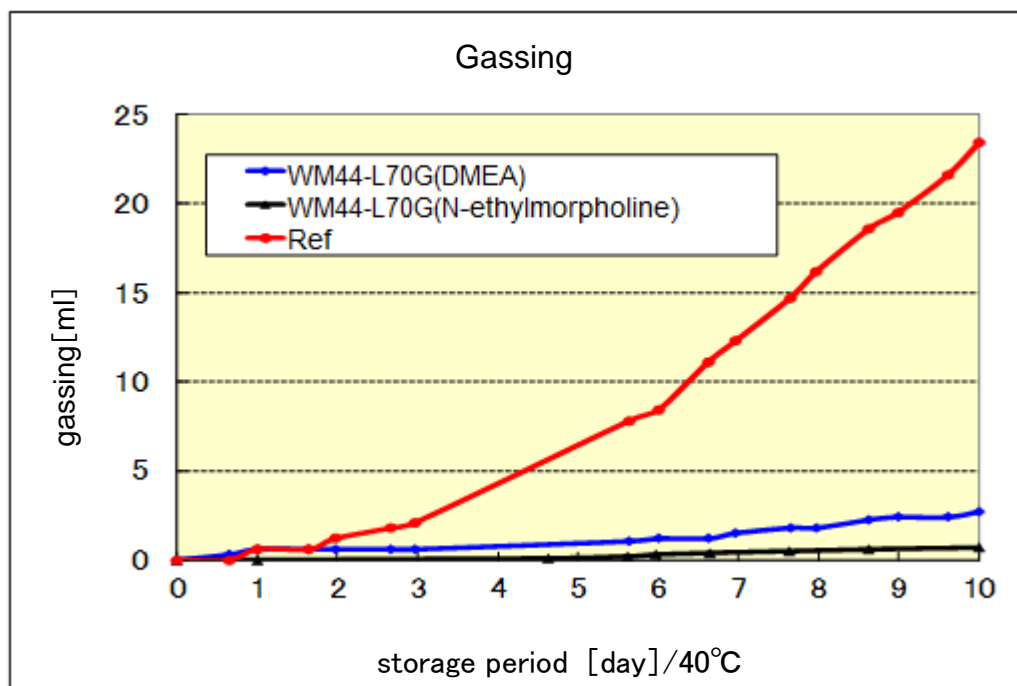
	90°C for 30 min.		120°C for 30 min.	
	Before	After	Before	After
WM44-L70G	89	84	95	93
Ref	92	75	96	88

**WM44-L70G keeps excellent curability after storage.**

③ pH degradation under storage



② Gassing under storage



WM44-L70G shows good storage stability.

Furthermore, WM44-L70G shows excellent storage stability at improved formulation.

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