

Aliphatic polyurethane elastomer with reactive hydroxyl groups

Applications

Plastic coatings:
- clear and pigmented coatings
Automotive:

- primers and metallic base coats for plastic substrates

Principal properties

- Flexibility
- Adhesion

Uraflex EU221 M1 is an aliphatic polyurethane elastomer with reactive hydroxyl groups, which in combination with polyisocyanate resins, e.g. Tolonate HDB¹⁰⁾ or Desmodur N⁶⁾, provide flexible coating systems with good adhesion to many plastic substrates.

Dilutability

Xylene	complete
Solvesso 100 ¹⁾	complete
1-Methoxy 2-propyl acetate	complete
Ethyl acetate	complete
n-Butyl acetate	complete
Methyl ethyl ketone	complete
Methyl isobutyl ketone	complete

Compatibility

Vynilite VAGH, VAGD, VYES ²⁾	limited
Vynilite VROH, VMCM ²⁾	incompatible
CAB 531-1, 551-0.01, 551-0.2 ³⁾	incompatible
Nitro cellulose H9, H28 ⁴⁾	limited
Nitro cellulose E330 ⁴⁾	complete
Desmodur N 75 ⁵⁾	complete
Tolonate HDB 75 ⁶⁾	complete
Uraflex EU222 M-1	complete
Laropal A81 ⁷⁾	complete

- 1) Exxon Chemicals
- 2) Union Carbide
- 3) Eastman Chemical Compagny
- 4) Wolff Walsrode AG
- 5) Bayer AG
- 6) Rhodia
- 7) BASF AG

Delivery form

51% in n-butyl acetate/ N-methyl-2-pyrrolidone = 90/10

Product specifications

Property	Range	Unit	TM
Viscosity, 23°C	4 - 6	Pa.s	2013
Colour, APHA	0 - 1	-	2017
Solids content	50 - 52	%	2026B
Appearance	clear	-	2265
Amine number	0.0 - 0.2	mg KOH/g	3001

Other product data

Property	Value	Unit	TM
Density, 23°C	appr. 980	kg/m ³	2160
Flash point	appr. 28	°C	2800

Recommendations for formulation and use

Clear films of Uraflex EU221 M1 give after crosslinking with 9% Desmodur N¹⁾ (solid/solid) very flexible and soft films (25 sec. König hardness at 30 micron film thickness). Uraflex EU221 M1 can be combined with Uraflex EU222 M-1 to improve the hardness. The mechanical properties of the 60/40 to 80/20 (Uraflex EU222 M-1/EU221 M1) combinations resemble those of Uraflex EU220 M1. Pigmentation is preferably done straight into the Uraflex with the usual equipment and paint additives. Drying at elevated temperatures, e.g. 30 min. 80°C is recommended.

Storage guidelines

The resin should be stored indoors in the original, unopened and undamaged containers in a dry place at storage temperatures between 5°C and 30°C. Exposure to direct sunlight should be avoided.

Shelf life

Under the above mentioned storage conditions the shelf life of the resin will be 6 months ex works. The viscosity of this type of resin could change during storage. It is for this reason recommended to check the viscosity before use.

Material safety

A material safety data sheet of the products is available on request.

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Test methods

Test methods (TM) referred to in the tables are available on request.

Remark

Uraflex resins are high molecular weight polymers with a limited solubility. This limited solubility could result in partial separation of the resin during storage especially at low temperatures. This separation is a reversible process and the resin can be homogenised easily by mixing at slightly elevated temperatures.

**Typical starting formulation for:
Grey primer for plastics (PU 221-1)**

Component	Weight
Uraflex EU221 M1	69.0
n-Butyl acetate	156.0
Blancfixe micro	144.0
Kronos 2065	144.0
Micro-Talc AT1	53.0
Flammruss 101	1.0
Anti Terra U	4.0
Disperse in a ball mill and let down with	
Uraflex EU221 M1	335.0
n-Butyl acetate	94.0
	1000.0

Remarks

Crosslink with Desmodur N75 ⁶⁾ 26.30

Thinner (ratio) :

n-Butyl acetate 70
Diacetone alcohol 30

Paint properties

Property	Value	Unit	TM
Viscosity DIN cup 4, spray 23°C	appr. 18	sec.	-
Viscosity DIN cup 4, 23°C	appr. 120	sec.	-
Solids content, at spray	appr. 40	%	-
Solids content,	appr. 55	%	-

1) Sachtleben Chemie GmbH

2) Kronos Titan GmbH

3) A/S Norwegian Talc

4) Degussa

5) Byk Chemie

6) Bayer AG

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