



## TECHNICAL DATA SHEET

### UREFREE 6681 E

Saturated Carboxylated Polyester Resin

SYNTHESE (THAILAND) CO.,LTD.  
CHARN ISSARA TOWER II, 16th Floor,  
2922/228-229 New Petchburi Road,  
Huay Kwang, Bangkok 10310, Thailand  
Tel : (66) 0-2308-7200  
Fax : (66) 0-2308-7260

#### Technical Features :

- Good flow.
- General purpose.
- Good mechanical properties.
- Can be used for structure finish.

#### Applications :

- Material office furniture
- Appliances

#### Composition (Solids) :

TMA

#### Product Specifications :

Item	Limits	Unit	Test method
Appearance	Pale granules	-	Visual
Acid value	40 - 50	mg.KOH/g.	ASTM D-1639
REL Viscosity at 200 °C	3,000 - 5,000	mPa.s	ICI-DIN 53229
Brookfield Viscosity at 165 °C	300 - 500	Poises, P	ICI-DIN 53229
Colour (50% in DMF)	max. 3	Gardner	ASTM D-1544

#### Other Properties :

Item	Typical value	Unit	Test method
Glass transition temperature (T <sub>g</sub> )	Approx. 62 **	°C	DSC

\*\* Heating rate for heating experiments : 20 C/min

**Form of Supply** : Granules. White opaque polyethylene (PE) bags of 25 Kg. One ton pallet shrink - wrapped.

**Storage Conditions** : The resin should be stored in the original and unopened bags in a dry and well ventilated place at storage temperatures below 30 °C. Exposure to direct sunlight should be avoided. Do not stack more than two pallets high.

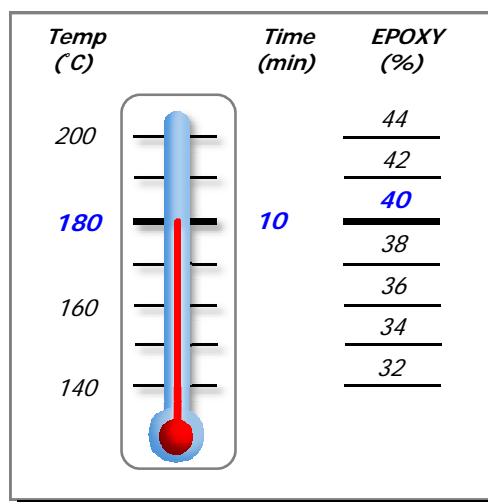
**Shelf Life** : Under the above mentioned storage conditions the shelf life of the resin is 1 (one) year ex works. For the resin that exceeds the shelf-life of 1 (one) year should be tested on acid value and viscosity prior to its use.

#### Curing Type :

**HYBRID**

**Ratio 60/40**

#### Curing Information :





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**Starting Formulation :**

## ■ Glossy, white powder coating

UREFREE 6681 E	395
Epoxy resin <sup>(1)</sup>	263
Titanium dioxide, TiO <sub>2</sub> <sup>(2)</sup>	329
Flow control agent <sup>(3)</sup>	10
Benzoin	3
<b>Total weight</b>	<b>1000</b>

(1) Araldite GT-7004 (Huntsman) / D.E.R. 663U (Dow Chemical)

(2) TIONA 696 (CRISTAL) / KRONOS 2160

(3) BYK-368 P (BYK-Chemie) / MODAFLOW RESIN (Allnex) /  
Resiflow PV5 (Worlée) / Acronal 4 F (BASF)

**Application Properties of Starting Formulation:**

Film thickness	: 60 - 80 micron	ASTM D1400
Gloss at 60°	: Over 90%	ASTM D-523-60E
Conical mandrel	: 100%	ASTM D-522
Adhesion	: Gt = 0	DIN 53151
Direct impact	: Over 80 Kg.cm.	ASTM D-2794
Reverse impact	: Over 80 Kg.cm.	ASTM D-2794

**Enquiries / Contact Details**

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**Extrusion / Application Conditions :**

## ■ Extrusion

Extruder	: Co-rotating twin-screw
Extrusion temperature	: 70 / 90 / 90 °C <sup>(4)</sup>
Torque	: 80 - 90 %
Speed	: 200 rpm

## ■ Application

Spray gun / Voltage	: GEMA PG 1-C / 30 - 60 kV
Test substrate	: Degreased steel 0.8 mm.
Cure schedule	: 10 min @ 180 °C <sup>(5)</sup>

(4) Barrel zone temperatures : 1<sup>st</sup> Zone / 2<sup>nd</sup> Zone / 3<sup>rd</sup> Zone

(5) Metal temperature

**Health, Safety and Environmental :**

Refer to the safety data sheet (SDS) for more information.

**SDS and Test Methods :**

Documentation is available on request.

This product is intended for sale to industrial and commercial customers. Product users must inspect and test before use, to satisfy themselves as to contents and suitability. Products are warranted to meet our written specifications. Nothing herein shall constitute any other warranty express or implied, including any warranty of merchantability or fitness. The exclusive remedy for all proven claims is replacement of our materials and in no event shall we be liable for special, incidental, or consequential damages.