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### 1. Pre-drying

Drying Conditions:	(temperature)	40 to 60°C
	(time)	≥ 6 hr

Pre-drying is required for good molding. Absorbed or surface moisture can cause pore and/or weld line.

### 2. Mold Temperature

20 to 40°C

### 3. Melt Temperature

Feed zone:	110°C
Compression zone:	140°C
Metering zone:	170°C
Nozzle:	180°C



## 4. De-waxing

The schedule listed below is an example and subject to change due to mold structure as well as size and shape of the product.

### 4.1 In air

R.T.	-	150°C	1 hr
150°C			0.5 hr keep
150°C	-	400°C	25 hr
400°C	-	450°C	1 hr
450°C			2 hr keep
450°C	-	R.T.	3 hr

## 5. Sintering

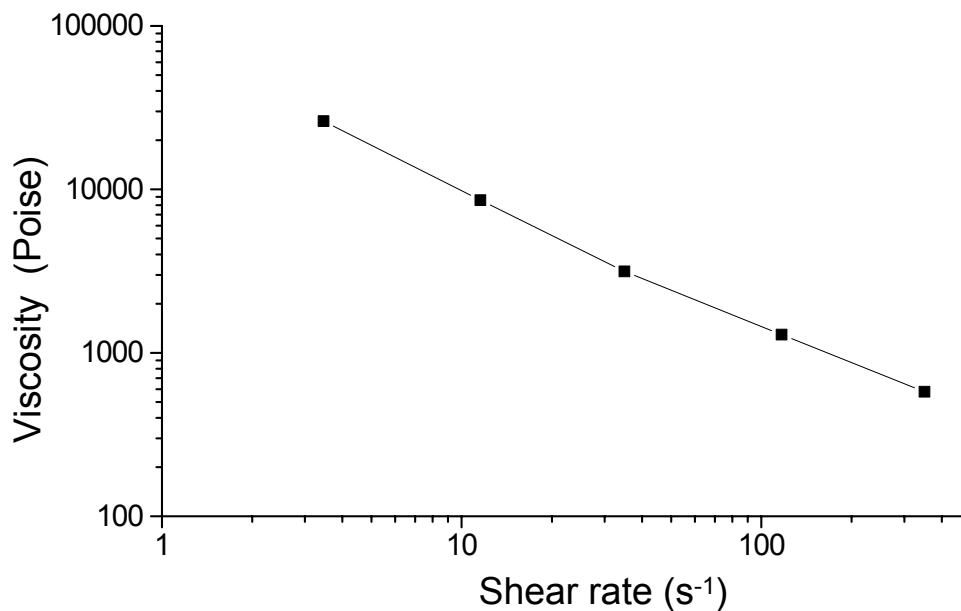
This schedule is an example:

R.T.	-	800°C	8 hr
800°C			1 hr keep
800°C	-	1000°C	2 hr
1000°C	-	1350°C	7 hr
1350°C			2 hr keep
1350°C	-	R.T.	natural cooling



## 6. Thermal Properties

### 6.1 Viscoelasticity

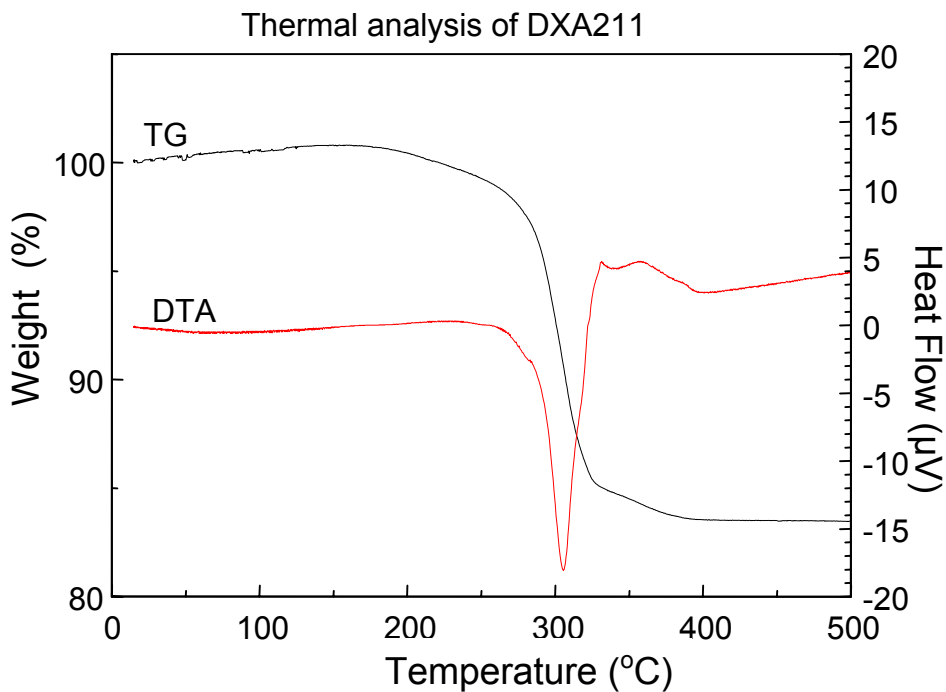


Equipment: Capirograph

Test condition:

I.D. of capillary : 1.3 mm  
Length of capillary : 25.5 mm  
L/D of die : 20  
Piston size : 9.5 mm  
Temperature : 180°C

## 6.2 Thermal Decomposition



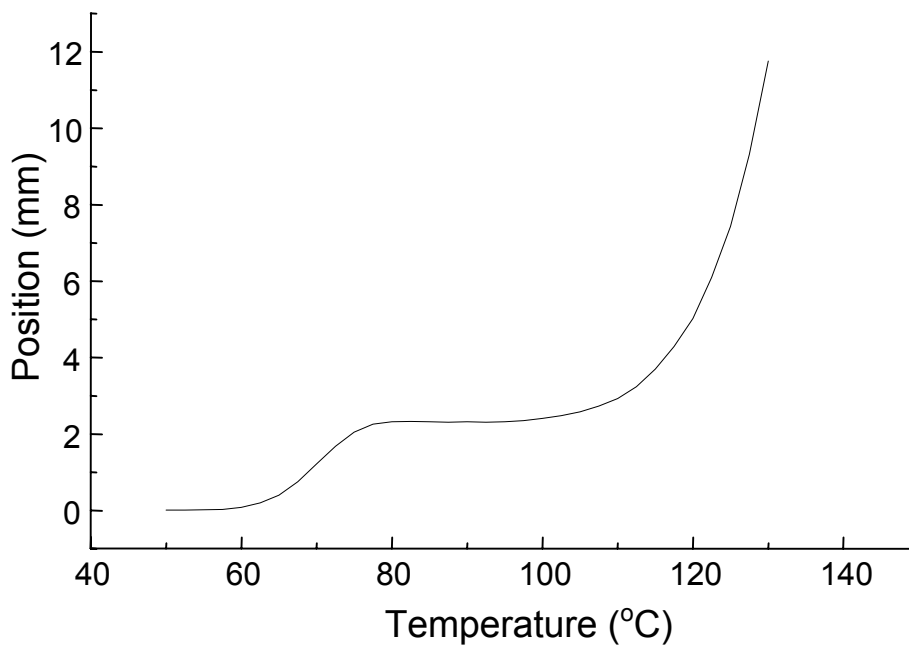
Equipment: Thermobalance

Test condition:

Atmosphere : air  
Heating rate : 1°C/min



### 6.3 Softening Temperature and Beginning Flow Temperature



Softening temp. (°C)	78
Beginning flow temp. (°C)	97

Equipment: Flowtester

Test condition:

Cylinder pressure : 4.903MPa  
L/D of die : 2.0  
Heating rate : 5°C/min

### 6.4 Specific Heat and Thermal Conductivity

Specific Heat	0.67 J • g <sup>-1</sup> • K <sup>-1</sup>
Thermal Conductivity	0.71 W • m <sup>-1</sup> • K <sup>-1</sup>

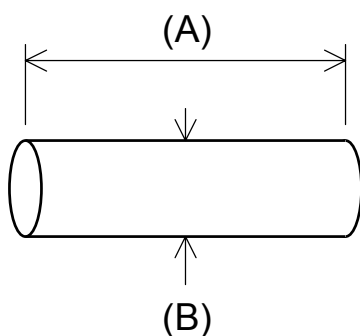
Method: Laserflash

Test Condition:

Temperature : room temperature

### 7. Shrinkage

Following are typical shrinkage values from the mold size to the sintered body size. Mold structure and molding conditions (ie molding pressure) can influence this value.



(A) Length	75.0% (74.5 - 75.3)
(B) Diameter at center	74.2% (73.9 - 74.5)



## 8. Safety Notice

This product contains approximately 50% (by volume) of an organic binder. As with most organic materials, this binder may produce oxides of carbon upon thermal decomposition. These gases may be produced at temperatures of 40°C and above. Customers should take appropriate precautions to avoid exposure to these gases.

In addition to a general (mechanical) ventilation system, customers should consider the installation of specific exhaust systems in the vicinity of pre-drying, molding, de-waxing and sintering areas. Also, similar systems should be considered in the area(s) where the molded material is recycled.

Consideration should be given to the use of appropriate respiratory protection (including the use of respirators containing organic vapor cartridges). Any release of these decomposition gases to the atmosphere should be in conformance with any and all Federal, state and local environmental regulations.