

**Multilon<sup>®</sup>**

*Non-Halogenated FR PC/ABS*

***TN-7000 Series***

Teijin Chemicals Ltd.  
Teijin Kasei America, Inc.

**Multilon<sup>®</sup>** *logen Type PC/ABS*

## ***TN-7000 Series***

### ***1. Introduction***

The Multilon TN-7000 Series is Teijin Chemical's lineup of non-halogenated flame retardant PC /ABS grades. It was designed for use in molding Office Appliance housings, given its exceptional features such as flowability, light stability and heat stability. Furthermore, its outstanding hydrolysis resistance prolongs the product quality and provides options for product re-cycling. Moreover, compared to the conventional versions of non-halogenated grades, the TN-7000 Series reveals very low gas emission, which shall reduce mold residue and the frequency of maintenance.

TN-7000 series is comprised by the following types:

- Standard Type TN-7000

Outstanding heat resistance, flowability.

- High Flow Type TN-7500

It is suitable for OA housing, given its exceptional flowability.

- High Rigidity Type TN-7000F

It is suitable for ultra-thin wall housing products, given its high rigidity.

## 2. Physical Properties

Category	Unit	Test Method	Condition	TN-7000 (general)	TN-7500 (high flowability)	TN-7000F (high rigidity)
Density	kg/cm <sup>3</sup>	ISO 1183	—	1,180	1,180	1,220
Tensile stress at yield	MPa	ISO 527-1 And ISO 527-2	—	63	63	63
Tensile stress at break	MPa		—	48	47	46
Tensile strain at yield	%		—	80	50	20
Flexural strength	MPa	ISO 178	—	95	95	96
Flexural modulus	MPa		—	2,600	2,600	3,200
CHARPY impact strength	kJ/m <sup>2</sup>	ISO 179	Unnotched	NB	NB	NB
			Notched	15	13	12
Heat deflection temperature	° C	ISO 75-1 and ISO 75-2	1.80MPa	84	80	84
			0.45MPa	94	91	94
Mold shrinkage	%	In house method	Parallel (4mmt)	0.50~0.70	0.50~0.70	0.45~0.65
			Across (4mmt)	0.50~0.70	0.50~0.70	0.45~0.65
Coefficient of liner expansion	×10 <sup>-4</sup> /° C	ISO 11359-2	Parallel	0.80	0.80	0.60
			Across	0.80	0.80	0.70
Flameability	—	UL94	—	1.5mm V-0 2.0mm 5VB	1.5mm V-0 2.0mm 5VB	1.2mm V-0 1.8mm 5VB

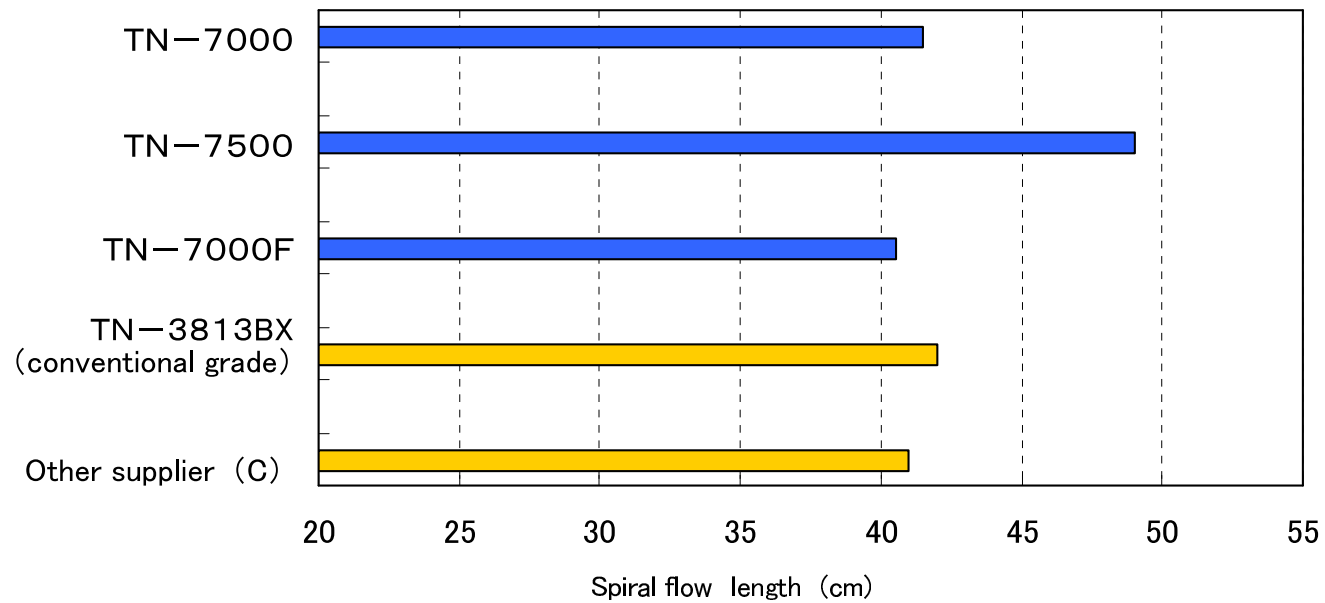
The figures given above are representative, but are not guarantees of individual results.

### 3. Flowability

TN-7000 Series has outstanding flowability.

#### Value of spiral flow

Molding machine : Sumitomo SG 150U  
Injection pressure : 98.1MPa  
Cylinder temperature : 260° C  
Mold temperature : 70° C  
Flow path thickness : 2mm

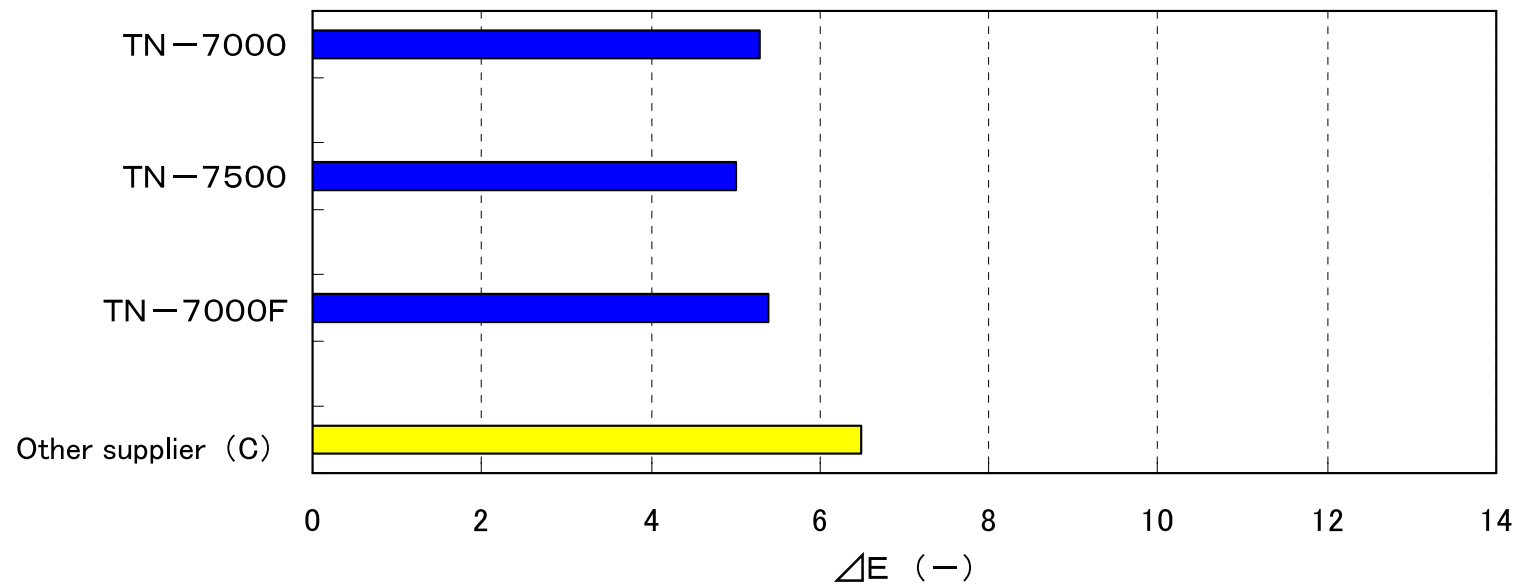


## 4. Light Resistance

TN-7000 Series has outstanding light resistance.

### Test condition

Light source : Xenon lamp  
Luminous Intensity :  $90\text{W/m}^2$   
Test time : 300h  
Color : Light gray



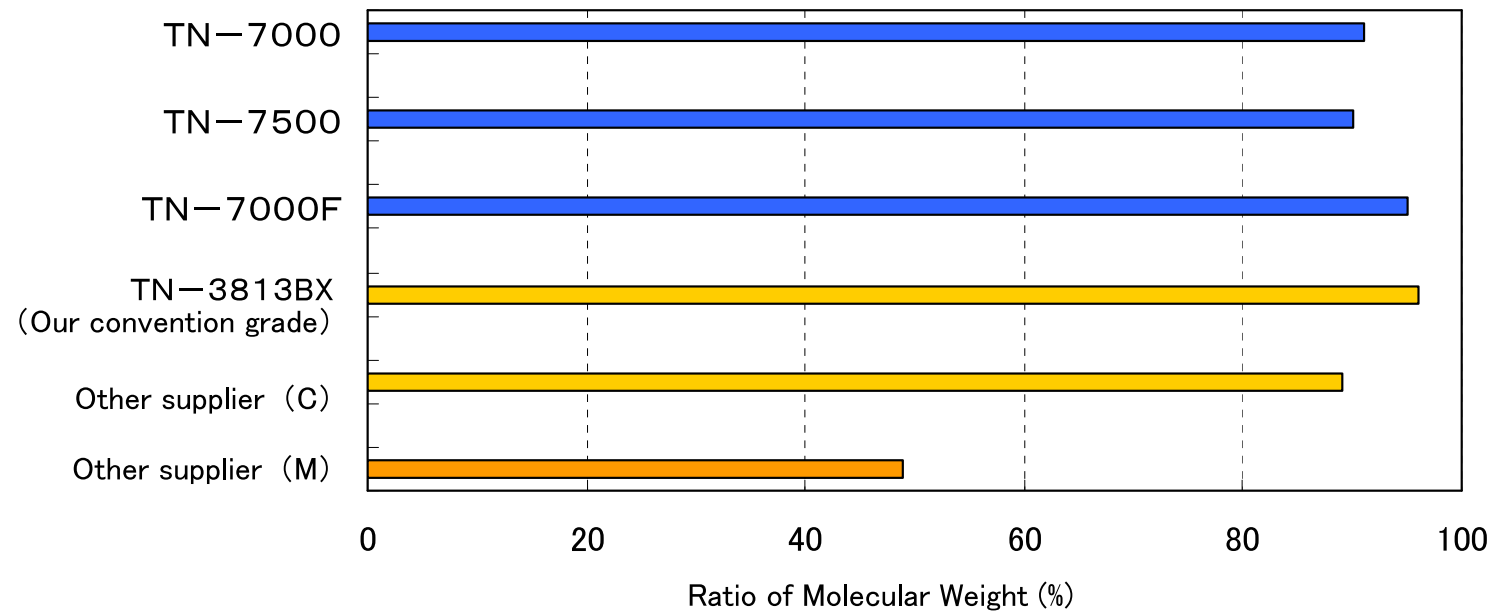
## 5. Moisture Resistance

TN-7000 Series have outstanding on moisture resistance.

### Test Method via Pressure Cooker

Test machine : Pressure Cooker (Highly Accelerated Stress Test System)

Condition : 120° C×Moisture 100%R.H.×24h



## 6. Injection Molding

### 1. Predrying and Injection Molding

It is recommended that the shot capacity of the injection molding machine be about 1.5-3 times the weight of the molded product.

It is also recommended that molding be performed according to the molding conditions as described in the table below.

Molding conditions of Multilon<sup>®</sup> TN-7000, TN-7500 and TN-7000F

Items	Unit	TN-7000 (General)	TN-7500 (High flowability)	TN-7000F (High rigidity)
Molding Temp.	° C	230 ~ 270	230 ~ 270	230 ~ 270
Mold Temp	° C	50 ~ 70	50 ~ 60	50 ~ 70
Injection Pressure	MPa (kgf/cm <sup>2</sup> )	59 ~ 147 (600 ~ 1,500)	59 ~ 147 (600 ~ 1,500)	59 ~ 147 (600 ~ 1,500)
Predrying Temp.	° C	80 ~ 85	80 ~ 85	80 ~ 85
Predrying Time	h	5 ~ 8	5 ~ 8	5 ~ 8

## 2. 金型の保守・管理

### ① 金型デポジット(汚れ)発生時の洗浄方法

TN-7000シリーズは低ガスタイプのグレードですが、ロングラン成形時、金型表面にデポジット(汚れ)が発生した場合、洗浄剤を使用して金型を洗浄してください。

(推奨洗浄剤)

- スミモールドクリーナー(住鋤潤滑)
- スミモールドDR(住鋤潤滑)
- ミクロチェック洗浄剤(日本工材化学)

### ② 金型の定期洗浄

定期的に以下の洗浄をおすすめいたします。なお、頻度は成形条件や金型構造によりますので適宜調整してください。

定期的金型洗浄: 金型を分解し、キャビティ部分はアセトン等で脱脂する。

### ③ 金型の長期保存

金型を長期保存する場合は、溶剤(アセトン等)で金型内、各種ピン類を拭いた上、防錆剤を十分塗布して下さい。



## CAUTION

- ❑ The figures listed in this technical information are typical values obtained under standard test methods, and may not be applicable for products that are used under different application condition.
- ❑ The combustion figures listed in this technical information are from small-scale test and may not be applicable for hazards during a major fire.
- ❑ Please refer to us for an advice regarding the application conditions for medical equipment, food service applications, and toys.
- ❑ When any kind of additives (such as anti-bacterial agents, stabilizers and flame retardants) or coloring agents are to be added to this resin, please be sure to consult with Teijin Chemicals Ltd., in advance.
- ❑ However, even after consultation, Teijin Chemicals Ltd. will not guarantee nor bear responsibility in any form for the usage of such additives.
- ❑ Please carefully consider all potential industrial property rights when considering applications introduced this technical information.
- ❑ The contents of this technical information may be changed without prior notice.
- ❑ Please refer to the Material Safety Data Sheets (MSDS) before use for other warning in detail.