

**“TOYOLAC”**  
**Chemical Resistant Flame Retardant Grade**  
**AX84 X01**

**Technical Guide**

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## I. Typical Property

CHEMICAL RESISTANT 耐药型				
Property 代表物性	Test Method 试验法	Test Condition 试验条件	Units 单位	Chemical Resistant, Flame Retardant 耐药型阻燃
			Type 型号	AX84
			Suffix 区分字符	X01
ISO STANDARD				
Melt Flow Rate 流动系数	ISO 1133	220°C / 10 kg	g/10min	35
Charpy Impact Strength (notched) 缺口冲击强度	ISO 179/1eA	23°C / 50 %RH	kJ/m <sup>2</sup>	14
Deflection Temperature Under Load 热变形温度	ISO 75	1.8 MPa / 120°C/hr	°C	77
Tensile Strength 引张强度;降伏点	ISO 527	50 mm/min	MPa	41
Tensile Elongation at Break 拉伸伸长率			%	10
Tensile Modulus 拉伸模数		1 mm/min	MPa	-
Flexural Strength 弯曲强度	ISO 178	2 mm/min	MPa	65
Flexural Modulus 弯曲模数				2100
Density 比重	ISO 1183	23°C	kg/m <sup>3</sup>	1190
Flammability 燃烧性	UL94 File No. E41797			1.5 mm V-0

Note: The above values are typical data for the products under specific test conditions and not intended for use as limiting specifications.

「以上数据谨代表在特定条件下所得的测定值的代表例」

## II. Molding and Processing

### (1) Pre-drying

Pre-drying is necessary. The recommended pre-drying condition is as below.

Hot air drying oven -

Drying Temperature : 80 ~ 90°C  
Drying Time : 3 ~ 5 hour

### (2) Molding Condition

Recommended molding condition is as below.

Polymer Temperature (°C)	190 ~ 230
Injection Pressure (MPa)	70 ~ 140
Mold Temperature (°C)	40 ~ 80

### (3) Precaution During Molding

Please ensure to wash or flush barrel with normal ABS resin whenever stop molding in order to protect injection molding machine and to prevent burnt material formation.

### (4) Safety Precaution

Before using the material, please read information concerning safety on Material Safety Data Sheet (MSDS).

### III. Mold Shrinkage Rate

	Injection Pressure (MPa)	Unit	Machine Direction A-A	Transverse Direction B-B	Transverse Direction C-C
AX84 X01	Minimum Pressure+ 5	%	0.76	0.66	0.72
	Minimum Pressure + 10		0.72	0.64	0.67

#### <Molding Condition>

Molding Machine : Nissei PS-60E

Molding Temperature : 230°C

Mold Temperature : 60°C

Cycle : 10/20/3s (Injection/Cooling/Interval)

Back Pressure : 0.98 MPa

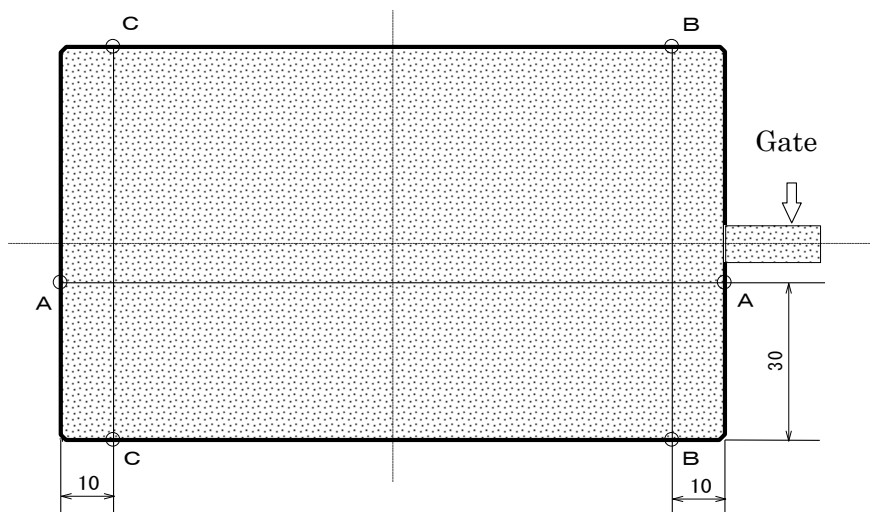
Screw Rotation : 70 rpm

Injection Pressure : Minimum filling pressure +5, and +10 MPa

Mold Dimension : 126.7×75.7×3mmt

#### <Dimension Measurement>

Conditioned at 23°C, 50% Rh for 24 hours prior measurement is taken.



## IV. Mold Design

Basically, AX84 X01 shall be considered similar to “Toyolac” General Purpose grades. However, please take note on the following points

### (1) Draft Angle

1~2° level is suitable. Extra precaution is necessary especially when surface is textured in order to prevent under cut.

### (2) Sprue, Runner

Sprue and runner shape shall ease resin flowability, with recommended sprue diameter 4~8 mm and sprue taper 2~3° .

### (3) Corner R

Corner R is necessary to obtain good mold release, excellent resin flowability and to avoid stress concentration.

### (4) Gate

Gate location is decided base on molded part shape. However, when molten resin flows through it, heat generated through friction might cause material burnt. Thus, increase gate cross section as large as possible to avoid such occurrence.

### (5) Material

Corrosion and abrasion resistant steel materials (SUS420, SKD11, SKD61 and etc.) are recommended for the application of chemical resistant flame retardant grade, particularly at gate area, the flow end area and area at flow direction which changes rapidly. Besides, exchangeable devise such as inserter and others are also recommended.

Corrosion and abrasion resistant material is also recommended for application of cylinder, screw, back flow preventive ring and others.

### (6) Mold Maintenance

Flame retardant is added to “Toyolac” chemical resistant flame retardant grade. Therefore, halogen gases generated under severe molding condition is likely to cause mold corrosion. Hence, molding temperature must not > 250°C.

Besides, please wipe mold surface with mold cleaner to clean off mold deposit after molding for long period.

After molding ends, it is recommended to spray mold surface with anti-rust after cleaned with mold cleaner.

Anti-rust :

‘Sabicro’ (Cyukyo Kasei) , Aron Penet (Toagosei) , CRC (America CRC) and others are recommended as effective result is recognized.

**Important Notes:**

1. In as much as Toray Plastics (Malaysia) Sdn. Bhd. has no control over the use to which other may put this material, it does not guarantee that the same result as those described herein will be obtained. Nor does Toray Plastics (Malaysia) Sdn. Bhd. guarantee the effectiveness or safety of any possible or suggested design for articles of manufacturer as illustrated herein by any photographs, technical drawing and the like. Each user of the material or design or both should make his own tests to determine the suitability of the material or any material for the design, as well as suitability or suggested uses of the material or design described herein are not to be construed as constituting a license under any Toray Plastics (Malaysia) Sdn. Bhd. patent covering such use or as recommendations for use of such material or design in infringement of any patent.

2. The material described here are not recommended for medical application involving any implantation inside the human body. Material Safety Data Sheet (MSDS) for the materials concerned should referred to before any use.