

***UBE Nylon 1018SE U32010T***  
***for Corrugated tube with Flame Retardant***

## Technical Information

### 1. Introduction

UBE Nylon 1018SE U32010T is non-halogenated and non-phosphide flame retardant which was developed for tube applications, especially corrugated tubing which is used to cover electric wireharness and cable of automobile. This material has excellent mechanical properties and makes product quality control easily.

### 2. Features

#### 1) Good Processability

Viscosity of this material is middle range. It enables to load less torque for extrusion machines and to produce tube more quickly.

#### 2) Good quality

This material was made in optimized processing condition. This results in excellent processing continuously with constant properties of finished product.

#### 3) Good mechanical properties

Due to excellent dispersion of flame-retardant agent, good mechanical properties were achieved.

#### 4) Good flame retardant properties

This material shows the equivalent flammability to Class V-2 according to UL94.

### 3. Properties

#### 1) Physical Properties

Table 1 Physical Properties of UBE Nylon 1018SE U32010T

Dry as molded

Properties	Method	Unit	1018SE
Tensile Strength at Break	ASTM D638	MPa	75
Tensile Elongation at Break	ASTM D638	%	150
Flexural Strength	ASTM D790	MPa	100
Flexural Modulus	ASTM D790	MPa	2700
Impact Strength (1/4" Izod notched)	ASTM D256	J/m	33
Melt Flow Rate (230°C/2160g)	ASTMD1238	g /10min	8.5
Flammability	UL94	-	Equivalent to V-2 (1/32"t)
Oxygen index*	JIS K 7201	-	30

\* Test specimen (L=125mm,width=6mm,thickness=0.8mm)

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### 2) Heat Resistance

Table 2 Heat Resistance of UBE Nylon 1018SE U32010T

Properties	Unit	After pre-conditioning	After heat aging
Tensile Strength at yield	MPa	42	( more than 80% )
Tensile Strength at break	MPa	70	
Elongation at break	%	320	

( ): Retention ratio

#### Tensile test condition

Test specimen : JIS K6301 NO.3 Dumbbell ( Thickness 1mm) is cut from press sheet.  
Tensile speed : 50 mm/min  
Distance between both marks : 20mm  
Test run number : N=5  
Lab' condition : 23 °C, 65%RH

#### Tensile test at room temperature after pre-conditioning

Pre-conditioning : at 23 °C, 65%RH for 48 hours  
Average values of 5 test results on tensile strength, elongation are calculated. When test specimen broke at the outside portion of between marks, the result of the test specimen is not adopted, and additional test specimen is tested.

#### Tensile test after heat aging

Heat aging : at 150 °C for 120 hours  
Conditioning after heat aging : at 23 °C, 65%RH for 48 hours  
Average values of 5 test results on tensile strength, elongation are calculated. When 50% and more of test specimens broke at the outside portion of between marks, re-test is carried out. When less than 50% of test specimens broke at the outside portion of between marks, the result of the test specimen which broke at the outside portion of between marks is not adopted.

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**4. Processing Conditions**

Table 3 Processing conditions of UBE Nylon 1018SE U32010T

Product		1018SE
Size		$\phi$ 7
Screw		Diameter; $\phi$ 65mm L/D = 28, CR=3.0
Extruder Temperature (°C)	C1	230
	C2	235
	C3	240
	C4	245
	A	245
	D	245
Take-up speed (m/min)		20

\* The processing conditions described herein indicate conditions adapted to UBE's machine. Since equipment characteristics and conditions may vary, careful study of the conditions, using above table as reference, is essential.

\*The contents of these written materials were prepared based on materials , information , and data available at the present time ; they may be revised according to new information.  
 \*The numerical data described in these materials are average values obtained by measurement under prescribed conditions ; they are not guaranteed values.  
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 \*Specific applications may be subjected to standards and regulations , commercial proprietary rights,etc.,so these should be fully researched and studied by your company.  
 \*please read the "Material Safety Data Sheet MSDS" before using a UBE product.