



## Takiron High Functional Materials Division



Plastics material needs in various fields from the high-tech sector which includes electronics to the environmental preserving industry are becoming increasingly diversified and sophisticated. To meet such needs, Takiron provides solutions based on our unique high-molecular technology. Takiron has thus become and will continue to be a reliable supporter of numerous industries with its innovative products.

### Static Dissipative Materials

#### STATIC DISSIPATIVE PLATE



A "clean environment" is increasingly required in manufacturing and research & development facilities all over the world. The use of Static Dissipative materials has become indispensable in many industrial fields, such as semiconductor, liquid crystal display, electronics, medical, pharmaceutical, food processing, precision machinery, and biotechnology.

To meet this demand, Takiron has developed a series of high performance Static Dissipative Plate Products, the TAKIRON ND SERIES.

□□□□Excellent □□□Good □□Limited □Poor

Group	TND	PVC	FMND	PETND-	CNPET-	PETND MR	PCNDL	CNPC	
Substrate	PVC	PVC	C-PVC	PETG			Polycarbonate		
Surface Resistivity	10 <sup>6</sup> □10 <sup>8</sup> Ω/□								
Scratch Resistance	□□	□□	□□	□□□	□□	□□	□□□	□□	□□
Total Light Transmittance	77% (77665)	67%	63% (7605)	60%	80%	78%	75% (G60)	85%	82% (7610)
Service Temperature	□□	□□	□□□	□□□	□□	□□	□□	□□□□	□□□□
Impact Strength	□□□	□□□	□□□	□□□	□□□	□□□	□□□	□□□□	□□□□
Chemical Resistance	□□□□	□□□	□□□	□□□	□□	□□	□□	□□	□□
Fabrication	□□□□	□□□	□□□	□	□□	□□	□	□□	□□□
Adhesion	applicable	applicable	applicable	not applicable	limited	applicable	not applicable	limited	applicable
Welding	applicable	applicable	applicable	not applicable	not applicable	applicable	not applicable	not applicable	not applicable
Bending with heating	applicable	limited	limited	not applicable	not applicable	applicable	not applicable	not applicable	limited
Flame Retardancy	□□□	□□□	□□□□	□□□	□□	□□	□□	□□	□□
UL94	V-0	—	V-0,5VA	—	HB	V-2	HB	HB	HB

	(Except 77348) 5VA(77665)		(Except 7305)						
FM4910	not listed	listed	listed	listed	not listed	not listed	not listed	not listed	not listed
Transparent	77665	7708	7605	MR760	76600	7660	G60	78610	7610
Orange Tinted	77285	—	—	—	—	—	G20	—	—
Yellow Tinted	77385	—	7305	—	—	—	G30	—	—
Gray Smoke Tinted	77002	—	—	—	—	—	—	—	7910
Brown Smoke Tinted	77885/ 77001	—	—	—	—	—	G80	—	7810
Ivory Opaque	77348	—	—	—	—	—	—	—	—

The above comparison table has been prepared by internally evaluating Takiron products and placing them in order in a simplified way.

As for respective quality test results, please refer to the separate pages.

The Chemical Resistance shall be subject to evaluations on inorganic chemicals including general acids and alkalis.

## FM Fire Safety Materials

### FM 4910 PLATE



FM4910 listed materials are suitable for the cabinets and various pieces of process equipment used to manufacture semiconductors.

The materials feature excellent anti-corrosion, fire-retardant, and electrical isolation properties.

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- **Excellent ignition and fire spread resistances**

TAKIRON FM plate is hard to ignite, and if ignited, it does not easily permit fire to spread.

- **A small amount of smoke is generated, if ignited**

TAKIRON FM plate generates a smaller amount of smoke than other plastics. When a fire breaks out.

- **Excellent workability**

TAKIRON FM plate displays excellent workability, welding, bonding, and heat bending, which is nearly equal to that of conventional plates.

- **Excellent chemical resistance**

TAKIRON FM plate displays chemical resistance against various acids and alkalis, which is nearly equal to that of conventional plates for industry.

Note:

Transparent products may be affected by the solvent environment or surface-active agents to a greater extent than opaque products. Check on working conditions prior to actual application.

#### \*What is FM Global?

FM Global is a corporation which consists of the two organizations shown below.

- FM Insurance Company, Ltd (a mutual insurance company of the American Industry Association)
- FM Approvals (a non-profit private organization which researches, tests, and approves

material/equipment/systems for fire prevention and safety work)

**\*What are FM4910 standards?**

FM4910 is a flame retardancy standard for materials used in clean rooms to prevent fire, set by FM Global (issued in October 1997).

The following two criteria are used to evaluate flame retardancy. FM4910 conforming products shall meet the numerical criterion of each index.

(1)FPI(Fire Propagation Index)≤6

(2)SDI(Smoke Damage Index)≤0.4

There are various methods to evaluate the flame retardancy of plastics.

The following table summarizes the fire retardant classification according to UL standards, FM4910, the JIS, and the oxygen index.

Standard	TND	FMND	PCNDL	CNPC	PETND	CNPET
UL94	V-0(Except77348), 5VA(77665)	V-0(7605), 5VA(7605)	HB	HB	HB	V-2
FM4910	not listed	listed	not listed	not listed	not listed	not listed

FM4910 is a test protocol that stipulates the allowable quantity of smoke produced by the burning of plastics, and the flame retardancy level of plastics used in clean rooms as established by FM Approvals. The standard is closely related to that of loss prevention in the case of a fire in semiconductor and LCD manufacturing facilities and to the demands of fire insurance companies. Criteria of the FM4910 standard is much higher than that of the UL94 standard.

**Features of Takiron FM Plate**

- Less ignitable  
Flame will not easily spread over
- Takiron FM Plate produces a small quantity of smoke after ignition.
- Takiron FM Plate emits a small quantity of corrosive gas.
- High chemical resistance
- Easy to fabricate  
(Except for FMND MR)

**Features of FMET4735 and FMET4325**

- Low contraction and low expansion in heat
- Possible to thermoform

**Features of Static Dissipative FMND**

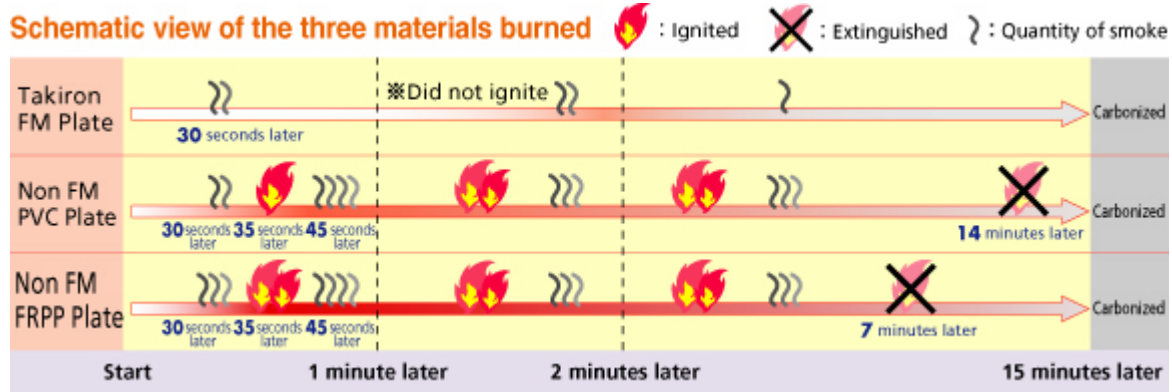
- The world's first Static Dissipative C-PVC plate that complies with the FM4910 standard  
The FMND has a surface resistance of  $10^6 \square 10^8 \Omega / \square$  which is an excellent static dissipative effect level. Despite changes in temperature and humidity, the FMND maintains its features.

**Fire safety evaluation for FM-certified material (comparison with conventional PVC and FRPP)**

Flammability test with cone calorimeter (which complies with ISO5660, ASTM E 1354)

Takiron FM Plate (FMH5300)  
Conventional PVC Plate  
FRPP Plate (UL94 V-0)





The FM plate degree of burning varies depending on product type.

## Product Schedule

FM PLATE(FMRC Class Number4910)

Group	Code	Lead-Free	Color	Size(mm)	Thickness(mm)										
					3.0	5.0	6.0	8.0	10.0	12.0	15.0	20.0	25.0	30.0	40.0
FMT	3331		Ivory	1,000×2,000	4	3		1	1		1	1	1	*	1
				1,212×2,424	3	2		1	1						
FMT	3700		White	1,000×2,000	*	*		*	*						
				1,212×2,424	*	*		*	*						
FMET	4325	Yes	New Ivory	1,000×2,000		3		1	1			1		1	1
				1,212×2,424		2	*	*	1	*					
FMH	5300		Ivory	1,000×2,000	4	3			1		1	1	1	1	1
				1,212×2,424		2			1						
FMH	5305	Yes	New Ivory	1,000×2,000	4	3			1		1	1			
				1,212×2,424		2			1						
FMHL	5310		Ivory	1,000×2,000		3			1						
				1,212×2,424		2			1						
FMTS	3608	Yes	Transparent	1,000×2,000	4	3		1	1						
				1,212×2,424	3	2		1	1						
FMTS	5650	Yes	Transparent	1,000×2,000	4	3		1	1						
				1,212×2,424	3	2									
FMHS	6650	Yes	Transparent	1,000×2,000	4	3		1	1	*					
				1,212×2,424	3	2		1	1	*					
FMSL	5670	Yes	Transparent	1,000×2,000		3		*	1						
				1,000×2,000		▲		*	*						
FMSL	7600	Yes	Transparent	1,000×2,000		▲		*	*						
				1,212×2,424		▲		*	*						
FMND	7605	Yes	Transparent	1,000×2,000	4	3		▲	▲						
				1,212×2,424	3	2		▲	▲						
FMND	7708	Yes	Transparent	1,000×2,000	4	3		*	*						
				1,212×2,424	3	2		*	*						
MR760	7605	Yes	Transparent	1,212×2,424	▲	▲									

"\*" is a made-to-order item. Please contact us.

FMPVDF

Group	Code	Color	Size(mm)	Thickness(mm)										
				3.0	5.0	8.0	10.0	15.0	20.0	25.0	30.0	40.0	50.0	
FMPVDF	F300	Natural	490×1,000							1	1	1	1	1

Welding Rod for FM Plate

FM PLATE	Welding Rod							note
	Color	Lead-Free	Item No.	Diameter	Length (m)	Packing Unit(kg)		
PVC	FMT3331	Ivory	-	333S 333W 333T	2.0 3.0 3.0 3.0	1	5	
	FMT3700	White	-	739S 739W 739T	2.0 3.0 3.0 3.0	1	5	
	FMET4325	New Ivory		4325S 4325W	2.0 3.0 3.0	1	5	
C-PVC	FMH5300	FM Ivory	Yes	5300S 5300W	2.0 3.0 3.0	1	5	
	FMH5305	New Ivory	Yes	5305S 5305W	2.0 3.0 3.0	1	5	
	FMHL5310	Ivory FM Ivory	Yes -	333S 333W 5300S 5300W	2.0 3.0 3.0 2.0 3.0 3.0	1 1	5 5	Surface Core
Transparent (C-PVC)	FMTS5608	Transparent	Yes	8061 8062 8063	2.0 3.0 3.0 3.0	1	5	
	FMHS5650	Transparent	Yes	5670S 5670W	2.0 3.0 3.0	1	5	
	FMHS6650	Transparent	Yes	5670S 5670W	2.0 3.0 3.0	1	5	
Transparent Static Dissipative (C-PVC)	FMSL5670	Transparent	Yes	5670S 5670W	2.0 3.0 3.0	1	5	
	FMND7708	Transparent		8061 8062 8063	2.0 3.0 3.0 3.0	1	5	
	FMND7605	FMHS5650		Welding Rod(i2061,2062) or 6650 Welding Rod		1	5	
PVDF	FMPVDF	Natural	-	F301S	3.0	1.6	2	

Note 1) Alphabets after item numbers indicates the cross-section shape of welding rod.  
 Note 2) Welding rods are not FM4910 listed.

**Chemical Resistance**

(Change in Thickness)

Change in Thickness after 30 days immersion in Chemical Solution

(Thickness:5.0mm)

Chemicals	FM4910 Products					Conventional PVC Plates				
	Basic Grade	Excellent Heat Resistance Grade	Heat and Chemical Resistance Grade	Trans-parent Grade	Basic Grade	Excellent Heat Resistance Grade	Heat and Chemical Resistance Grade	Heat and Chemical Resistance and Trans-parent Grade	Fire Retardant PP	
	FMT 3331	FMH 5300	FMHL 5310	FMHS 5650	TSP 333	HT 925	HTL 357	HTS 625	PN 303	
HCL	35% 60°C	0.03	0.05	0.03	0.00	0.03	0.04	0.03	0.01	0.15
HNO3	70% 60°C	0.02	0.06	0.02	0.01	0.02	0.03	0.02	0.01	0.16
HF	50%	0.06	0.05	0.05	0.00	0.06	0.07	0.06	0.00	0.26

	23°C										
H2SO4	96%	0.03	0.28	0.05	0.36	0.02	0.27	0.02	0.35	0.04	
	60°C										
H3PO4	85%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	60°C										
NH3	30%	0.03	0.26	0.02	0.36	0.02	0.29	0.03	0.36	0.02	
	60°C										
H2O2	30%	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	
	60°C										
HCl+ H2O2+ H2O	1:1:4	0.01	0.02	0.00	0.00	0.01	0.02	0.01	0.00	0.02	
	60°C										
NH3+ H2O2+ H2O	1:1:4	0.02	0.03	0.02	0.12	0.02	0.03	0.02	0.12	0.03	
	60°C										
H2SO4+ H2O2	5:1	0.01	0.01	0.02	0.01	0.02	0.01	0.02	0.01	-0.12	
	60°C										
IPA	100%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	23°C										
C2H5OH	100%	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	
	23°C										

·The above information is correct to the best of our knowledge, but is given without obligation on our part.

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**1.Weldability**

Testing Items	Unit	FM4910 Products					Conventional PVC Plates					Testing Method
		Basic Grade	Excellent Heat Resistance Grade	Heat and Chemical Resistance Grade		Trans-parent Grade	Basic Grade	Excellent Heat Resistance Grade	Heat and Chemical Resistance Grade	Heat and Chemical Resistance and Trans-parent Grade		
		FMT 3331	FMH 5300	FMHL 5310 10.0t	FMHL 5310 5.0t	FMHS 5650	TSP 333	HT 925	HTL 357 10.0t	HTL 357 5.0t	HTS 625	
Welding Speed Weld Rod:ø3	cm/min	20□25	15□19	15□19	15□19	14□17	20□25	13□17	15□19	15□19	14□17	-
Butt Weld Efficiency	%	85	81	83	83	75	88	80	85	86	75	JIS Z3831

·Cut out weld overlay.

·The above information is correct in our best knowledge, but is given without obligation on our part.

·Adhesive process before and after welding of FMHS 5650 may cause a crack in the plate.

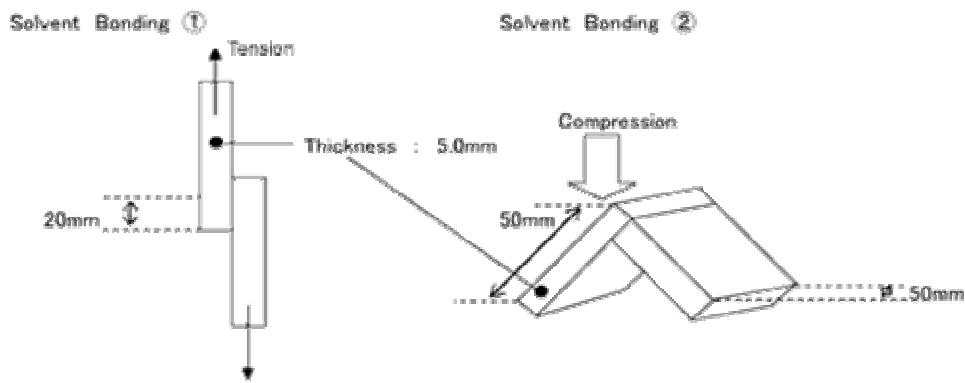
Avoid using adhesive immediately before and after welding.

**2.Adhesive Properties**

Testing Items	Unit	FM4910 Products					Conventional PVC Plates				
		Basic Grade	Excellent Heat Resistance Grade	Heat and Chemical Resistance Grade		Trans-parent Grade	Basic Grade	Excellent Heat Resistance Grade	Heat and Chemical Resistance Grade	Heat and Chemical Resistance and Trans-parent Grade	
		FMT 3331	FMH 5300	FMHL 5310 10.0mm	FMHL 5310 5.0mm	FMHS 5650	TSP 333	HT 925	HTL 357 10.0mm	HTL 357 5.0mm	HTS 625
Solvent Bonding <sup>①</sup>	Mpa	15	12	-	12	13	13	13	-	13	13
Solvent Bonding <sup>②</sup>	N	293	206	-	225	381	274	245	-	186	375

·Solvent Cement TAKIBOND#200





·The above information is correct in our best knowledge, but is given without obligation on our part.  
 ·Adhesive process before and after welding of FMHS 5650 may cause a crack in the plate. Avoid using adhesive immediately before and after welding.

### 3.Heat Bending

Pipe Heater Temperature	FM4910 Products			Conventional PVC Plates			
	Basic Grade	Excellent Heat Resistance Grade	Transparent Grade	Basic Grade	Excellent Heat Resistance Grade	Heat and Chemical Resistance and Transparent Grade	
	FMT 3331	FMH 5300	FMHS 5650	TSP 333	HT 925	HTS 625	
150°C	*Thickness : 5.0mm	180sec≤	300sec≤	300sec≤	180sec≤	300sec≤	300sec≤
160°C	*One Side Heated	150sec≤	180sec≤	180sec≤	150sec≤	180sec≤	180sec≤
170°C		120sec≤	120sec≤	120sec≤	120sec≤	120sec≤	120sec≤
180°C		120sec≤	120sec≤	120sec≤	120sec≤	120sec≤	120sec≤

·The above information is correct in our best knowledge, but is given without obligation on our part.  
 ·FMHL5310 and HTL357 are not suitable for heat bending.

## TAKIRON™ FM Plate FM4910 Listed Materials

### FM4910 is ...

FM4910 is a test protocol that stipulates the allowable quantity of smoke produced by the burning of plastics and the flame retardance level of plastics used in clean rooms as established by FM Approvals. This protocol is closely related to that of loss prevention in the case of a fire in semiconductor manufacturing facilities, and to the demands of fire insurance companies. It is generally appreciated that the FM4910 listed materials are suitable for the cabinets and various pieces of process equipment used to manufacture semiconductors. Takiron has developed and manufactured FM4910 listed materials designed for semiconductor process equipment for many years. Takiron is global main supplier of various FM4910 listed materials.

- ①FPI : Fire Propagation Index ≤6
- ②SDI : Smoke Damage Index ≤0.4
- ③CDI : Corrosion Damage Index ≤1.1 (Non-obligatory criterion)

#### TAKIRON™ FM4910 Listed Opaque Products

Code	Color	Non-Lead Stabilized
NEW FMET 4735	New White	☆
FMT 3331	Ivory	
FMT 3700	White	
FMET 4325	New Ivory	☆
FMH 5300	Ivory	
FMH 5305	New Ivory	☆
FMHL 5310	Ivory	

(With improved chemical contact property)

#### TAKIRON™ FM4910 Listed Transparent Products

Code	Color	Non-Lead Stabilized
FMHS 5650	Transparent	☆
FMHS 6650*	Transparent	☆
(*Enhanced transparent product)		
FMSL 5670	Transparent	☆
(With improved chemical contact property)		
FMND 7605	Transparent	☆
FMND MR760	Transparent	☆

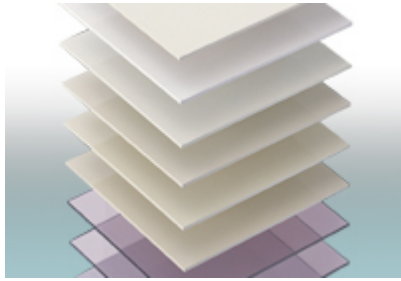
#### TAKIRON™ FM4910 Listed PVDF Products

Code	Color	Non-Lead Stabilized
FMPVDF F300	Natural	☆

TAKIRON™ FM ROD (C-PVC)  
 FMH-ROD (Gray)

## High Functional Materials Division

### Lead-free PVC Materials



TAKIRON has been attempted reducing materials of environment burden in our products. As one result of it, we have achieved development of lead-free products instead of press-laminated plate and various related auxiliary materials which contain stabilizers of lead type. These products conform to the RoHS.

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#### Contents

Content measurement result (ICP measurement)

Constituent Materials	Chemical Symbol	Restriction Value
Lead	Pb	≤1000
Mercury	Hg	≤1000
Cadmium	Cd	≤100
Hexavalent Chromium	Cr <sup>6+</sup>	≤1000
Polybrominated Biphenyl	PBB	≤1000
Polybrominated Diphenyl Ether	PBDE	≤1000

List of Lead-free PVC Materials

Grade	Typical Model		
	Transparent	Ivory	Gray
General Grade	TS608	TSP338*	T938*
	RTS1100	RTSP1330	ET1980
	ESS8800A	ETSP1380	—
Heat Resistant Grade	HTS625	FMH5305	HT928*
High Impact	TSHI601HI	—	THQ098*
FM Flame Retardant	FMHS6650	FMET4325	—
	FMTS3608	—	—
Static Dissipative	TND77665	TND77348	—
Metal Free	TMC60601	TMC60331	—
Rod	—	NC ROD	ROD938
Welding Rod	WELDING ROD 8061	WELDING ROD 338S	WELDING ROD 938S

\*mark materials are special order items.  
Please contact us if you have item request other than ones listed above.

Item	Unit	General Grade								Test method
		TS608	RTS1100	ESS8800A	TSP338	RTSP1330	ETSP1380	T938	ET1980	
Color		Transparent			Ivory			Gray		-
Specific Gravity	—	1.4	1.4	1.4	1.39	1.45	1.45	1.39	1.45	JIS K7112(MOD ISO 1183)
Tensile Stress at	MPa	75	74	67	60	58	58	60	58	JIS K7162-



Yield										1B/50(IDT ISO 527-2)
Nominal Tensile Strain at Break	%	8	8	15	12	20	20	12	20	JIS K7162-1B/50(IDT ISO 527-2)
Modulus pf Elasticity in Tension	MPa	3400	3200	3100	3000	3100	2800	3000	2800	JIS K7162-1B/1(IDT ISO 527-2)
Flexural Stress	MPa	107	104	—	81	83	80	81	80	JIS K7171(IDT ISO 178)
Flexural Modulus	MPa	3600	3500	—	2800	3000	3600	2800	3600	
Chrpy Impact Strength(Nothced)	KJ/m <sup>2</sup>	2.1	1.8	1.7	10	4.2	7.4	10	7.4	JIS K7111-1epA(MOD ISO 179)
Vicat Softening Temperature	°C	71	70	67	80	81	81	80	81	JIS K7206(B method)(MOD ISO306)
Temperature of Deflection under load	°C	63	62	—	74	75	75	74	75	JIS K7191
Dimensional Change on Heating (140°C, 55min)	Longitudinal %	-5	-2	-3.7	-3	-2	-3	-3	-3	JIS K7133(IDT ISO 11501)
	Latitudinal %	-1	-1	-0.7	-2	-1	-1	-2	-1	
Total ligt transmittance	%	85	86	—	—	—	—	—	—	JIS K7361-1(IDT ISO 13468-1)

The above data are typical test results(iof 5mm thick specmine) and here without guarantee.

Item	Unit	Heat Resisitance Grade			High Impact Grade		Test method
		HTS625	FMH5305	HT928	TSHI601HI	THQ098	
Color		Transparent	Ivory	Dark Gray	Transparent	Dark Gray	—
Specific Gravity	—	1.55	1.55	1.51	1.32	1.33	JIS K7112(MOD ISO 1183)
Tensile Stress at Yield	MPa	70	71	65	53	48	JIS K7162-1B/50(IDT ISO 527-2)
Nominal Tensile Strain at Break	%	15	12	21	15	74	JIS K7162-1B/50(IDT ISO 527-2)
Modulus pf Elasticity in Tension	MPa	3200	3100	3000	2500	2300	JIS K7162-1B/1(IDT ISO 527-2)
Flexural Stress	MPa	98	98	90	73	61	JIS K7171(IDT ISO 178)
Flexural Modulus	MPa	3200	3200	3100	2600	2200	
Chrpy Impact Strength(Nothced)	KJ/m <sup>2</sup>	2.2	2.2	6	58	80	JIS K7111-1epA(MOD ISO 179)
Vicat Softening Temperature	°C	99	98	104	71	78	JIS K7206(B method)(MOD ISO306)
Temperature of Deflection under load	°C	88	88	94	66	72	JIS K7191
Dimensional Change on Heating (140°C, 55min)	Longitudinal %	-5	-5	-5	-4	-3	JIS K7133(IDT ISO 11501)
	Latitudinal %	-1	-2	-1	-2	-2	
Total ligt transmittance	%	58	—	—	72	—	JIS K7361-1(IDT ISO 13468-1)

The above data are typical test results(of 5mm thick specmine) and here without guarantee.

Item	Unit	FM Flame Retardant			Static Dissipative		Metal Free		Test method
		FMHS6650	FMTS3608	FMET4325	TND77665	TND77348	TMC60601	TMC60331	
Color		Trans-parent	Ivory	Trans-parent	Ivory	Trans-parent	Ivory	—	
Specific Gravity	—	1.46	1.41	1.45	1.4	1.39	1.4	JIS K7112(MOD ISO 1183)	
Tensile Stress at	MPa	74	71	58	74	60	75	57	JIS K7162-

Yield									1B/50(IDT ISO 527-2)
Nominal Tensile Strain at Break	%	12	9	13	7	8	7	20	JIS K7162-1B/50(IDT ISO 527-2)
Modulus of Elasticity in Tension	MPa	3300	3300	2900	3300	3000	3500	2800	JIS K7162-1B/1(IDT ISO 527-2)
Flexural Stress	MPa	99	94	77	98	81	102	79	JIS K7171(IDT ISO 178)
Flexural Modulus	MPa	3300	3300	2900	3400	2800	3600	2800	JIS K7171(IDT ISO 178)
Charpy Impact Strength(Nothced)	KJ/m <sup>2</sup>	1.6	1.8	5.2	2.3	10	2.3	7.3	JIS K7111-1epA(MOD ISO 179)
Vicat Softening Temperature	°C	94	75	81	72	80	74	77	JIS K7206(B method)(MOD ISO306)
Temperature of Deflection under load	°C	85	68	73	65	74	68	68	JIS K7191
Dimensional Change on Heating (140°C, 55min)	Longitudinal %	-5	-5	-2	-6	-3	-5	-6	JIS K7133(IDT ISO 11501)
	Latitudinal %	0.5	-1	-1	-1	-2	-1	-1	
Total light transmittance	%	71	75	—	77	—	83	—	JIS K7361-1(IDT ISO 13468-1)

The above data are typical test results(of 5mm thick specmine) and here without guarantee.

Item	Unit	ROD		Test method
		NC ROD	ROD938 Less than ø100	
Color		Ivory	Gray	—
Tensile Stress at Yield	MPa	57	55	JIS K7162-1B/50(IDT ISO 527-2)
Nominal Tensile Strain at Break	%	10	14	JIS K7162-1B/50(IDT ISO 527-2)
Flexural Stress	MPa	87	83	JIS K7171(IDT ISO 178)
Flexural Modulus	MPa	3400	3300	
Charpy Impact Strength(Nothced)	KJ/m <sup>2</sup>	6	3	JIS K7111-1epA(MOD ISO 179)
Vicat Softening Temperature	°C	75	75	JIS K7206(B method)(MOD ISO306)

The above data are series of test results with 5 mm thick specimens, cut from individual ROD, and given here without guarantee.

Item	Unit	WELDING ROD			Test method
		8061	338S	938S	
Color		Transparent	Ivory	Gray	—
Tensile Stress at Yield	MPa	62	68	68	JIS K7162
Nominal Tensile Strain at Break	%	5	10	10	
Charpy Impact Strength(Nothced)	KJ/m <sup>2</sup>	2	2	2	JIS K7111
Vicat Softening Temperature	°C	71	71	71	JIS K7206

The above data are series of test results with 5 mm thick specimens, knead from individual WELDING ROD, and given here without guarantee.

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