



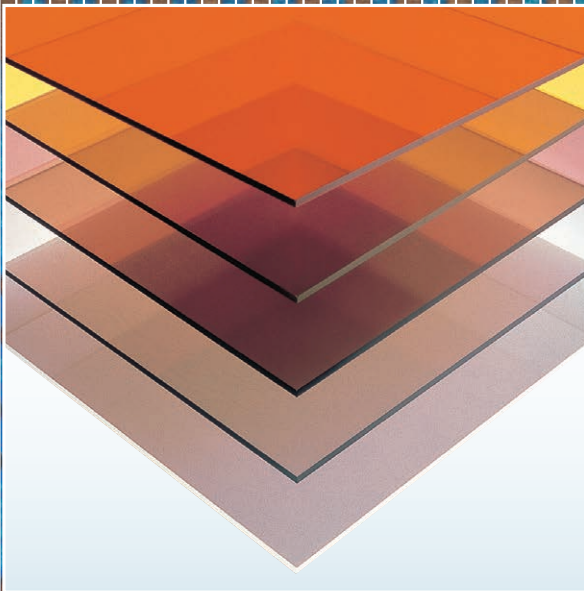
Supporting today, changing tomorrow



Static Dissipative Plastics Plate

ND Series

PVC
C-PVC
Polycarbonate
PETG



Dust collected by static electricity, however microscopic, may pose a serious problem. 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.

This catalogue describes the features of the Takiron ND Series which covers a wide range of products of high performance Static Dissipative Plates. We hope this will help you consider our Takiron ND Series products when designing and constructing a clean environment.

Takiron offers the most abundant product lineup of static dissipative plastics plates in the world.

Takiron ND Series use various plastics as their substrates, and they feature transparency, a range of service temperatures, high impact resistant characteristics, workability, and economical efficiency that are inherent in respective substrate plastics.

In addition, for other types of static dissipative plastic plates that employ the same substrate, they are available in various grades: a grade focusing on workability, a grade focusing on wear resistance, and a grade focusing on reduced cost, thus enabling a choice of adequate products according to your applications. The following comparison table can be a reference for your selection.

Takiron Static

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| Transparent Materials | |
|-----------------------|--|
| Group | |
| Substrate | |
| Surface Resistivity | |
| Scratch Resistance | |
| Light Transmission | |
| Service Temperature | |
| Impact Strength | |
| Chemical Resistance | |
| Fabrication | |
| Bonding | |
| Welding | |
| Heat Bending | |
| Flame Retardancy | |
| Transparent | |
| Orange Tinted | |
| Yellow Tinted | |
| Gray Smoke Tinted | |
| Smoke Tinted | |
| Ivory Opaque | |
| UL94 | |
| Note | |



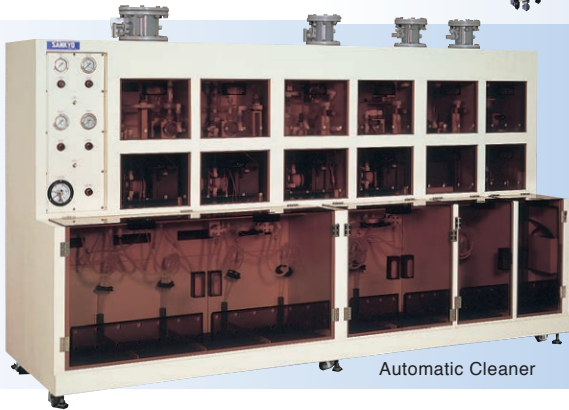
Clean Room partitions



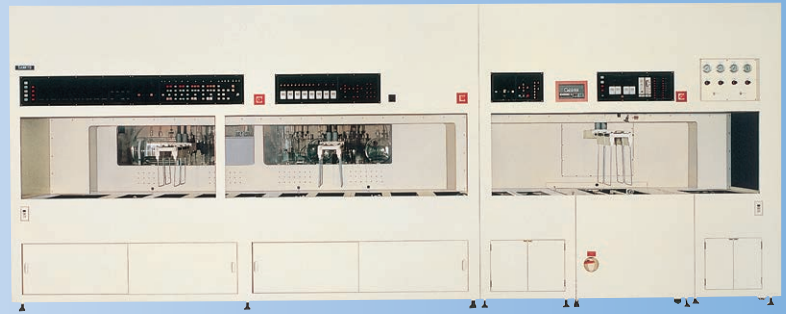
Fully automatic etching Cleaner



Grove box



Automatic Cleaner



RIA automatic Cleaner

Dissipative Plastics Plate — ND Series —

☆☆☆☆ Excellent ☆☆☆ Good ☆☆ Limited ☆ Poor

| | TND | ESND | FMND | PETND | PETND MR | PCNDL |
|--|---------------------------------|---------------------------|--------------------------|-----------------------|-----------------------------|-----------------------|
| | PVC | PVC | PVC | PETG | PETG | Polycarbonate |
| | $10^6 \sim 10^9 \Omega/\square$ | | | | | |
| | ☆☆ | ☆☆ | ☆☆ | ☆☆ | ☆☆☆ | ☆☆ |
| | 77% (TND77665) | 81% (ESND47800) | 69% (FMND7708) | 80% | 75% (PETND MRG60) | 86% |
| | ☆☆ | ☆☆ | ☆☆ | ☆☆ | ☆☆ | ☆☆☆☆ |
| | ☆☆☆ | ☆☆☆ | ☆☆☆ | ☆☆☆ | ☆☆☆ | ☆☆☆☆ |
| | ☆☆☆☆ | ☆☆☆ | ☆☆☆☆ | ☆☆ | ☆☆ | ☆☆ |
| | ☆☆☆☆ | ☆ | ☆☆☆☆ | ☆☆ | ☆ | ☆☆ |
| | applicable | not applicable | applicable | limited | not applicable | limited |
| | applicable | not applicable | applicable | not applicable | not applicable | not applicable |
| | applicable | not applicable | applicable | not applicable | not applicable | not applicable |
| | ☆☆☆ | ☆☆☆ | ☆☆☆☆ | ☆☆ | ☆☆ | ☆☆ |
| | 77665 | 47800 | 7708 | 76600 | MRG60 | 78610 |
| | 77285 | | | | | |
| | 77385 | 47300 | | | MRG30 | |
| | 77002 | | | | | |
| | 77885/77001 | | | | | |
| | 77348 | | | | | |
| | V-0 | V-0 | V-0(FMND7708) | HB | | HB |
| | | | FM4910 | | surface hardening | Up to 5mm |

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. These above data are given here without guarantee.

High Functional Products

Static Dissipative Plates

Maintain stable static dissipation functionality under various conditions

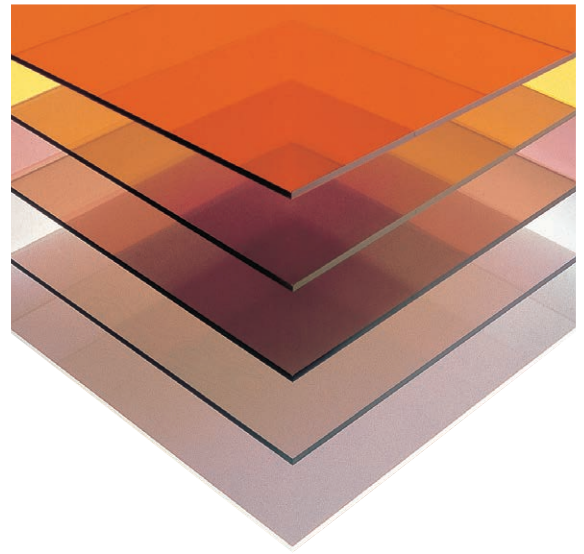
Static Dissipative Plate Series

With a surface resistivity of 10^6 to $10^9 \Omega/\square$, these plates have excellent anti-static effectiveness, and are used in diverse industries and fields such as semiconductors and liquid crystals. Rigid PVC, polycarbonate, and PET are available for substrate materials, and our original special technology has been applied to provide static dissipation without harming the physical properties of each substrate. These plates are resistant to humidity and wear, and maintain stable static dissipation functionality under various conditions.

Application

These plates can be used in many industries where a clean environment is required in a wide variety of fields such as semiconductor fabrication equipment and related devices, as well as electronic, electrical and precision equipment. They are suitable for parts that require anti-static measures such as containers and clean-room related parts.

- Production equipment for semiconductors and LC panels, and related devices, clean benches, clean drafts, various types of washing equipment, wafer carrier boxes, part boxes, desiccators, clean storage cabinets, various types of cases and covers, partitions, clean ducts
- Clean room related
Clean tunnels, windows, partitions, eyelids, various types of covers, louvers
- Other
Meter and machinery covers, displays, various types of inspection ports, various types of exterior equipment parts, part boxes

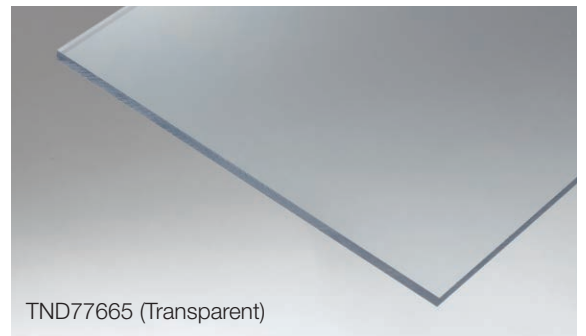


Lineup of Static Dissipative Plates

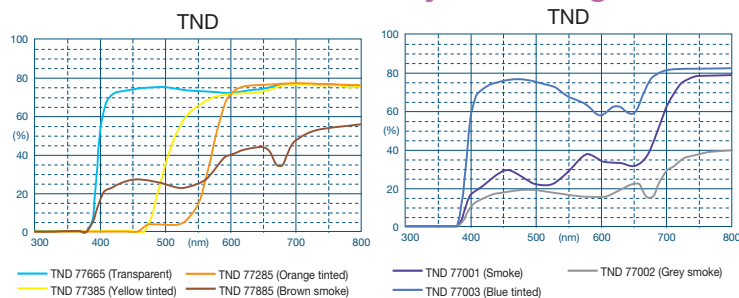
The following types of Takiron Static Dissipative Plates are available.

| Substrate | Type |
|--------------------------------|---------------|
| Rigid polyvinyl chloride (PVC) | TND, FMND |
| Amorphous polyester (PETG) | PETND-, PETND |
| Polycarbonate (PC) | PCNDL |

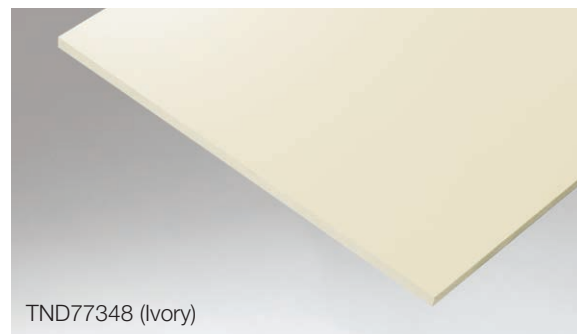
* FMND are FM4910-approved products.



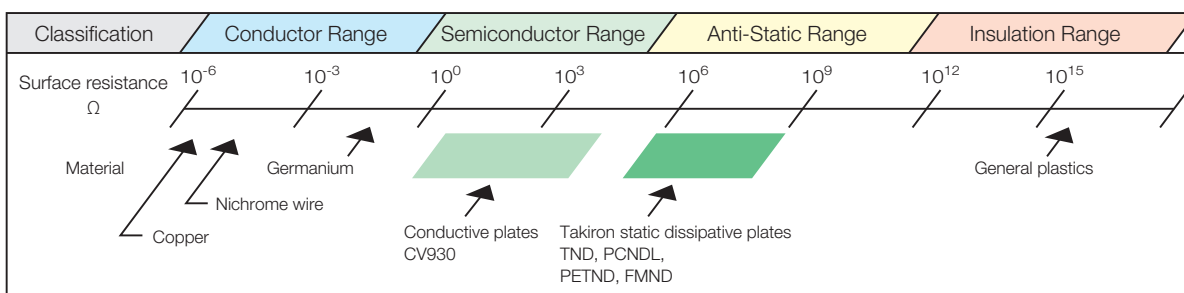
Transmittance Curves by Wavelength



* The above data are typical test results of 5 mm thick specimen and given here without guarantee.



Overview of Electrical Characteristics



High Functional Products

Static Dissipative Plates/Conductive Plates

Static dissipative PVC plates with excellent transparency, chemical resistance, and workability

Static Dissipative PVC Plates

● Low Humidity Dependence

Characteristics are not readily affected by humidity.

● Excellent Physical Properties

Excellent mechanical strength, chemical resistance, and workability.

● Other

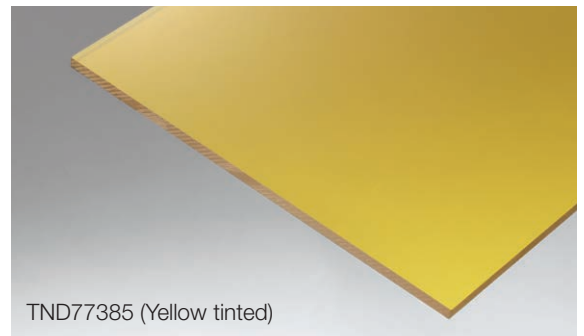
All grades are UL-compliant (94V-0).

| Standard Name | Corresponding Part No. |
|----------------------|------------------------------------|
| UL-compliant product | TND77665*, tinted colors and ivory |

* TND77665 of 3.0-mm or more are also approved for 5VA.

Application

Assembly workbenches, anti-static covers and workbench covers, etc. / Transport and storage of parts that should not be exposed to dust and other foreign material



TND77385 (Yellow tinted)

Conductive PVC Plates

● Machinable

Can be machined.

● Mechanical Properties

Improved impact resistance (compared to our products), and materials used are resistant to damage and cracking caused by vibration and similar conditions.

● Environmentally Friendly

Lead-free plates that are environmentally friendly.



TND CV930 (Black)

Type Standards Tables

| | Type | Part No. | RoHS and REACH Compliance | Color | Thickness (mm) | | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 8.0 | 10.0 | | |
|------------------------|-------|-------------|---------------------------|-------------|----------------|---|-----|-----|-----|-----|-----|-----|-----|------|---|---|
| | | | | | Size (mm) | | | | | | | | | | | |
| Static Dissipative PVC | TND | 77665 | ○ | Transparent | 1,000×2,000 | | | ⑥ | ④ | ③ | ③ | ② | ① | ① | | |
| | | | | | 1,212×2,424 | | | | ③ | ② | ② | ② | ① | ① | | |
| | | 77285 | ○ | Orange | 1,000×2,000 | | | | | ④ | | ③ | | | | |
| | | | | | 1,212×2,424 | | | | | ④ | | ③ | | | | |
| | | 77385 | ○ | Yellow | 1,000×2,000 | | | | | | | ③ | | | | |
| | | | | | 1,212×2,424 | | | | | | | ② | | | | |
| | | 77885 | ○ | Brown smoke | 1,000×2,000 | | | | | | ④ | | ③ | | | |
| | | | | | 1,212×2,424 | | | | | | ④ | | ③ | | ① | ① |
| | 77348 | ○ | Ivory | 1,000×2,000 | | | | | | ④ | | ③ | | ① | ① | |
| | | | | 1,212×2,424 | | | | | | ③ | | ② | | ① | ① | |
| 77001 | ○ | Smoke | 1,000×2,000 | | | | | | ④ | | ③ | | ① | ① | | |
| | | | 1,212×2,424 | | | | | | | | ② | | | | | |
| 77002 | ○ | Grey smoke | 1,000×2,000 | | | | | | ④ | | ③ | | | | | |
| | | | 1,212×2,424 | | | | | | | | ② | | | | | |
| 77003 | ○ | Blue tinted | 1,000×2,000 | | | | | | | * | | | | | | |
| ESND | 47800 | ○ | Transparent | 1,000×2,000 | | | | | | ④ | | ③ | | ① | ① | |
| | | | | 1,212×2,424 | | | | | | ③ | | ② | | ① | ① | |
| | 47300 | ○ | Yellow tinted | 1,000×2,000 | | | | | | ④ | | ③ | | | | |
| | | | | 1,212×2,424 | | | | | | | | * | | | | |
| Conductive PVC | TND | CV930 | ○ | Black | 1,000×2,000 | ⑫ | ⑥ | ④ | | ③ | | ① | ① | | | |

*:Indicates made-to-order. Please contact us for more information regarding lots.

*1: "○" indicates standard type. The number inside the circle indicates the number of sheets per case.

*2: None of the 10 prohibited substances indicated by the RoHS Directive (EU) 2015/863 (dated June 4, 2015) have not been added for part numbers with a "○" in the "RoHS and REACH Compliance" column. Additionally, none of the 168 prohibited substances of the SVHC based on REACH regulations (materials listed in the "Candidate List" dated Dec. 17, 2015) have been added.

*3: Note "2" applies to substances added deliberately in order to provide functional performance but does not apply to impurities included in the raw materials.

(As of January 1, 2016)

* The color of actual products might vary slightly from that shown in photos.

High Functional Products

FM Static Dissipative Plates

FM Approvals
Listed 4910
Cleanroom Material
Lot. No.
TAKIRON CO.,LTD.

(FM-certified label)

Contributing to the fire safety of semiconductor plants (plates compliant with FM-4910 standards)

FM-4910 Standards

This is a flame retardancy standard for materials used in clean rooms to prevent fire developed by FM Global, an American damage insurance company (in effect since October, 1997).

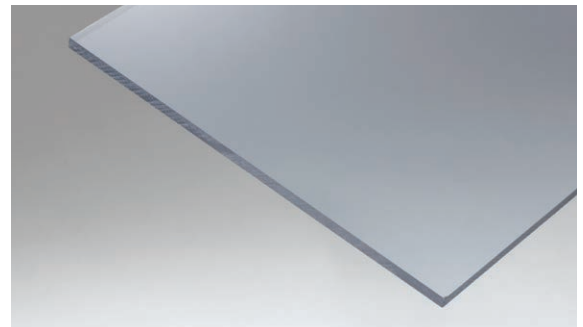
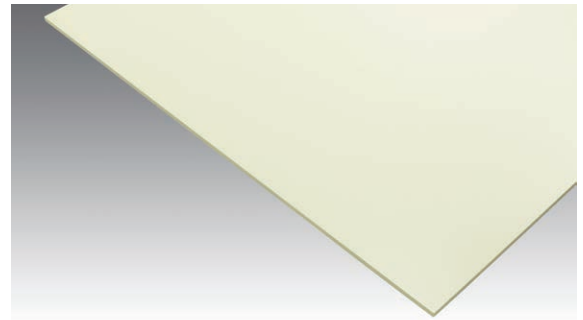
① **Fire Propagation Index (FPI):** This value indicates the level of flame propagation during a fire accident.

$$FPI \leq 6$$

② **Smoke Damage Index (SDI):** This value indicates the smoke pollution level.

$$SDI \leq 0.4$$

Each index comes with a standard value that represents FM-4910.



FM Static Dissipative Plate

● Exceptional ignition and fire propagation resistance

The material of this plate does not ignite easily, and boasts a low fire propagation rate.

● Low smoke generation during a fire

Compared to other types of plastic, this material generates little smoke if it catches fire.

Type Standards Tables

| Type | Part No. | RoHS and REACH Compliance | Color | Thickness (mm) | | | | | | | | | | | | Remarks |
|--------------------------|----------|---------------------------|-------------|----------------|-----|-----|-----|------|------|------|------|------|------|------|--------------------|--------------------------------------|
| | | | | Size (mm) | 3.0 | 5.0 | 8.0 | 10.0 | 12.0 | 15.0 | 20.0 | 25.0 | 30.0 | 40.0 | | |
| FMND (Press) | 7605 | ○ | Transparent | 1,000 x 2,000 | * | * | * | * | | | | | | | | Heat resistance / static dissipation |
| | | | | 1,212 x 2,424 | * | * | * | * | | | | | | | | |
| | 7708 | ○ | Transparent | 1,000x2,000 | ④ | ③ | ① | ① | | | | | | | Static dissipation | |
| | | | | 1,212x2,424 | ③ | ② | ① | ① | | | | | | | | |
| FMND- (continuous press) | 74605 | ○ | Transparent | 1,000x2,000 | * | * | | | | | | | | | | |
| | | | | 1,212x2,424 | * | * | | | | | | | | | | |

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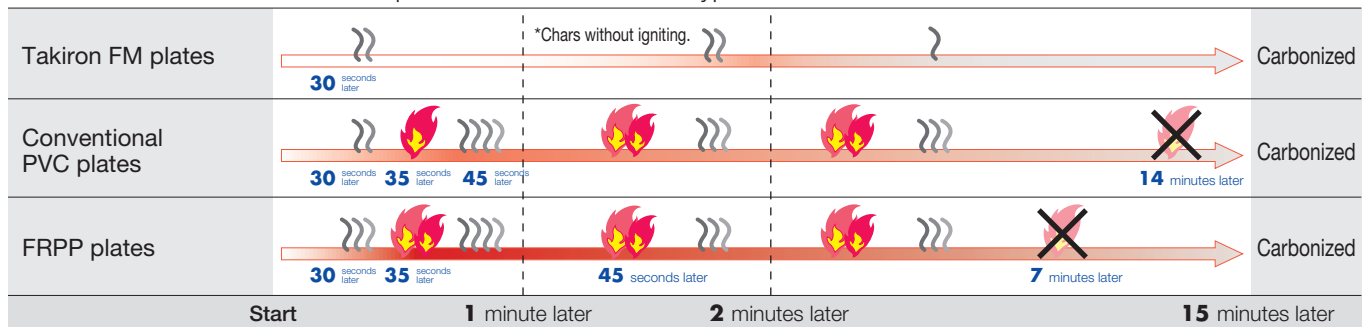
(As of January 1, 2016)

FM Plate Series

Fire safety evaluation for the materials compliant with FM-4910 standards (comparison with regular PVC and flame-retardant PP (FRPP))

Flammability test with a cone calorimeter (compliant with ISO5660, ASTM E 1354, and other international standards)

The illustration of the combustion process for each material type : Ignition : Fire out : Amount of generated smoke



● The flammability of the FM plate depends on the plate type.

Takiron FM plates
(FMH5300)

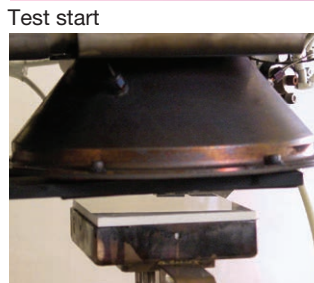


Fire ignited by a 10,000-V electric spark.



The material carbonizes without igniting.

Regular PVC plates

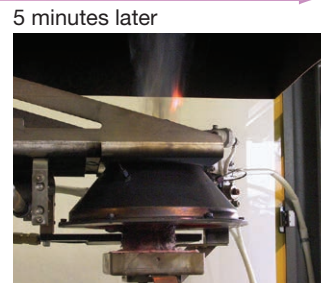


Test start



35 seconds later

Ignition



5 minutes later

FRPP plates
(UL94 V-0)



Ignition



Test material size: 100 mm x 100 mm x 5 mm (thickness), measured at a radiation heat level of 50 kw/m²

Cone Calorimeter

A cone calorimeter is a measuring instrument for evaluating and analyzing fire accidents and the combustion mechanism of a particular material. This instrument is used to examine each stage of the entire combustion process of a material which changes during a fire accident, and allows you to observe how the material changes with time.

It is a combustion evaluation device that ensures a quantitative and integrated evaluation of the changes in oxygen concentration during the combustion and other combustion parameters, and produces data that is correlated with an actual fire test.



Image source:
TOYO SEIKI SEISAKU-SYO, LTD.

* The color of actual products might vary slightly from that shown in photos.

High Functional Products

Static Dissipative Plates (PET)

Anti-static PETG plates with excellent environmental suitability and transparency

Static Dissipative PET Plates

Static Dissipative PET Plates are high-performance anti-static plates that utilize the features of Takiron PET Plate while also providing excellent anti-static performance.

In addition to anti-static performance, the MR type also provides abrasion resistance.

<<Common Features of PETND-76600 and PETND MR>>

● Excellent Transparency

The haze is small clean-cut transparency.

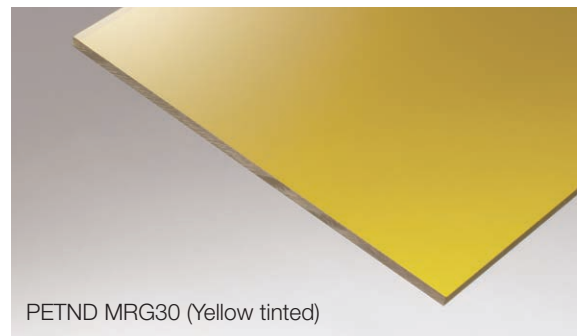
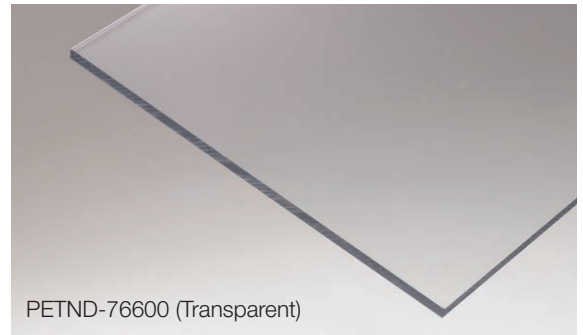
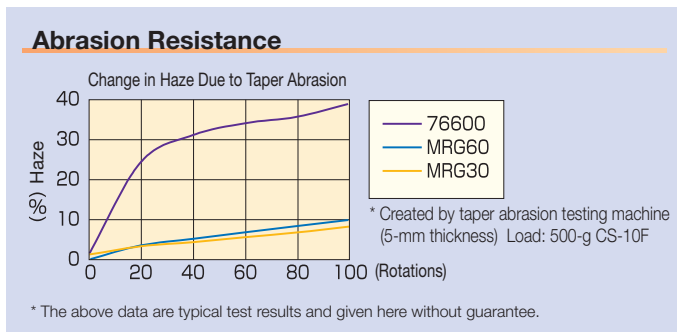
● Excellent Environmental Suitability

Environmentally friendly materials that do not contain halogen compounds or similar chemicals are used.

<<Features of PETND MR>>

● Excellent Abrasion Resistance

Hard-coat finish of the surface provides better protection against abrasions and can be used for longer in comparison with general PET plates.



● Excellent Chemical Resistance

Hard-coat finish of the surface provides improved resistance to solvents in comparison with general PET plates.

● Ultraviolet Protection Function

The yellow-tinted (MRG30) and orange-tinted (MRG20*: made-to-order) types reduce ultraviolet rays in a specified wavelength range to prevent exposure to light and repel insects.

* PETND MR cannot be used for adhesive/welding heat bending and similar machining processes.

Type Standards Tables

| | Type | Part No. | RoHS and REACH Compliance | Color | Thickness (mm) | | | | | | |
|------------------------|---------------------------|----------|---------------------------|---------------|----------------|-----|-----|-----|-----|------|---|
| | | | | | 3.0 | 4.0 | 5.0 | 6.0 | 8.0 | 10.0 | |
| Static Dissipative PET | PETND- | 76600 | ○ | Transparent | 1,000×2,000 | ④ | | ③ | | ① | ① |
| | | | | | 1,220×2,440 | ④ | ② | ② | ② | | |
| | PETND (Surface hardening) | MRG60 | ○ | Transparent | 1,000×2,000 | ④ | | ③ | | | |
| | | MRG20 | ○ | Orange tinted | 1,000×2,000 | * | | * | | | |
| | | MRG30 | ○ | Yellow tinted | 1,000×2,000 | ④ | | ③ | | | |
| | MRG80 | ○ | Brown smoke | 1,000×2,000 | * | | * | | | | |

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(As of January 1, 2016)

High Functional Products

Static Dissipative Plates (Polycarbonate)

Anti-static PC plates with excellent impact resistance

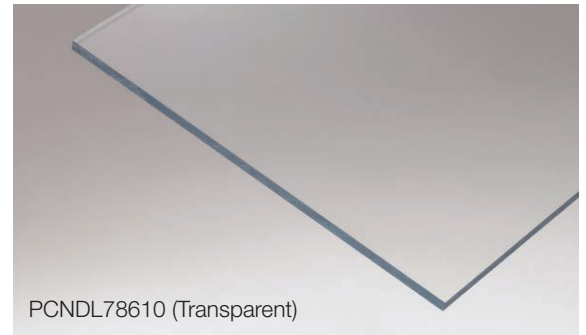
Static Dissipative PC Plates

Static Dissipative Polycarbonate Plates are high-performance anti-static plates that utilize the features* of polycarbonate while also providing excellent anti-static performance.

These plates can be used in many industries where a clean environment is required such for semiconductors and other high-tech fields.

They can be used for conventional partitions and covers, as well as part trays, and for transport equipment such as carrier boxes.

- Impact resistance
- Transparency
- Thermal conductivity
- Heat and cold resistance
- Electrical insulation



● UL-Compliant Product

PCNDL types are UL94HB Class products. Additionally, 94V-0 (5-mm thick) and 94V-1 (3-mm thick) (PCNDU) plates are also available.

● Food Hygiene Law Compliance

PCNDL types are compliant with the Food Hygiene Law in Japan (compliant with the 2012 MHLW Notification No. 595).

■ Optical Properties of Polycarbonate Static Dissipative Plates

| Item | Unit | Product Name / Part No. | Test Method |
|---------------------------|------|-------------------------|--------------|
| | | PCNDL 78610 | |
| Total Light Transmittance | % | 86 | JIS K 7361-1 |
| Haze | % | 1.3 | JIS K 7136 |

* The above figures are test values from 5-mm thick samples and are provided without guarantee. (Test temperature: 23 °C)

■ Type Standards Tables

| | Type | Part No. | RoHS and REACH Compliance | Color | Thickness (mm) | | |
|-----------------------|-------|----------|---------------------------|-------------|----------------|-----|-----|
| | | | | | Size (mm) | 3.0 | 5.0 |
| PC Static Dissipative | PCNDL | 78610 | ○ | Transparent | 1,000×2,000 | ④ | ③ |
| | | 78810 | ○ | Brown smoke | 1,000×2,000 | ④ | ② |
| | | 78910 | ○ | Grey smoke | 1,000×2,000 | ④ | ③ |

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(As of January 1, 2016)

High Functional Products

Static Dissipative Plates

Chemical Resistance

Stain Resistance Test (Surface drip test: Left for 24 hours at 23 °C and 50%RH)

| | Chemical | Concentration | Static Dissipation Performance | | | | | Change in Appearance | | | | | |
|--------------------|--------------------|---------------|--------------------------------|----------------|------|-------|-------|----------------------|-----|-------------|--------------|-----------------|-----------------|
| | | | TND | ESND | FMND | PCNDL | PETND | PETND MR | TND | FMND | PCNDL | PETND | PETND MR |
| Acidity/Alkalinity | Hydrochloric acid | 36% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | 20% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Sulfuric acid | 97% | ○ | × ¹ | ○ | × | × | × | ○ | × Yellowing | × Clouding | × | × Clouding |
| | | 60% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × Clouding | × Clouding |
| | Nitric acid | 60% | ○ | ○ | ○ | ○ | × | × | ○ | ○ | × Clouding | × Clouding | × Clouding |
| | | 40% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × Clouding | × Clouding | × Clouding |
| | Phosphoric acid | 85% | ○ | △ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Acetic acid | 95% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × Cracking | ○ | ○ |
| | Hydrofluoric acid | 46% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × Clouding | × Clouding |
| | | 10% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Hydrogen peroxide | 10% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Sodium hydroxide | 50% | ○ | × ¹ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × Discoloration | × Discoloration |
| Ammonia water | 25% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| Organic solvents | Methanol | 100% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| | Ethanol | 100% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | △ Reglossing | ○ | |
| | Isopropanol | 100% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| | Butanol | 100% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | △ Reglossing | ○ | |
| | Ethylene glycol | 100% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| | Acetone | 100% | ○ | ○ | × | ○ | ○ | ○ | × | × Melting | × Melting | × Melting | × |
| | Toluene | 100% | ○ | ○ | × | ○ | ○ | ○ | × | × Melting | × Melting | × Melting | × |
| Other | Saline solution | 30% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| | Ammonium fluoride | 50% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| | Potassium chloride | 10% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| | Neutral detergent | 10% | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |

Evaluation: ○ No change △ Slight change × Considerable change

*These results are those of drip tests of individual chemicals in conditions with no stress loading (short-term). Accordingly, results may differ if subjected to direct dripping over a long period.

As it is also expected that there are cases where results vary due to the differences in use conditions, you should thoroughly check the product by performing a preliminary test and similar measures beforehand.

*The above data are typical test results and given here without guarantee.

*1: TND behavior varies when used in an environment with concentrated sulfuric acid or sodium hydroxide.

High Functional Products

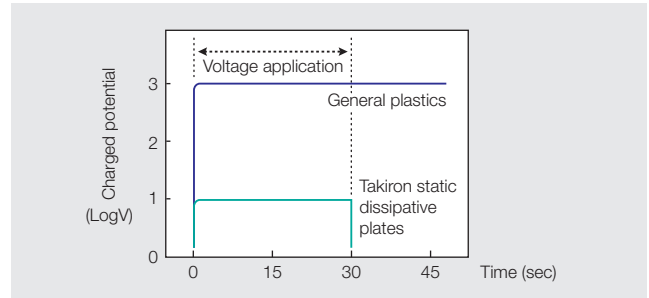
Static Dissipative Plates

Electrical Characteristics of Static Dissipative Plates

- Saturated charge voltage: Low (Hardly charged)
- Temperature and Humidity Effects: Stable
- Abrasion effect: Minimal (Static dissipative performance retained)

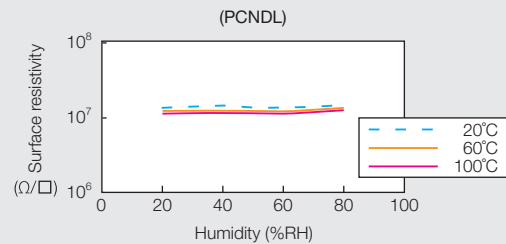
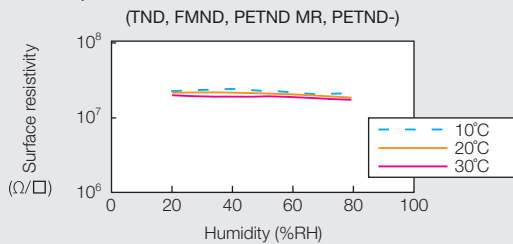
| Item | Unit | Takiron Static Dissipative Plates | General Plastics | Measurement Method |
|--------------------------|------------------|-----------------------------------|-------------------|--------------------|
| Surface resistivity | Ω/\square | 10^6 to 10^9 | 10^{16} or more | JIS K6911 |
| Volume resistivity | $\Omega \cdot m$ | 10^{17} to 10^{18} | 10^{18} or more | JIS K6911 |
| Saturated charge voltage | V | 10 or less | 3,000 | * |
| Half life | sec | 1 or less | Long | * |

* Measured with the static honest meter
 Applied voltage: 10,000 V for 30 sec
 After voltage application, the charged potential and decay time are measured (at 23°C and 50%RH)
 Distance from the specimen and the point of voltage application: 20mm



Temperature and Humidity Effects

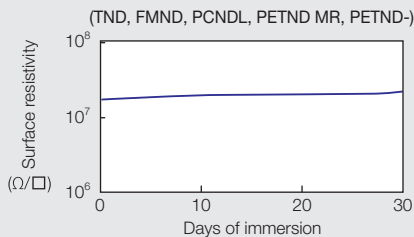
Even if temperature or humidity changes, the static dissipation performance hardly changes, allowing for stable and excellent performance.



Measurement method: JIS K6911 (23°C, 50%RH)

Water Effect

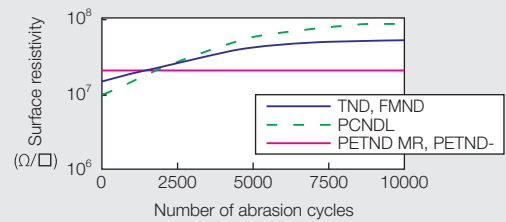
Little change caused by water is observed, indicating excellent water resistance.



Test condition: Static immersion at room temperature
 Measurement method: JIS K6911 (23°C, 50%RH)

Abrasion Effect

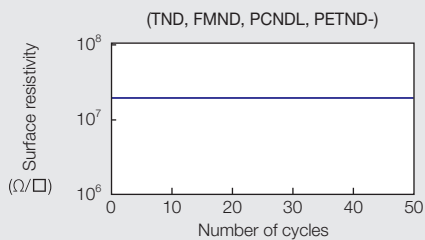
Effect of surface abrasion is extremely small, providing retainable excellent static dissipation performance.



Test condition: JIS L0849 Abrasion tester II type, load: 500g, abrasion by nylon cloth
 Measurement method: JIS K6911 (23°C, 50%RH)

Heat Cycle Effect

Degradation of static dissipative performance caused by a severe temperature change is minimal and the performance is stable.

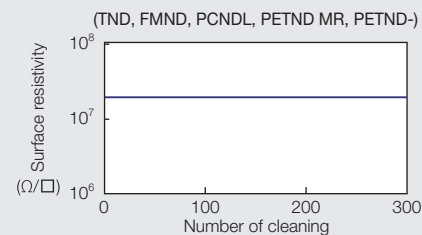


Test condition
 Other than PCNDL: Continuous cycle test. One cycle: -20°C (30 min) to +60°C (30 min)
 Measurement method: JIS K6911 (23°C, 50%RH)

* The above data are typical test results and given here without guarantee.

Surface Cleaning Effect

Changes caused by isopropyl alcohol (IPA) are not observed.



Measurement method: JIS K6911 (23°C, 50%RH)

Limitation of Warranty

Values of physical properties herein are presented as typical test results in Takiron Co., Ltd., and are considered accurate to the best of our knowledges. It is offered solely for your consideration, examination and verification, and is not to be construed as a representation or warranty expressed or implied, for which Takiron Co., Ltd. assumes any legal responsibility. Our warranties are limited to those expressly stated in the formal contracts or in conditions of sale on our invoices and order acceptances. Conditions and methods of use may vary and are beyond the control of Takiron Co., Ltd., therefore, Takiron Co., Ltd. disclaims any liability incurred as a result of the use of Takiron Static Dissipative Plates in accordance with the values of physical properties herein.

No information herein shall be construed as an offer of indemnity for infringement or as a recommendation to use Takiron Static Dissipative Plates in such a manner as to infringe any patent, utility model and design, domestic or foreign. The values of physical properties of Takiron Static Dissipative Plates cannot be automatically used when engineering finished fabricated components; and the fabricator or end user is responsible for insuring the suitability of Takiron Static Dissipative Plates for their specific application or end use.

THERE ARE NO WARRANTIES AS TO TAKIRON STATIC DISSIPATIVE PLATES DESCRIBED HEREIN. EITHER EXPRESSED OR IMPLIED. INCLUDING, BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.



Notes on Handling Takiron Static Dissipative Plates

① Notes on usage

- 1-1. For the best suitable selection of Takiron Static Dissipative Plates, ensure to carefully check temperature, chemicals, ultra violet effect, external stress and other actual conditions on which Takiron Static Dissipative Plates are to be used.
- 1-2. In your design, it is important to consider not only the theory of strength calculation but also your experiences related to the fabricating conditions and methods.
- 1-3. Figures of physical properties and other aspects are typical test values, not guaranteed performances.
- 1-4. According to your intended use, ensure to select suitable Takiron Static Dissipative Plates.
- 1-5. Ensure that Takiron Static Dissipative Plates are not in contact with materials that may contain harmful substances to the plates, such as flexible PVC and rubber.

② Notes on fabricating

- 2-1. During your fabricating of Takiron Static Dissipative Plates, ensure to wear the protections such as gloves and goggles according to necessity and use appropriate machines and tools.
- 2-2. During your cutting and welding of Takiron Static Dissipative Plates, gas may be generated. Ensure that the fabricating room is adequately ventilated.
- 2-3. When you use adhesives and solvents, there is a risk of gas poisoning, fire, gas explosion and other accidents. Be careful of fire, and ensure there is adequate ventilation. Take the correct precautions according to the notes and indications on the materials to be used.

③ Notes on storage and transportation

- 3-1. During storing and transporting Takiron Static Dissipative Plates, ensure to keep the plates placed horizontally. If Takiron Static Dissipative Plates are stored and transported leaning against a wall, the plates may warp.
- 3-2. It should be noted that some masking materials protecting Takiron Static Dissipative Plates may not peel off, if the plates become wet.
- 3-3. Ensure that Takiron Static Dissipative Plates and their fabricated plates are not exposed to direct sunlight. Don't store and transport them in a high temperature environment.

④ Notes on disposal

- 4-1. If you dispose of Takiron Static Dissipative Plates, always dispose the plates as industrial waste in compliance with the relevant laws and regulations.



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