SEKISUI

2025.3 初 版

高性能防静电板＆片

High-Performance Static Dissipative Plate & Sheet

日本积水DC

ESLON DC

Printed 2025/3

卓越的最先端技术

日本积水DC板
可阻断“静电干扰”！

随着以半导体为主的电子工业领域持续发展，最先端技术也在不断进化。技术创新正在以惊人的速度向前推进，广泛应用于电子、信息、通讯设备等各类工业产品，如今已迅速成长为引领人类进化方向的重大领域。然而，地球上存在着许多阻碍技术运用的因素。为了加快实现电子电路的超微缩化，洁净室内的防静电措施显得越来越重要。

为满足此类需求，积水化学率先在世界上推出了以高性能防静电透明PVC板为代表的防静电板“日本积水DC板”系列，防静电软片“日本积水DC片”系列。

日本积水DC板系列的高性能在日本国内和海外广受好评，在市场上树立了优质品牌的地位。其中，1986年竣工的东北大学电气通信研究所超微缩电子电路实验设施以及1997年竣工的大阪大学超精密加工研究据点的超洁净室均采用了大量的DC板，这证明了我们的DC板能够为全球最高水准的设施提供符合其需求的高性能。

此外，积水化学还致力于开发独创的导电性赋予技术，以满足先端产业广泛的需求。撼动世界的技术创新将从细致且完美的环境中不断诞生。

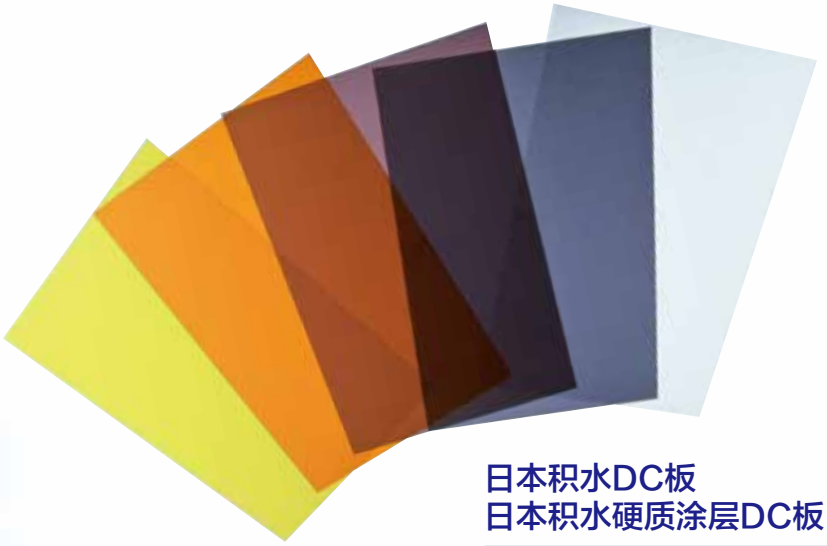
我们的“日本积水DC系列”可根据您的研究、开发环境，用途提供丰富的产品选择，欢迎选购。

The development of the electronic industry, especially semiconductor field, has been accelerating further evolution of cutting-edge technologies. Technological innovation in the electronic industry is progressing at remarkable speed, and is applied not only to electronic, information and communication devices, but also to various kinds of industrial products. The electronic industry has rapidly grown up to form a massive field which leads the evolution of mankind. However, on the earth, there exist numerous inhibitive factors for its utilization. In order for realization of accelerated hyper miniaturization of electronic circuitry, countermeasures for static electricity problems in clean rooms are becoming further important.

In compliance with these needs, Sekisui Chemical was the pioneer to has launched high performance static dissipative transparent PVC plates in the world, followed by the series of static dissipative Eslon DC Plates.

The high performance of the series of Eslon DC Plates has been gaining excellent reputation in Japan also overseas, recognition as a high quality brand. It is particularly worth noting that a large quantity of Eslon DC Plates were adopted in the super clean rooms of the Research Institute of Electrical Communication of Tohoku University, Ultra Microelectronic Circuit Test Facility, Japan, completed in 1986 and in the super clean rooms of the Research project of Ultra Precise Fabrication of Osaka University, Japan, completed in 1997. We take this as the verification of high performance of our products that can be used in the world highest class facilities at all times.

We, Sekisui Chemical, will further continue our efforts to develop our original and unique technology that imparts static dissipating performance to our various types of plastic plates and sheets. World-shaking technological innovation rises out of providing delicate and perfect environments. We are confident that our Eslon Plates will meet your requirement and a great variety of our product lines fit respective research and environments for your development projects.



日本积水DC板
日本积水硬质涂层DC板

Eslon DC Plate
Eslon Hard Coat DC Plate

【高性能防静电板】
【High-Performance Static Dissipative Plate】

以优越的除电性支援先端科学技术的高性能防静电板。
硬质涂层DC板采用交联结构，具有可抵抗划伤和有机溶剂的耐划伤性和耐化学性。拥有丰富的尺寸和颜色可供选择，可满足您的各项用途。

Both of these two grades are high performance static dissipative plates with excellent static discharge property.
Eslon Hard Coat DC Plate, thanks to its cross-linked structure, is superior in scratch and chemical resistance, and therefore, is hardly affected by marring or organic solvent attack.
These are available in a variety of sizes and colors to be utilized for all applications.

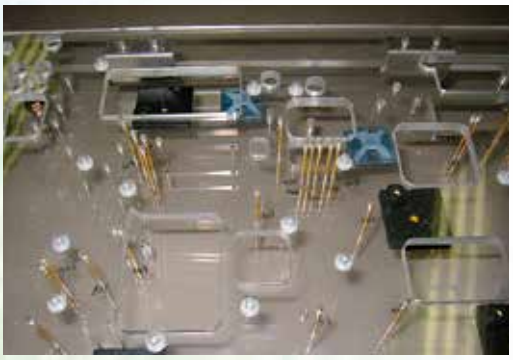
日本积水DC片G　Eslon DC Sheet G

【高性能防静电软片】
【High-Performance Antistatic Soft Sheet】

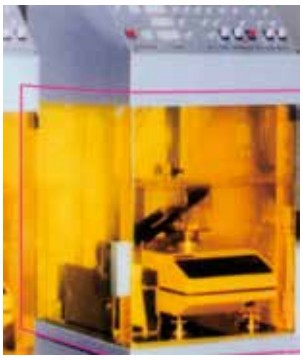
含有导电可塑剂的软质聚氯乙烯，具有优秀除电性的高性能防静电软片。

Eslon DC Sheet G is high performance static dissipative sheet, made with soft PVC in which the unique plasticizer.

用途示例 Application



电路板检查治具　PCB inspection jig



UV屏蔽罩　UV shielding cover

照明灯罩　Lighting cover

□内使用了日本积水DC板。

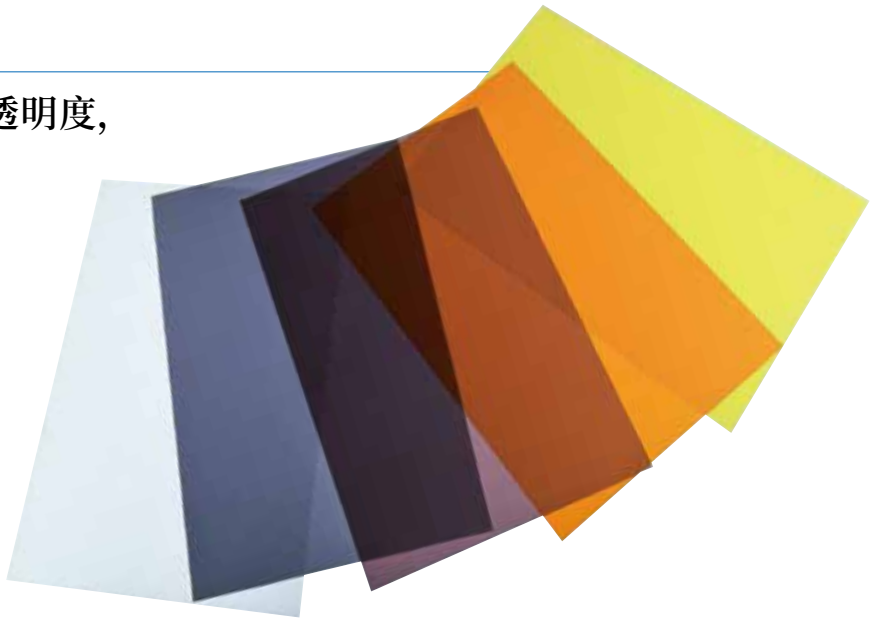
Eslon DC Plate is used in the frame □.

恒温槽窗　Window for temperature chamber

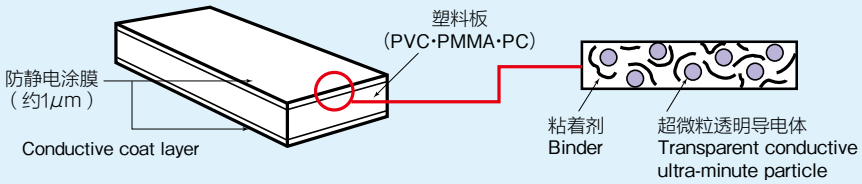
洁净室内导流垂壁　Eyelid in cleanroom

日本积水DC板
Eslon DC Plate

以优秀的防静电性和透明度，
推动加快技术创新－



日本积水DC板是在塑料板两面施加防静电涂膜的板材。
Eslon DC Plate have a conductive surface coating both sides of base plastic plate.



1.优秀的防静电性
Excellent Static Dissipative Performance

表面电阻值为10^6～$10^7\Omega/\square$，显示出优秀的除电性。此外，这意味着其具有长期稳定的防静电性能，且对湿度也具有良好的稳定性。

The surface resistivity is 10^6～$10^7\Omega/\square$ that prevents suitably the accumulation of electrostatic charge. Eslon DC Plate has high stability to the static dissipative performance, and is less affected by humidity.

2.优秀的光学特性
Excellent Optical Performance

光学特性优秀的透明板，另有透明、橙、黄、烟熏棕等颜色可供选择。

Eslon DC Plate can be supplied in transparent colors which are "clear", "orange","yellow","smoked brown", and have excellent optical property.

3.优秀的可加工性
Excellent Fabrication Ability

即便经过成形、折叠弯曲等加工，也能保持所需的防静电性能。

Static dissipative performance is almost maintained after fabrication of forming, bending etc.

材质 Material type	品名 Code	颜色 Color		宽×长 Width×Length (mm)	厚度 Thickness (mm)										UL94 V-0	FM4910	RoHS2	REACH SVHC
					1	2	3	4	5	6	8	10	12	15				
硬质聚氯乙烯 Polyvinyl Chloride PVC	CS401AS	透 明	Transparent Clear	1,000×2,000			■	■	■	■	■	■			≧3mm		◆	◆
				1,212×2,424			■	■	■	■	■	○						
	CS411AS	透明橙	Transparent Orange	1,000×2,000			○	○	○	○					≧3mm		◆	◆
				1,212×2,424			○	○	○	○								
	CS421AS	透明 烟熏棕	Transparent Smoked Brown	1,000×2,000			■	○	■	○					≧3mm		◆	◆
				1,212×2,424			■	○	■	○								
	CS441AS	透明黄	Transparent Yellow	1,000×2,000			○	○	○	○					≧3mm		◆	◆
				1,212×2,424			○	○	○	○								
	FM401AS	透明FM	Transparent Clear FM	1,000×2,000			○	○	○	○	○	○				●	◆	×(*1)
				1,212×2,424			○	○	○	○	○	○						
氯化聚氯乙烯 C-PVC	CS401ATM	透明FM	Transparent Clear FM	1,000×2,000			■	○	■	○	○	○			≧3mm	●	◆	◆
				1,212×2,424			■	○	■	○	○	○						
亚克力 Acrylic PMMA	AC405AS	透 明	Transparent Clear	1,000×2,000		■	■	■	■	■	■	■					◆	◆
				1,000×1,985										■				
				1,120×1,350		■	■	■	■	■								
				1,212×2,424			■	■	■	○	○							
	AC415AS	透明橙	Transparent Orange	1,000×2,000		○	■	○	■	○							◆	◆
	AC425AS	透明烟熏棕	Transparent Smoked Brown	1,000×2,000		○	■	○	■	○							◆	◆
	AC445AS	透明黄	Transparent Yellow	1,000×2,000		○	○	○	○	○							◆	◆
	AC105AS	透明烟熏灰	Transparent Smoked Gray	1,000×2,000			○		○								◆	◆
	AC301AS	透明天空蓝	Transparent Sky Blue	1,000×2,000			○		○								◆	◆
	AC362AS	透明夏日绿	Transparent Summer Green	1,000×2,000			○		○								◆	◆
	AC305AS	乳白	Translucent Milky White	1,000×2,000			○		○								◆	◆
	AC005AS	黑	Opaque Black	1,000×2,000			○		○								◆	◆
聚碳酸酯 Polycarbonate PC	PC407AS	透 明	Transparent Clear	1,000×2,000	■	■	■	■	■	■	■	■	○				◆	×(*2)
				1,212×2,424		○	■	■	■	■	■	■	○					
	PC417AS	透明橙	Transparent Orange	1,000×2,000			○		○	○							◆	×(*2)
				1,212×2,424			○		○									
	PC427AS	透明 烟熏棕	Transparent Smoked Brown	1,000×2,000			○	○	○	○	○						◆	×(*2)
				1,212×2,424			○	○	○	○								

■标准品 Standard item　○订制生产 Available with minimum order quantity　●符合FM4910规格 FM Approvals listed cleanroom material　※如需上述以外的尺寸和颜色，可接受咨询。 Available with minimum order for other size and colors

◆符合修订后RoHS指令(RoHS2)、REACH规则的产品　Compliant with RoHS2 or REACH
:调查结果基于以下指令和规定。It is judged based on the following directive and regulation.
·RoHS2:(EU)2015/863　·REACH/SVHC:第31次SVHC清单 Substances included in the Candidate List for authorization on 27 June 2024
其他指令和规定请另行咨询。 For inquiries regarding other directives and regulations, please contact us.

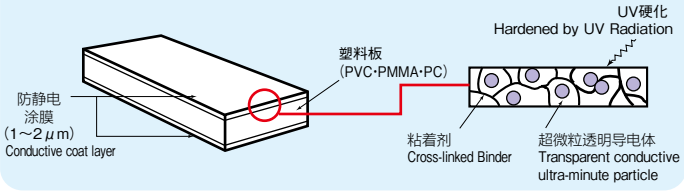
(*1) FM401AS中含有中链氯化石蜡(MCCP)，不符合REACH/SVHC之规定。
Medium-chain chlorinated paraffins (MCCP) is used in FM401AS. It is not in compliance with REACH/SVHC.

(*2) 聚碳酸酯品级中含有苯并三唑系紫外线吸收剂 UV-329，不符合REACH/SVHC之规定。
2-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol, UV-329 is used in Polycarbonate plates. There are not in compliance with REACH/SVHC.

日本积水硬质涂层DC板
Eslon Hard Coat DC Plate

有效抵抗划伤和有机溶剂的表面涂膜—

日本积水硬质涂层DC板在塑料板两面施加UV硬化防静电涂膜的板材。
Eslon Hard Coat DC Plate have a UV crosslinked conductive surface coating both sides of base plastic plate.



1.优秀的防静电性　Excellent Static Dissipative Performance

表面电阻值为10^6～$10^7\Omega/\square$，显示出优秀的除电性。此外，这意味着其具有长期稳定的防静电性能，且对湿度也具有良好的稳定性。

The surface resistivity is 10^6～$10^7\Omega/\square$ that prevents suitably the accumulation of electrostatic charge. Eslon Hard Coat DC Plate has high stability to the static dissipative performance, and is less affected by humidity.

2.优秀的耐划伤性、耐化学性　Excellent Mar and Chemical Resistance

涂膜在紫外线的作用下形成交联结构，可有效抵抗划伤和有机溶剂的侵入。

Hard coating cross-linked by UV radiation has higher mar and chemical resistance than non-crosslinked coating.

3.优秀的光学特性　Excellent Optical Performance

光学特性优秀的透明板，另有透明、橙、黄、烟熏棕等颜色可供选择。

Eslon Hard Coat DC Plates can be supplied in transparent colors which are "clear", "orange","yellow","smoked brown", and have excellent optical property.

材质 Material type	品名 Code	颜色 Color		宽×长 Width×Length(mm)	厚度 Thickness(mm) 1	2	3	4	5	6	8	10	15	UL94 V-0	FM4910	RoHS2	REACH SVHC
硬质聚氯乙烯 Polyvinyl Chloride PVC	VHS401AS	透明	Transparent Clear	1,000×2,000			■	○	■	○	○	○		≧3mm		◆	◆
				1,212×2,424			○	○	○	○	○	○					
	VHS411AS	透明橙	Transparent Orange	1,000×2,000			○	○	○	○						◆	◆
				1,212×2,424			○	○	○	○							
	VHS421AS	透明烟熏棕	Transparent Smoked Brown	1,000×2,000			○	○	○	○				≧3mm		◆	◆
				1,212×2,424			○	○	○	○							
	VHS441AS	透明黄	Transparent Yellow	1,000×2,000			○	○	○	○						◆	◆
				1,212×2,424			○	○	○	○							
氯化聚氯乙烯 C-PVC	VHS401ASM	透明FM	Transparent Clear FM	1,000×2,000			○	○	○	○	○	○		≧3mm	●	◆	◆
				1,212×2,424			○	○	○	○	○	○					
亚克力 Acrylic PMMA	AH405AS	透明	Transparent Clear	1,000×2,000		○	■	○	■	○	■	■				◆	◆
				1,120×1,350		○	■	○	■	○							
				1,212×2,424			■	○	■	○	○						
	AH415AS	透明橙	Transparent Orange	1,000×2,000		○	○	○	○	○						◆	◆
	AH425AS	透明烟熏棕	Transparent Smoked Brown	1,000×2,000		○	○	○	○	○						◆	◆
	AH445AS	透明黄	Transparent Yellow	1,000×2,000		○	○	○	○	○						◆	◆
聚碳酸酯 Polycarbonate PC	PH407AS	透明	Transparent Clear	1,000×2,000		○	■	○	■	○	○	○				◆	×(*2)
				1,212×2,424			■	○	■	○	○	○					
	PH407ASU	透明UL	Transparent Clear UL	1,000×2,000			■		■					≧3mm		◆	×(*2,3)
	PH417AS	透明橙	Transparent Orange	1,000×2,000			○		○							◆	×(*2)
				1,212×2,424			○		○								
	PH427AS	透明烟熏棕	Transparent Smoked Brown	1,000×2,000			○	○	○	○						◆	×(*2)
				1,212×2,424			○	○	○	○							
	PH487ASU	透明烟熏灰	Transparent Smoked Gray	1,000×2,000			■							≧3mm		◆	×(*2,3)

■标准品 Standard item
○订制生产 Available with minimum order quantity
●符合FM4910规格 FM Approvals listed cleanroom material
※如需上述以外的尺寸和颜色，可接受咨询。 Available with minimum order for other size and colors

◆符合修订后RoHS指令(RoHS2)、REACH规则的产品　Compliant with RoHS2 or REACH
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其他指令和规定请另行咨询。 For inquiries regarding other directives and regulations, please contact us.
(*2) 聚碳酸酯品级中含有苯并三唑系紫外线吸收剂 UV-329，不符合REACH/SVHC之规定。
2-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol, UV-329 is used in Polycarbonate plates. There are not in compliance with REACH/SVHC.
(*3) PH407ASU、PH487ASU中虽然含有全氟丁烷磺酸(PFBS)，但最大含有浓度不足0.1wt%。
PFBS is used in PH407ASU and PH487ASU, but the maximum concentration is less than 0.1wt%.

日本积水DC片G
Eslon DC Sheet G

最适合用作门帘和垂壁的软片–

1.优秀的防静电性
Excellent Antistatic Performance

含有导电可塑剂的软质聚氯乙烯, 表面电阻值为10^{9}～$10^{11}\Omega/\square$,
显示出优秀的除电性。
Eslon DC Sheet G is made from soft polyvinylchloride mixed conductive plasticizer.
The surface resistivity is 10^{9}～$10^{11}\Omega/\square$ that prevents suitably the accumulation of electrostatic charge.

2.优秀的耐燃性
Excellent Frame Retardant

具有自熄性, 是符合消防法施行令第4条第3项基准的阻燃物品。
Eslon DC Sheet G has extinguishing performance and is identified flame retardant product under Fire Service Law in Japan.

3.优秀的透明度
Excellent Transparency

4.优秀的加工性
Excellent Fabrication Ability

可使用高频加热焊机轻松完成焊接加工。
It is possible to weld easily with the high frequency heating welder.

材 质 Material type	品 名 Code	颜 色 Color	宽×长×厚度 Width×Length×Thickness
软质聚氯乙烯 Soft PVC	G406AS	☐ 透 明 Transparent Clear	1.37m×30m×0.3mm
			1.20m×30m×0.5mm

※因使用邻苯二甲酸二辛酯(DEHP)，不符合RoHS2、REACH/SVHC之规定。
DEHP (Bis(2-ethylhexyl)phthalate) is used in the product. It is not in compliance with RoHS Directive and REACH/SVHC

技术资料 Technical Data

■基本性能 Basic Property

项目 Properties	单位 Unit	试验方法 Test Standard	DC Plate／Hard Coat DC Plate				DC Sheet G
			PVC	C-PVC	PMMA	PC	Soft PVC
			透明 彩色透明 Transparent and Transparent color	透明FM Clear FM	透明 彩色透明 Transparent and Transparent color		透 明 Transparent
比 重 Specific Gravity	—	ASTM D 792	1.40	1.47	1.19	1.20	1.31
吸水率 Water absorption	%	ASTM D 570	0.03	0.02	0.3	0.3	—
铅笔硬度※1 Pencil hardness	—	JIS K 5400	H／2H	H／2H	2H／5H	HB／H	—
涂膜粘合强度 Coating Layer Bond Strength	—	JIS D 0202	100	100	100	100	—
总透射率※2 Transmittance	%	ASTM D 1003	75 (clear)	70	85 (clear)	80 (clear)	82
雾 度※2 Haze	%	ASTM D 1003	4 (clear)	5	2 (clear)	3 (clear)	6
表面电阻值 Surface Resistivity	Ω／□	ASTM D 257	10^6—10^7	10^6—10^7	10^6—10^7	10^6—10^7	10^9—10^{11}
表面电阻值 Surface Resistance	Ω	ANSI/ESD STM 11.11	10^6—10^7	10^6—10^7	10^6—10^7	10^6—10^7	—
除电性 Electrostatic Discharge	sec	MIL B 81705B	≦0.1	≦0.1	≦0.1	≦0.1	≦0.1
抗拉强度 Tensile strength	N/mm² (kgf/cm²)	ASTM D 638	63.7 (650)	75 (760)	74.5 (760)	64.7 (660)	※3 H7.8:W6.8
伸长率 Tensile elongation,break	%	ASTM D 638	40—70	20	5	100	H250:W278
抗弯强度 Flexural strength,yield	N/mm² (kgf/cm²)	ASTM D 790	98.1 (1,000)	105 (1,070)	117.7 (1,200)	93.2 (950)	—
弯曲模量 Flexural modulus	N/mm² (kgf/cm²)	ASTM D 790	3,400 (3.5×10^4)	3,050 (3.1×10^4)	2,900 (3.0×10^4)	2,600 (2.7×10^4)	—
抗压强度 Compressive strength	N/mm² (kgf/cm²)	ASTM D 695	83.4 (850)	—	—	85.3 (870)	—
缺口冲击强度 Notched IZOD impact strength	kJ/mm² (kgf·cm/cm²)	ASTM D 256	2.9 (3.0)	3.0 (3.1)	2.0 (2.0)	83.4 (85)	※4 H2.1:W1.8
热变形温度 Deflection temperature	℃	ASTM D 648	60—65	82	90	135	≦35
线性膨胀系数 Linear expansion coefficient	1／℃	ASTM D 696	$6\text{-}8\times10^{-5}$	5×10^{-5}	7×10^{-5}	7×10^{-5}	—
热传导率 Thermal conductivity	W/m·K (kcal/m·h·℃)	ASTM C 177	0.16 (0.14)	0.16 (0.14)	0.21 (0.18)	0.20 (0.17)	—
比 热 Specific Heat	kJ/·K (cal/g·℃)	ASTM C 177	0.84—1.26 (0.2—0.3)	—	1.47	1.26	—
热收缩率 Heat shrinkage	%	JIS K 6745	−2.0	−1.5	—	—	—
燃烧率 Flammability	—	JIS K 6911	自熄性 Self extinguishing	—	可燃性 Combustible	自熄性 Self extinguishing	自熄性 Self extinguishing

注) 以上数据仅为典型值，非保证值。
※1: DC板/硬质涂层DC板
※2: 硬质涂层DC板除外
※3: 拉伸断裂荷载(kgf) (JIS K 6732)
※4: 直角断裂荷载(kgf) (ASTM D 882)

Note) The values shown above are typical values, not guaranteed values.
※1 : DC Plate / Hard Coat DC Plate
※2 : not for Hard Coat DC Plate
※3 : Tensile breaking load kgf based on JIS K 6732
※4 : Tear breaking load kgf based on ASTM D 882

■实用性能　Performance

1 除电性 Static Dissipative Performance

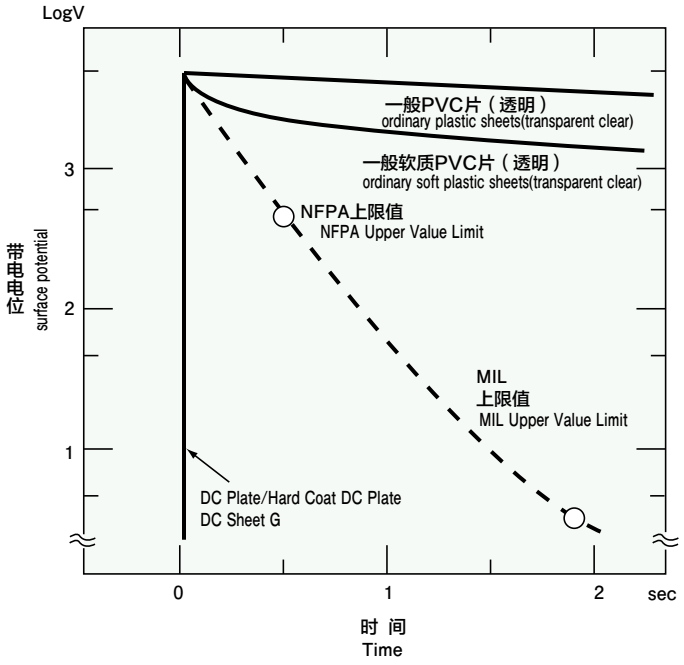
基于MIL B 81705B评估
Test based on MIL B 81705B

(1) 试验条件　Test condition

在温度为23℃、湿度为15%RH的环境下，将试验样品放置24小时后进行测定。
After keeping the test sample at 23℃ and 15% rel. humidity for 24 hours, the test is done.

(2) 试验方法　Test method

使用静电衰减测试仪（非接地状态下）在测试样品表面强制施加5000V电压后（此时接地），测试其电压降至0V的衰减时间。
A 5000V forced-charge is applied on the surface of the sample using a static decay meter without earthing. After being earthed the decaying time down to zero volt is measured.



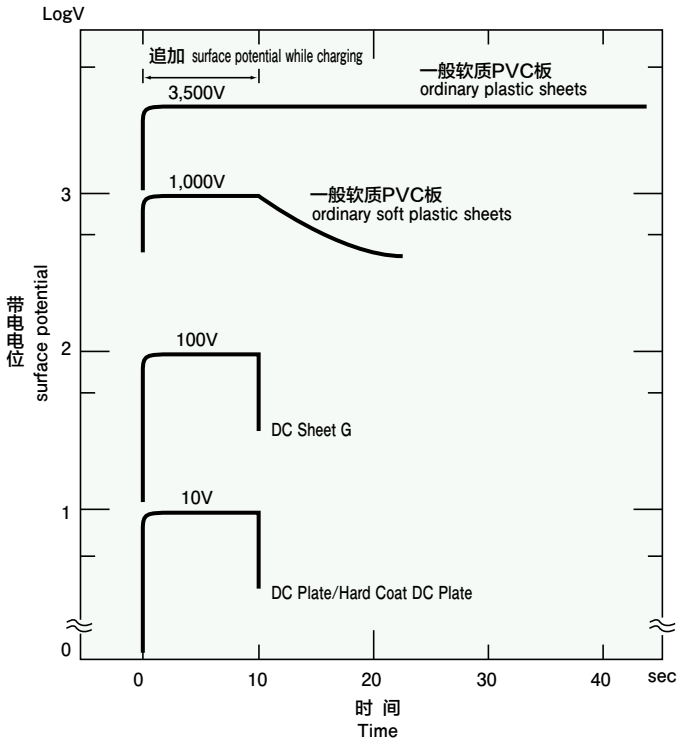
基于JIS L 1094评估
Test based on JIS L 1094

(1) 试验条件　Test condition

温度20℃、湿度65%RH
The test is done at 20℃ room temperature and 65% rel. humidity.

(2) 试验方法　Test method

使用静电衰减测试仪（接地状态下）对测试样品表面持续进行10秒电晕放电（10KV）后，测定其带电电位和衰减时间。
Using a static-honest meter (being earthed) and giving 10 KV corona discharge application for 10 seconds. Afterwards the surface potential and the decaying time is recorded.

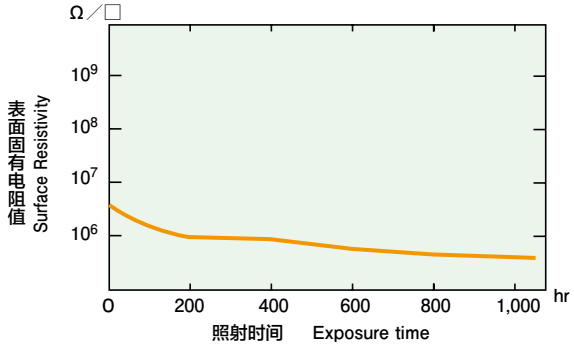


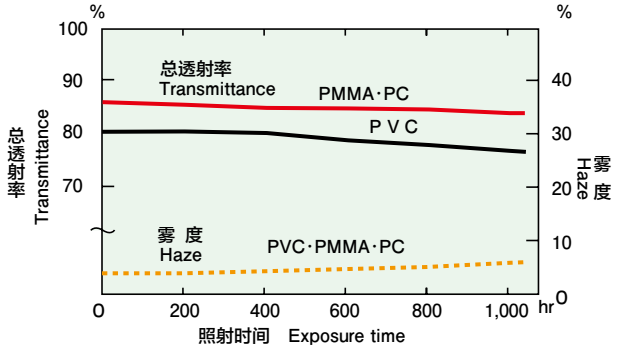
2 耐紫外线性 UV-Rays Resistance

照射条件 Radiation Condition
试验使用褪色仪（JIS K 5400）照明光源使用东芝公司的H400F（11.2J/cm²·hr）
Test machine is Fade-O-meter (JIS K 5400);Lamp is Toshiba H400F(11.2J/cm²·hr)

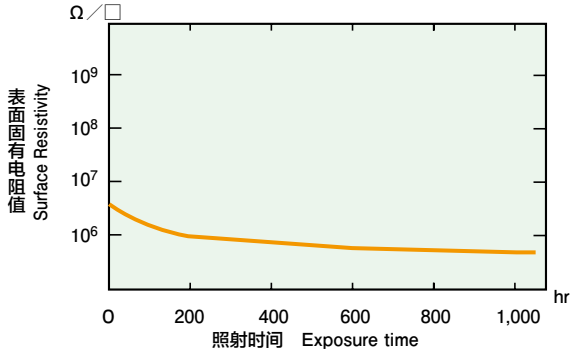
注 Notes
褪色仪照射1,000小时产生的紫外线能量大约相当于普通荧光灯（40W）从 50mm 的距离照射4年产生的能量。
The ultra-violet rays energy discharged from a Fade-O-meter with 1000 hours of radiation is equivalent to the energy of a general fluorescent lamp (40W) radiation from 50 mm distance for approximately four years.

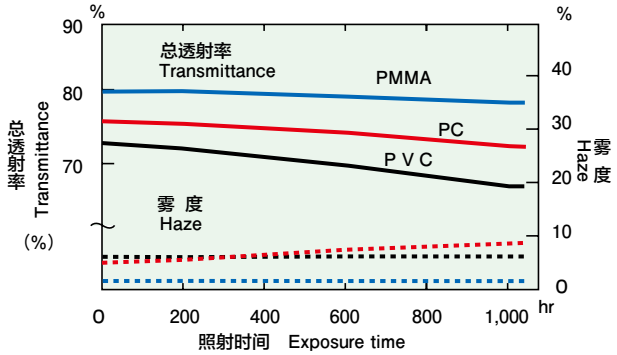
DC Plate（PVC・PMMA・PC）



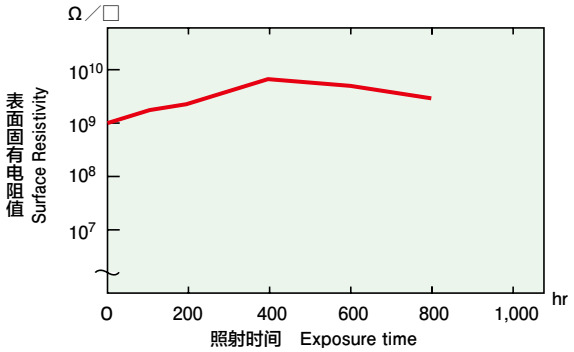


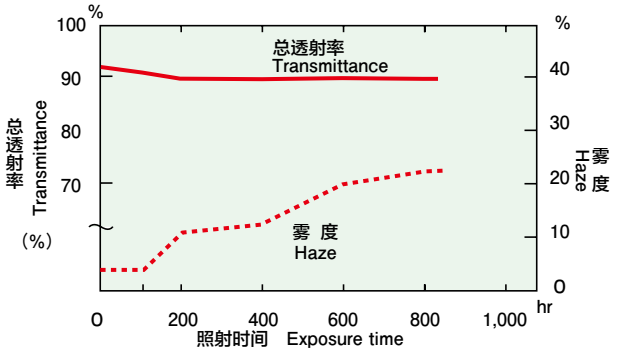
Hard Coat DC Plate（PVC·PMMA·PC）





DC Sheet G



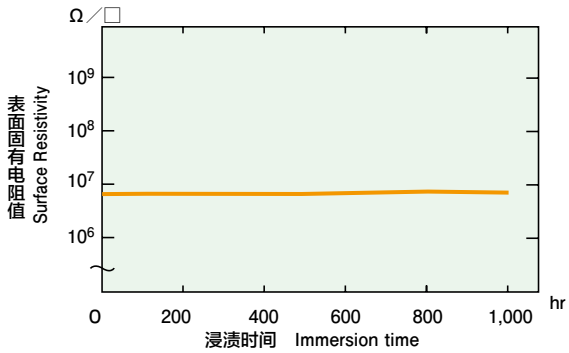


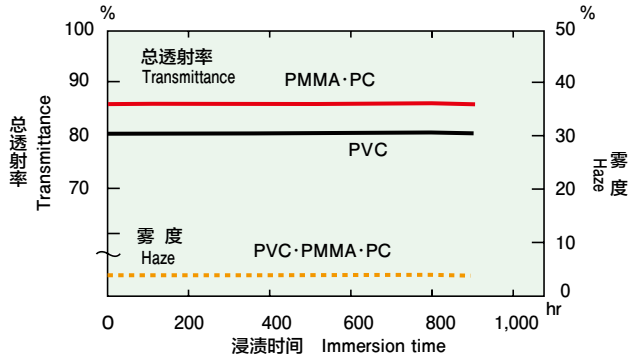
3 耐醇性 Alcohol Resistance

试验条件 Test Condition

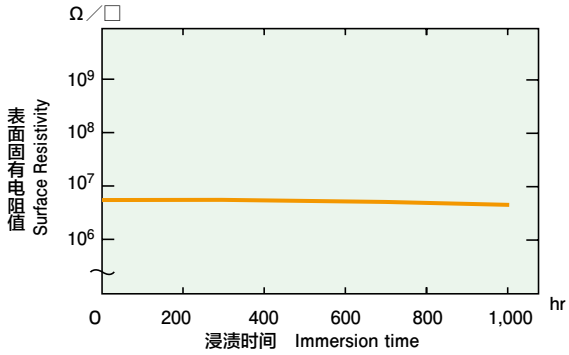
浸入20℃的IPA（100%）中。 Immersion into isopropyl alcohol at 20℃

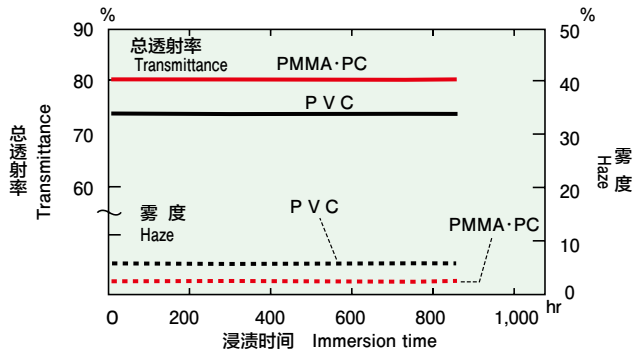
DC Plate（PVC・PMMA・PC）





Hard Coat DC Plate（PVC·PMMA·PC）





4 耐热循环性 Heat Cycle Resistance

		DC Plate			Hard Coat DC Plate			试验条件 Test Condition
		表面电阻值 Surface Resistivity Ω／□	总透射率 Transmittance %	雾 度 Haze %	表面电阻值 Surface Resistivity Ω／□	总透射率 Transmittance %	雾 度 Haze %	
PVC	空 白 Blank	5×10^6	79	5	5×10^6	75	5	-5℃（30min） 60℃（30min）
	100循环后 after 100 cycle	5×10^6	79	5	5×10^6	75	5	
PMMA	空 白 Blank	3×10^6	85	3	3×10^6	80	3	-5℃（30min） 60℃（30min）
	100循环后 after 100 cycle	3×10^6	85	3	3×10^6	80	3	
PC	空 白 Blank	6×10^6	82	4	6×10^6	78	4	-5℃（30min） 60℃（30min）
	100循环后 after 100 cycle	6×10^6	82	4	6×10^6	78	4	

5 耐磨损性 Abrasion Resistance

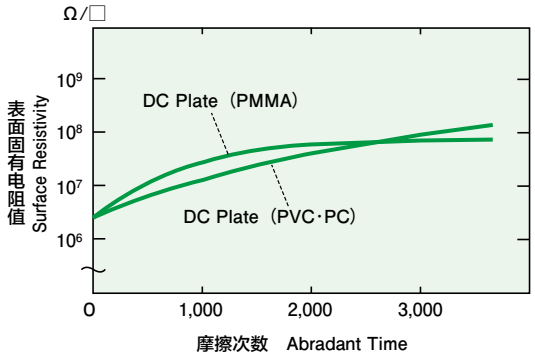
试验条件 Test Condition

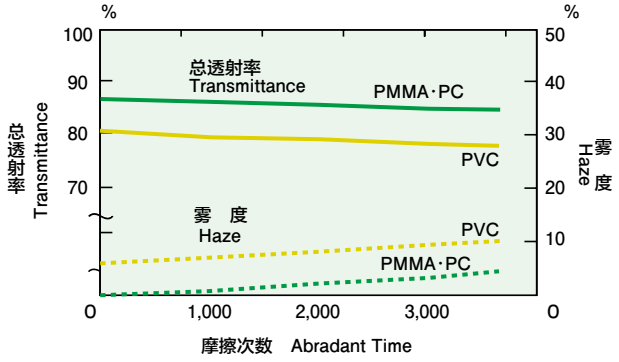
试验机…摩擦试验机(JIS L 0823)
Apparatus… Abradant Apparatus(JIS L 0823)

负荷荷重…900g／cm^2
Load…900g／cm^2

摩擦体…无尘布（干布）
Abradant… Non dust cloth

DC Plate（PVC·PMMA·PC）





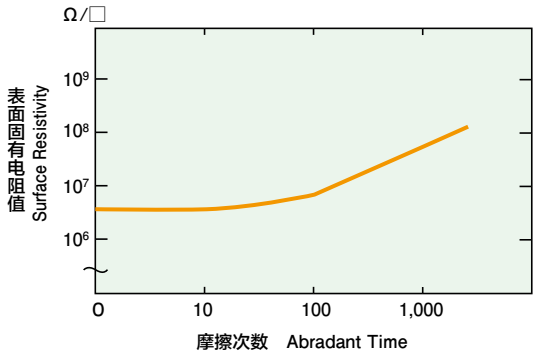
6 耐划伤性 Mar Resistance

试验条件 Test Condition

负荷荷重…500g／cm^2
Load…500g／cm^2

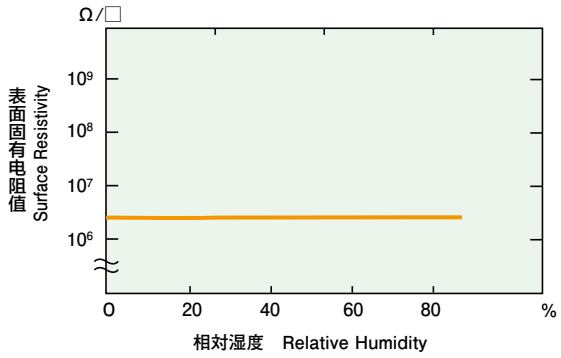
摩擦体···钢丝球#0000
Abradant···Steel Wool#0000

Hard Coat DC Plate（PVC·PMMA·PC）

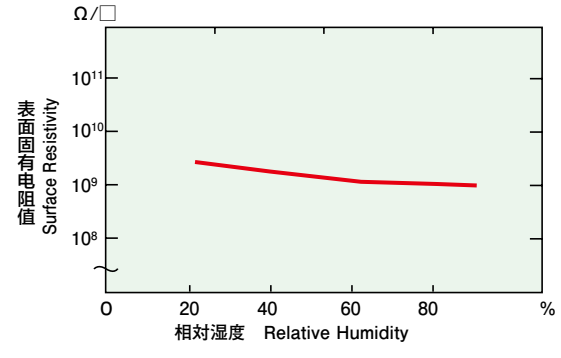


7 湿度依赖性 Humidity Dependence

DC Plate/Hard Coat DC Plate（PVC·PMMA·PC）

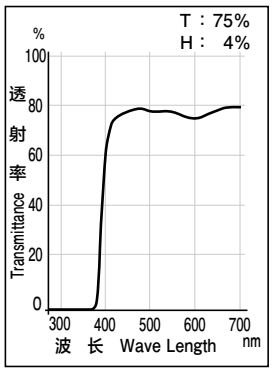
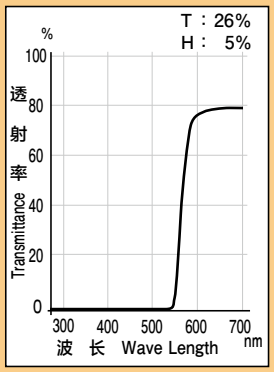
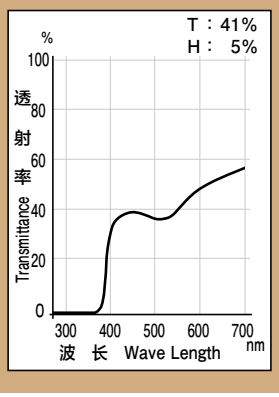
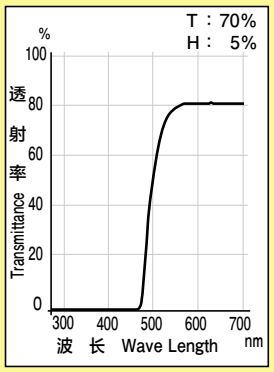
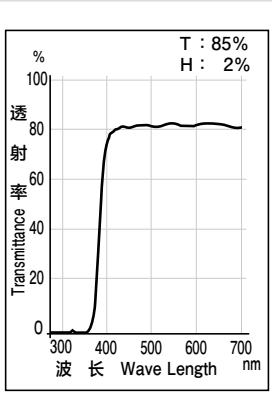
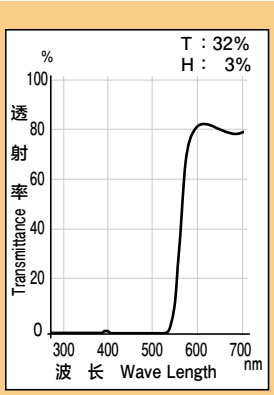
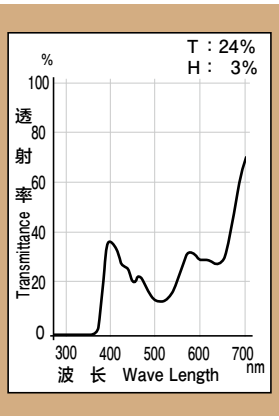
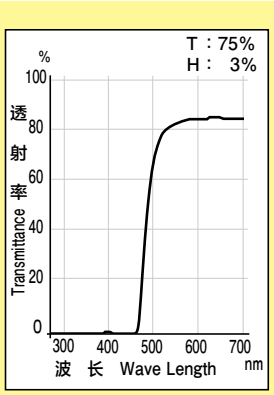
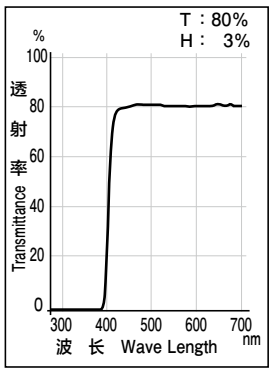
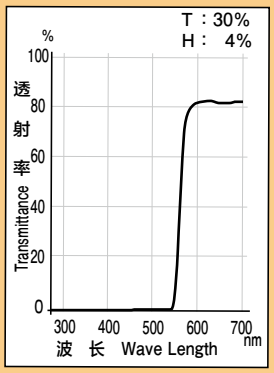
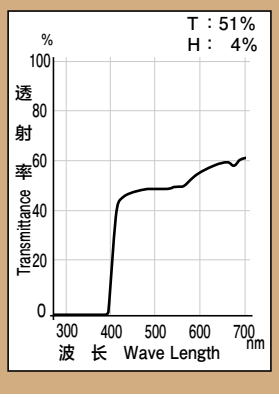
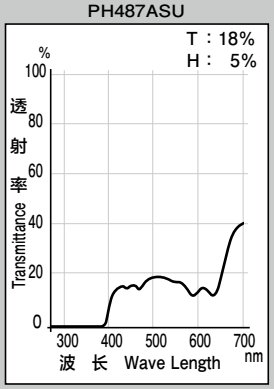


DC Sheet G

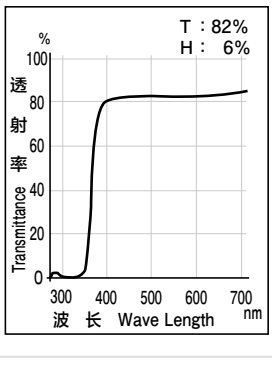


8 分光透射 (板厚 3mm)　Spectral Transmittance (For Thickness 3mm)

DC Plate／Hard Coat DC Plate

	透 明 Transparent clear	透明橙 Transparent orange	透明烟熏棕 Transparent smoked brown	透明黄 Transparent yellow	透明烟熏灰 Transparent smoked gray
PVC					
PMMA					
PC				PH487ASU 	

DC Sheet G



T：总透射率　Transmittance
H：雾　　度　Haze

■特性选择 Selection Table

				物理性能 Physical		光学性能 Optical		电气性能 Electric	机械性能 Mechanical	燃烧性能 Flammable		热力性能 Thermal	加工性能 Fabrication		
				不易划伤 Abration Resistance	不易吸潮 Low Hydroscopicity	优秀的透明度 Transparency	抗紫外线 UV Proof	拥有防静电性能 Antistaic	受到外部冲击也不易碎 Impact Resistance	难燃 Retardant	不产生腐败性燃烧气体 non-Toxicity	优秀的耐热性 Heat Resistance	易于热煨加工 Bending Ablity	可粘合（粘合剂） Bonding Ability	可焊接 Welding Ability
DC Plate	PVC	透明 Transparent Clear	CS401AS	−	++	+	−	++	+	++	−	−	++	++	+
		透明橙 Transparent Orange	CS411AS	−	++	−	++	++	+	++	−	−	++	++	+
		透明烟熏棕 Transparent Smoked Brown	CS421AS	−	++	−	−	++	+	++	−	−	++	++	+
		透明黄 Transparent Yellow	CS441AS	−	++	−	++	++	+	++	−	−	++	++	+
		透明FM Transparent Clear FM	FM401AS	−	++	+	−	++	+	++	−	−	++	++	+
	C-PVC	透明FM Transparent Clear FM	CS401ATM	−	++	+	−	++	+	++	−	+	++	++	+
	PMMA	透明 Transparent Clear	AC405AS	−	−	++	−	++	−	−	+	+	+	++	−
		透明橙 Transparent Orange	AC415AS	−	−	−	++	++	−	−	+	+	+	++	−
		透明烟熏棕 Transparent Smoked Brown	AC425AS	−	−	−	−	++	−	−	+	+	+	++	−
		透明黄 Transparent Yellow	AC445AS	−	−	−	++	++	−	−	+	+	+	++	−
	PC	透明 Transparent Clear	PC407AS	−	++	++	−	++	++	+	+	++	−	++	+
		透明橙 Transparent Orange	PC417AS	−	++	−	++	++	++	+	+	++	−	++	+
		透明烟熏棕 Transparent Smoked Brown	PC427AS	−	++	−	−	++	++	+	+	++	−	++	+
Hard Coat DC Plate	PVC	透明 Transparent Clear	VHS401AS	++	++	+	−	++	+	++	−	−	++	+	+
		透明橙 Transparent Orange	VHS411AS	++	++	−	++	++	+	++	−	−	++	+	+
		透明烟熏棕 Transparent Smoked Brown	VHS421AS	++	++	−	−	++	+	++	−	−	++	+	+
		透明黄 Transparent Yellow	VHS441AS	++	++	−	++	++	+	++	−	−	++	+	+
	C-PVC	透明FM Transparent Clear FM	VHS401ASM	++	++	+	−	++	+	++	−	+	++	+	+
	PMMA	透明 Transparent Clear	AH405AS	++	−	++	−	++	−	−	+	+	+	+	−
		透明橙 Transparent Orange	AH415AS	++	−	−	++	++	−	−	+	+	+	+	−
		透明烟熏棕 Transparent Smoked Brown	AH425AS	++	−	−	−	++	−	−	+	+	+	+	−
		透明黄 Transparent Yellow	AH445AS	++	−	−	++	++	−	−	+	+	+	+	−
	PC	透明 Transparent Clear	PH407AS	++	++	++	−	++	++	+	+	++	−	+	+
			PH407ASU	++	++	++	−	++	++	++	+	++	−	+	+
		透明橙 Transparent Orange	PH417AS	++	++	−	++	++	++	+	+	++	−	+	+
		透明烟熏棕 Transparent Smoked Brown	PH427AS	++	++	−	−	++	++	+	+	++	−	+	+
		透明烟熏灰 Transparent Smoked Gray	PH487ASU	++	++	−	−	++	++	++	+	++	−	+	+

++：最适合 Best suitable　+：适合 Suitable　−：不适合 Unsuitable

■耐化学性 Chemical Resistance

化学品 Chemical	浓度 % Concentration	DC Plate／Hard Coat DC Plate								DC Sheet G	
		PVC		C-PVC		PMMA		PC			
		滴 剂 Drop	浸 渍 Immersion	滴 剂 Drop	浸 渍 Immersion	滴 剂 Drop	浸 渍 Immersion	滴 剂 Drop	浸 渍 Immersion	滴 剂 Drop	浸 渍 Immersion
氢 氟 酸 Hydrofluoric acid	20	+	+	+	+	+	+	+	+	−	−
盐 酸 Hydrochloric acid	20	+	+	+	+	+	+	+	+	+	+
硫 酸 Sulfuric acid	50	+	+	+	+	+	+	+	+	+	+
磷 酸 Phosphoric acid	85	+	+	+	+	+	+	+	+	+	+
醋 酸 Acetic acid	10	+	+	+	+	+	+	+	+	+	−
双 氧 水 Hydrogen peroxide	30	+	+	+	+	+	+	+	+		
氢氧化钠 Sodium hydroxide	30	+/−	+/−	+/−	+/−	+/−	−	+/−	−	+	+
氢氧化钾 Potassium hydroxide	30	+/−	+/−	+/−	+/−	+/−	−	+/−	−	+	+
氯 化 钾 Potassium chloride	饱 和 Saturation	+	+	+	+	+	+	+	+	+	+
氯 化 钠 Sodium chloride	饱 和 Saturation	+	+	+	+	+	+	+	+	+	+
氨 水 Ammonia	25	+	+	+	+	+	+	+	−	−	−
甲 醇 Methyl Alcohols	100	+	+	+	+	+	+	+	+		−
乙 醇 Ethyl Alcohols	100	+	+	+	+	+	+	+	+		−
异 丙 醇 Isopropyl Achohol	100	+	+	+	+	+	+	+	+		−
丙 酮 Acetone	100	−/+	−	−/+	−	−/+	−	−/+	−	−	−
M E K MEK	100	−/+	−	−/+	−	−/+	−	−/+	−	−	−
苯 Benzene	100	−/+	−	−/+	−	−/+	−	−/+	−	−	−
甲 苯 Toluene	100	−/+	−	−/+	−	−/+	−	−/+	−	−	−
乙酸乙酯 Ethyl acetate	100	−/+	−	−/+	−	−/+	−	−/+	−	−	−
乙酸丁酯 Butyl acetate	100	−/+	−	−/+	−	−/+	−	−/+	−	−	−
二氯甲烷 Dichicromethane	100	−/+	−	−/+	−	−/+	−	−/+	−	−	−
福尔马林 Formalin	37	+	+	+	+	+	+	+	+	+	+
氟 利 昂 Freon	100	+	+	+	+	+	+	+	+	+	+
水 Water	100	+	+	+	+	+	+	+	+	+	+

评价结果 ＋：无变化
－：发生白化、膨胀等现象。

Result ＋：Not affected
－：Surface whitening and/or swelling afthe basic material

评价方法
滴剂：在板上滴上1mℓ化学品，1小时后评价外观。
浸渍：在20℃的环境下，浸渍72小时后评价外观。

Evaluation Method
Drop Test: Appearance of plate dropped 1mℓ of Chemical liquid was observed.
Immersion Test: Appearance of plate immesed in chemical liquid at 20℃ for 72 hours was observed.

注）以上仅为参考数据，非保证值。
Note:The table above should be used as a guide. Check before use about the suitability of your chemical.

保　管　Storage

1 保管方法 Storage method

(1)竖放保管　Standing storage

请如图1(1)所示，倾斜于墙壁竖放保管。如果按照图1(2)所示直接靠墙壁竖放保管，则板材会因自重而发生弯曲现象。
The supporting wall for storage should be inclined as shown in figure 1 (1). If the sheets lean against a vertical wall, the sheets are bended by their own weight as shown figure 1 (2), then the sheets become warped.

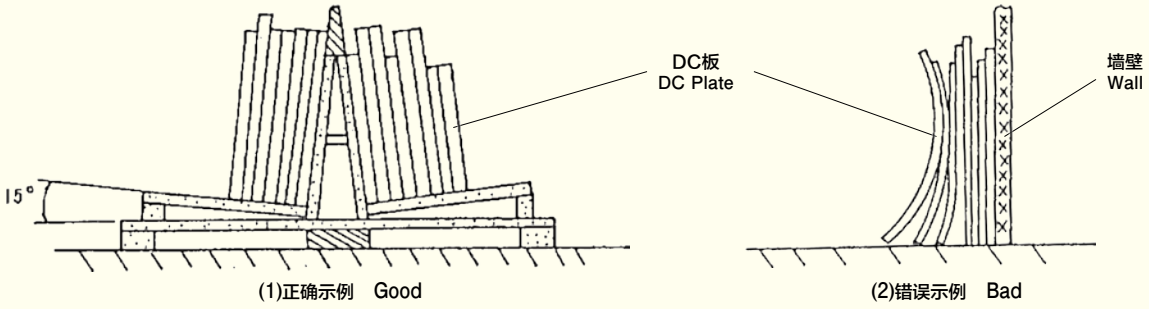


图1 竖放保管
Figure 1. Standing storage

(2)平放保管　Horizontal storage

请将板材放置于厚胶合板或间距较窄的托盘上。请如图2（1）所示，按照从大到小的顺序依次摆放保管，堆放高度请保持于50cm以内。此外，请尽量将同一尺寸的板材归类摆放。
Stack up the sheets on a thick plywood or a loading palette with narrow pitch. Larger sized sheets should be placed at lower layer. Do not stack the sheets upper than 50cm. It is preferable that sheets are stacked only in same size.

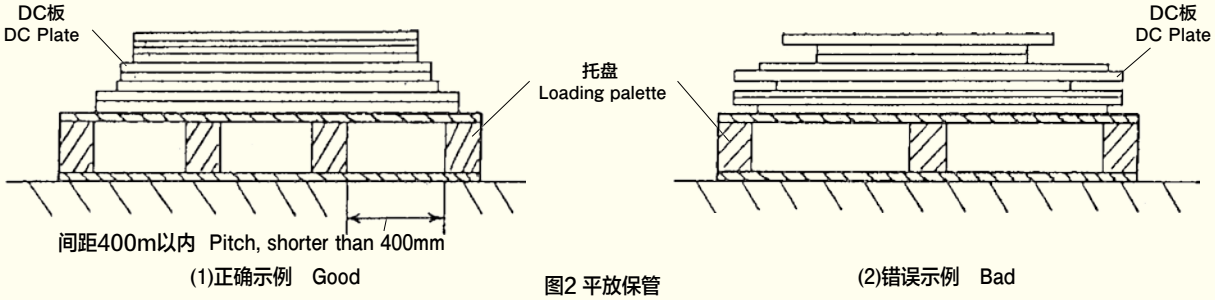


图2 平放保管
Figure 2. Horizontal storage

2 保管场所 Storage place

1.请将DC板保管于低温，低湿的场所，避免高温和阳光直射，否则保护膜的粘合强度可能受到影响，导致产品发生弯曲变形。尤其是亚克力，容易因吸潮而发生弯曲变形，需要特别注意。
The sheets should be stored in the place where temperature and humidity is low. Avoid high temperature and direct sunshine. Trouble of protective film and warpage of sheet might occur.
Especially pay attention to acrylic sheet because it is susceptible to moisture absorption.

2.请勿将板材放置于溶剂和涂料附近。长期接触有机溶剂的挥发气体，可能会引起开裂或防静电层异常。
Do not place solvents or coating liquid near the sheets. Cracks of the sheet and/or damages of the static dissipative layer might occur by contacting with vapor of organic solvent in a long period.

1 日本积水DC板／硬质涂层DC板 Eslon DC Plate／Hard Coat DC Plate

(1)切割加工　Cutting

1.日本积水DC板可使用升降台锯或圆锯切割。
Eslon DC Plates can be cut using either a band saw or circular saw.

2.可使用与普通板材相同的切割速度和锯条进行切割。请根据材料选择适当的锯条。
Generally same cutting speeds and brade apply as when processing similar base plastics.

3.为避免划伤表面，切割时请勿撕去表面的保护膜。
To avoid scratches on the plate surface, remove the protective film after the plate has been machined.

4.由于亚克力板容易开裂破碎，请放慢加工的递送材料的速度。
Because PMMA plate chips easily, cut it at slow speed.

5.防静电层可能会因切削油的种类不同而发生异常。请务必提前确认切削油是否匹配。
The static dissipative layer might be damaged in an environment that contacts cutting oil.
Please check the suitability of cutting oil.

(2)穿孔加工　Drilling

1.可使用钻床、手电钻进行加工。
Eslon DC Plates can be drilled by using drilling machine and hand drill.

2.穿孔加工时请使用治具固定板材。
Please drill with the plate fixed with tools.

3.为避免划伤表面，切割时请勿撕去表面的保护膜。
To avoid scratches on the plate surface, remove the protective film after the plate has been machined.

4.由于亚克力板容易开裂破碎，请使用研磨良好的钻头。
Because PMMA plate chips easily, drill using a drill ground well or a new drill.

5.防静电层可能会因切削油的种类不同而发生异常。请务必提前确认切削油是否匹配。
The static dissipative layer might be damaged in an environment that contacts cutting oil.
Please check the suitability of cutting oil.

(3)热加工　Heat Processing

●弯曲加工　Bending

1.可使用棒状加热器或远红外线加热器加热弯曲。
Eslon DC Plates are able to be bent after heating by rod heater or far-infrared heater similar base plastics

・DC板最多可弯曲90°，硬质涂层DC板最多可弯曲70°。
The standard version of Eslon DC Plates are able to be bent up to an angle of 90°and Hard Coat version can be bent up to an angle of 70°.

・弯曲会导致表面电阻值增加至$10^8-10^9\Omega/\square$。
Please note the surface resistivity will increase to around 10^8—$10^9\Omega/\square$.

●R型弯曲加工、冲压加工　Radius Bending and Press Processing

1.可使用热风循环烘箱或远红外线烘箱加热成形。
Eslon DC Plates can be forming after heating by air circulating oven or far-infrared oven similar base plastics.

2.成形相关注意点　Notes concerning forming

・硬质涂层DC板的硬化涂膜不会因加热而软化，因此需要加大弯曲半径。
Because the conductive surface of Hard Coat DC Plate doesn't soften by heating, it is necessary to enlarge the bending radius as shown right table.

・加热温度过高可能会导致板材表面发白，加热时请适当降低加热温度。
Whitening appears on the surface when the heating temperature is high, and then it must be heated at lower temperature.

※加热时无需撕去表面的保护膜，仍可进行以上加工。
保护膜或粘着成分可能会因加工条件而粘黏至DC板表面，此时请用酒精擦拭。

* DC Plates can also be heated and bent/formed without removing the film. Depending on the processing conditions, the protective film and/or its adhesive component may migrate to the surface of DC Plate. In that case please wipe it off with alcohol.

加热时间　Heating Time

	Temp.(℃)	3mm	5mm
PVC	120～130	1.5～3min	3～4min
PMMA	130～160	1.5～3min	3～4min
PC	150～160	3～5min	5～8min

硬质涂层DC的最小弯曲半径
Min.Bending Radius for Hard Coat DC Plate

板厚 Thickness	最小弯曲半径 Bending Radius
2mm	30mm
3mm	70mm
5mm	130mm
6mm	160mm

(4)粘合加工　Bonding

1.请根据板材的材质选择合适的粘合剂。
Please use an adhesive that suits base material.

2.粘合前，请对板材进行适当的预处理。如有必要，应去除粘合面的DC涂膜。
Before applying the adhesive you must ensure that the parts to be joined have been pre-treated correctly.
If necessary, the conductive coating must be removed from the area to be glued by using a cloth, mechanical method and acetone.

基　材 Base Material	去除DC涂膜　DC Coating removal	
	DC板　DC Plate	硬质涂层DC板　Hard Coat DC Plate
PVC	不　要　Unnecessary	需　要　Necessary
PMMA	<AC405AS> 板厚6以内 不要　t≦6 Unnecessary 8以上 必要　t≧8 Necessary <AC405AS以外 Except for AC405AS> 请向我们咨询。 Please contact us.	需　要　Necessary
PC	需　要　Necessary	需　要　Necessary

3.长期接触粘合剂的挥发气体，可能会引起开裂或防静电层异常。
Cracks of the sheet and/or damages of the static dissipative layer might occur by contacting with vapor of an adhesive in a long period.

(5)清洁，表面保护　Cleaning and Protection

DC板表面沾染污渍时，请使用柔软的布料轻轻擦拭。如污渍难以清除，请用水稀释中性洗剂后进行清洁。如果中性洗剂也难以清除，请用水稀释酒精（甲醇、乙醇或IPA）后进行擦拭。如果此时仍无法清除，则使用酒精原液擦拭。酒精可能会使涂膜膨胀，导致涂膜强度下降，因此请勿长时间使用酒精擦拭。此外，受限于塑料的一般性质，因安装螺栓和弯曲加工而受到较大应力的部位可能会因酒精擦拭而开裂，以上部位请谨慎使用酒精。除上述酒精溶剂以外，请勿使用其他有机溶剂，以免防静电涂膜发生劣化。

※保护膜或粘着成分可能会因加工条件而粘黏至DC板表面，此时请用酒精擦拭。

如DC板表面贴有粘合性较强的保护膜或粘合性易随时间推移而加强的保护膜，则防静电层可能会随保护膜一同剥离。板材贴有保护膜时，请务必事先考虑使用条件，保管条件等，同时确认保护膜是否匹配。

When DC Plate is stained, wipe by soft cloth without pressure. In case it is hard to remove the stain, use diluted neutral detergent. If it is hard to remove the stain even with diluted neutral detergent, wipe by soft cloth soaked with mixture of water and alcohol (methanol, ethanol or IPA.) If it is still hard to remove the stain, wipe with undiluted alcohol. Please avoid continuing contact with alcohol for a long period of time because the static dissipative layer might be swelled by alcohol. Do not apply alcohol in the part which is stressed. It might make the part cracked. Do not wipe DC Plate with organic solvent except for above alcohols.

* Adhesive component of protective film may migrate to surface of DC plate and it might make DC Plate hazy. In that case please wipe with alcohol as above.

If a surface protective film having strong adhesive force or increase of adhesive force with time is applied,the static dissipative layer might be removed when peeling the film.

Please check the suitability of protective film in consideration of use and/or storage conditions , when the film is pasted.

2 软质DC片 Soft DC Sheet (Eslon DC Sheet G)

(1)切割，缝制加工　Cutting and Sewing

软质DC片可使用剪刀切割或使用缝纫机缝合。
Soft DC Sheet can be cut by scissors and sewed by a sewing machine.

(2)焊接加工　Welding

日本积水DC片G可与普通PVC片一样使用高频加热焊机完成焊接。
Eslon DC Sheet G can be welded by a high frequency welder similar ordinary soft PVC sheet.

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