

<b>Our Company</b>	INOUT ENTERPRISE PTE LTD was founded in 1991. Throughout the years, our company has improved and progressed leaps and bounds. Not only do we have sales representatives and offices all over Asia, to date we offer more than 4,000 kinds of products cater for all industrial and commercial needs.
<b>Our Mission</b>	Our mission is to be a total solution provider for our customers.
<b>Our Vision</b>	Our vision is to extend our services to all over the world.
<b>Our Products</b>	Our 3 main product categories are: Adhesives, Cleanroom / ESD and Chemicals.






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Located in Dong Guan of Guang Dong Province ( China ), the ISO factory of CleanEra is equipped with the latest technology, producing world-class products to satisfy the ever-growing expectation of customers in both quality and cost effectiveness.

We have High Class Cleanroom facilities certified to 10 & 100, producing ultra-clean products for all critical cleanroom applications. The integrity of CleanEra products is not only monitored by teams of well-trained engineer, it was also carefully inspected and authenticated in our In-house laboratory.

As a delegated manufacturer and supplier, CleanEra's continuous effort to invest in cutting edge technologies and product's innovation, has created a wide array of high quality products that satisfied today's technology and fulfilled customer's requirement in various aspects.



### Microfiber Wipes

- Manufactured and packed in cleanroom class 10/100 environment.
- Ultra-low lint and contamination level.
- Ultrasonic seal edge.
- Manufactured in ISO factories with in-house laboratory.
- Critical specification and full test reports.

#### Application:

- Electronics industries - critical cleanroom class 10/100 environment.
- Optical & display industries - cleaning of lens and sensitive surfaces.
- Automobile industries.
- Jewellery industries.



### Ultra-Clean Laundry Wipes (Microfiber-EX)

#### Part Number: W-EX-4/6/9 (LSE) (HDD Specs)

- Constructed from micro-fibers of polyester & nylon in no-run interlock pattern.
- Processed and packed in class 10 cleanroom.
- Solvent-safe double bag cleanroom packaging.
- Ideal for critical environments.
- With cut edge of ultrasonic-sealed and laser-sealed. It exhibits lower particle and fiber levels than other cutting technologies.
- Statistical quality control.
- Variety of sizes and packaging options.



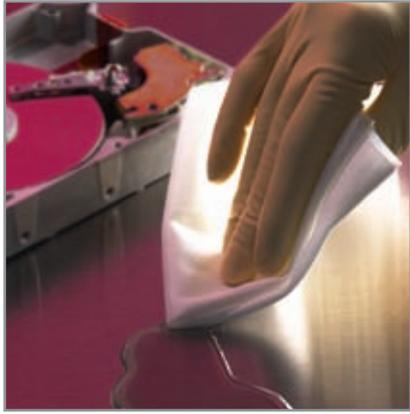
### Ultra-Clean Laundry Wipes (Microfiber-MX)

#### Part Number: W-MX-4/6/9 (LSE)-(B) (HDD Specs, B-Blue)

- Constructed from micro-fibers of polyester & nylon in woven pattern.
- Ultra-clean and soft.
- Processed and packed in class 10 cleanroom.
- Solvent-safe double bag cleanroom packaging.
- Ideal for critical environments.
- With cut edge of ultrasonic-sealed and laser-sealed. It exhibits lower particle and fiber levels than other cutting technologies.
- Statistical quality control.
- Variety of sizes and packaging options.

#### Application:

- Superior for use in LCD/HDD industries or high-tech industries etc.
- Superior for spill control and general wiping in ISO Class 10 and above environment such as integrated circuit fabrication facilities.



### Lint Free Wipes

- Manufactured and packed in cleanroom class 10/100 environment
- Ultra-low lint and contaminations level
- Heat seal edges
- Manufactured in ISO factories with in-house laboratory
- Critical specification and full test reports

#### Application:

- Electronic Industries - critical cleanroom (class 10/100) environment
- Optical & display industries - cleaning of lens and sensitive surfaces
- General industries - spillage cleaning and maintenance purposes

#### Features:

- Constructed from continuous filament polyester in single-knitting configuration.
- Ultra-clean and highly absorbency.
- Processed and packed in class 10 cleanroom.
- Solvent-safe double bag Cleanroom packaging.
- Ideal for critical environments.
- With cut edges of normal-cut, ultrasonic-sealed & heat-sealed. Exhibits low particles and fiber levels.
- Statistical quality control.
- Variety of sizes and packaging options.

### Ultrapoly - L Class 100 Cleanroom Polyester Wipes (Light Weight)

Part Number: W-UP-H/N-L-4/6/9-USE/HSE

#### Application:

- Superior in electronic industries or high-tech industries etc.
- Ideal for spill control and general wiping in ISO class 10 and above facilities.



### Ultrapoly - H Class 100 Cleanroom Polyester Wipes (Heavy Duty)

Part Number: W-UP-H/N-H-4/6/9-USE/HSE

#### Application:

- Superior in electronic industries or high-tech industries etc.
- Ideal for spill control and general wiping in ISO class 10 and above facilities.
- Cleaning and polishing the interiors of stainless steel tubing.

### UltraCel Cleanroom Lint Free Wipes

Part Number: W-UC-A/D/Z-PC-4/6/9-W/B

#### Features:

- Processed and packed in cleanroom environment.
- Manufactured in ISO factories with in-house laboratory quality controlling.
- Low lint and satisfactory softness to the touch.
- Bacterial-barrier qualities and antistatic properties.
- Water-proof and flame-retardant.

#### Application:

- Superior cleaning performance for electronic industries & optical/display & automobile industries etc.
- Ideal for wiping interior of process tools and other equipment.
- Suitable for cleanroom environment above 100.

## Facemasks (1, 2 & 3 Ply)



### Cleanroom Class 100 Facemasks

Part Number: M-EME-series

- Configured with spunbond / melt-blown PP materials
- Customized design to your specification
- High bacterial filtration efficiency
- Optional with earloop / headloop / tie-on mask body
- Manufactured and packaged in cleanroom environment
- Solvent-safe double bag cleanroom packaging
- Ultra-low lint level suitable for critical environment
- Statistical process control

#### Application:

- Superior for use in electronic industries or high-tech industries etc.
- Ideal for particle control and healthy-defense in critical environment.

Composition & Attributes			
Material (Body)	Polyester & Nylon		
Basic Weight	16 ± 5 g/m <sup>2</sup>		
Types of Band	Tie-On / Earloop / Headloop		
Material of Band	PU / SBPP / Tyvek / ES		
Nose Piece	Soft Flexible Plastic / Aluminium		
Normal Dimensions	18cm * 9cm	21cm * 9cm	23cm * 9cm
Standard Packaging	50 pcs/bag 40 bags/ctn	50 pcs/bag 40 bags/ctn	50 pcs/bag 40 bags/ctn
Average Statistical Reading			
Organic Contamination	Silicon Free		
LPC (>=0.5um,counts/cm <sup>2</sup> )	<100		
LPC (>=0.3um,counts/cm <sup>2</sup> )	<1000		

Air Particle Counts - Vacuum the inside of the helmke drum tumbler and checked the particle counts.

### Bouffant Caps / Mob Caps



Bouffant and Mob caps are worn to prevent hairs from shedding and thus contaminating a controlled environment. They are manufactured and packaged in a clean environment.

- Material : 100% Non-woven spunbond polypropylene fabric  
 Size : 19" & 21"  
 Colour : White (optional: blue, green, pink, yellow)



### Disposable Shoe Covers



Shoe covers are worn over outdoor shoes to prevent particles and dirt from contaminating a controlled environment.

- There are 2 types of shoe covers available:
- Chlorinated Polyethylene (CPE)
  - Non-woven.
- The common size is 15cm x 36cm.

At INOOUT, we offer a wide range of gloves to our customers because we truly understand that different industry have different needs.

### Disposable Gloves



**Class 100 Latex Gloves**



**Pre-Powdered Latex Gloves**



**Class 100 Powder Free Nitrile Gloves**



**Class 100 Powder Free Vinyl Gloves**

### ESD Lint Free Gloves



**Normal**



**With Cuffs**



**With PVC Dots**



**With PVC Coating**

These ESD gloves, made from high quality material and excellent workmanship, are suitable for normal or less stringent controlled environment. They also come in special coatings on the palm side to provide better grip while wearing them.

### Top/Palm Fit Gloves



**Top Fit**



**Palm Fit (Normal)**



**Palm Fit (Grey)**



**Conductive Palm Fit**

Top fit gloves are made from 100% nylon with polyurethane coated on the fingertips while palm fit gloves are made from 100% nylon with polyurethane coated on the palm. The polyurethane coating on the gloves provides anti-slip and anti-cut.

### Others



**100% Cotton Glove**



**High Temp. Glove**



**Chemical Resistant Glove**



**Ansell Glove**

These are just some examples of the many more gloves that we have. Tell us your application and needs, and we will recommend you the gloves most suitable for them.

Suzuki Latex Industry Co. Ltd., is a pioneer in latex products manufacturing with more than 50 years experience. The company functions as a supporting industry for high-tech products ie. the parts used for space shuttle and other aerospace industries, computer parts, quartz products, essential parts for digital camera, other electronic equipment and various high-tech equipment.

Model	Type	Features	ESD Test Results
Edel	Cut	Anti-static; suitable for uses in super cleanroom; no sulphur compound; low price level	- Surface Resistivity Test - average $10^6 \Omega/\text{sq}$
Spore-Ordinary (Rough Surface)	Unroll Cut Roll	Low powder level; cut type reduce finger discomfort; rough surface provides better gripping and anti-slip.	-
Spore-Clean (Rough Surface)	Unroll Cut	Very low powder level; special washing process to reduce ionic, non-volatile residue, particles and other contaminants; cut type reduce finger discomfort; rough surface provides better gripping and anti-slip.	-
Spore-Black (Smooth Surface)	Unroll Roll	Anti-static; suitable for handling ESD sensitive components; very low powder level; special washing process to reduce ionic, non-volatile residue, particles and other contaminants.	Surface Resistivity Test - average $10^6 - 10^8 \Omega/\text{sq}$ Rate of Static Decay Test Initial charge : 10KV x 30 sec Final charge : 0V Rate : about 1.25 sec
Shield	Unroll	Thick, soft, suitable for long hour usage; rough surface provides better gripping and anti-slip; tough, durable, reusable and cost effective.	-
Mask Orange	Unroll	Thick, soft, suitable for long hour usage; rough surface provides better gripping and anti-slip; tough, durable, reusable and cost effective. Orange color for easy recognition.	-
Mask Black	Unroll	Suitable for heavy duty uses that require ESD control; tough, durable, reusable and cost effective; special washing process to reduce ionic, non-volatile residue, particles and other contaminants.	Surface Resistivity Test - average $10^6 \Omega/\text{sq}$



## INOUT Finger Cots



We are proud to announce that we OEM our very own INOUT finger cots. Our objective is to provide all our valued customers with quality goods at comfortable price. Our finger cots are all vacuum packed in cleanroom environment and have gone through stringent quality control.

Types of INOUT Finger Cots:

- Powder free normal, white
- Powder free anti-static, pink

## Fabric

Our ESD fabrics are made from 100% polyester continuous filament yarns, with electrical conductive fibres interwoven in striped or checked pattern at regular intervals. The fabrics are designed and engineered to exceed cleanroom and ESD requirements. They are durable with excellent washability, comfortable with superior ventilation and sweat absorption.



## Jumpsuits



Front



Side

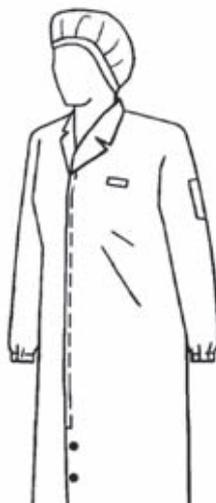


Back

## Smocks



Front



Side



Back

# Safe and comfortable Safety shoes & Protection shoes



## Widened resin-covered head

The head is widened for unwinding your toes completely, comfortably.

If the room for toes is rather narrow, the big toe shall be pressed to bend toward inner side. With this widened shoe head, the big toe may unwind completely.  
This resin-covered head is not only light, but also as safe as the steel one.  
Our product is 4mm wider than common shoes.



## 2 layers of polyurethane foam sole

This sole is featured with excellent buffer performance, which is to reduce the impact to your foot.

The sole is composed of an intermediate layer with excellent buffer performance and a layer with outer layer with durability performance.



Blue



### NS555 (Light type)

- Covered head: Widened resin-covered head
- Shoe upper: full grain frontier Leather
- Sole: 2 layers of polyurethane foam
- Size: 22-28, 29cm



White



### NS9595SWG

- Covered head: Widened resin-covered head
- Shoe upper: manmade leather
- Sole: 2 layers of polyurethane foam
- Size: 22-28, 29cm



Black



### NS210

- Covered head: Widened steel-covered head
- Shoe upper: full grain tumbled black Leather
- Sole: 2 layers of polyurethane foam
- Size: 22-28, 29cm

Blue



### NS9595SNG-P

- Covered head: Widened resin-covered head
- Shoe upper: manmade leather
- Sole: 2 layers of polyurethane foam
- Size: 22-28, 29cm



# ELEPASS M100 SERIES



IEC61340-4-3 Standard  
(Environmental Class I - Dissipative)

## M101 / M102 Anti Static shoe ELEPASS (For Man & Woman)

- Specification: comply with Standard IEC61340-4-3 (Environmental Class I - Dissipative)
- Shoe upper: PVC
- Sole: PVC
- Size: 21.5~28, 29, 30cm



## M103 Anti Static shoe ELEPASS (For Man & Woman)

- Specification: comply with Standard IEC61340-4-3 (Environmental Class I - Dissipative)
- Shoe upper: PVC/mesh
- Sole: PVC
- Size: 21.5~28, 29, 30cm



## M113 Anti Static shoe ELEPASS (For Man & Woman)

- Specification: comply with Standard IEC61340-4-3 (Environmental Class I - Dissipative)
- Shoe upper: fabric/mesh
- Sole: PVC
- Size: 21.5~28, 29, 30cm



## PS-01S Anti Static shoe ELEPASS (For Man & Woman)

- Specification: comply with Standard IEC61340-4-3 (Environmental Class I - Dissipative)
- Shoe upper: manmade leather
- Sole: 1 layer of polyurethane foam
- Size: 21.0~27.5, 28, 29, 30cm



## PS-01 Light S Anti Static shoe ELEPASS (For Man & Woman)

- Specification: comply with Standard IEC61340-4-3 (Environmental Class I - Dissipative)
- Shoe upper: manmade leather
- Sole: 1 layer of polyurethane foam
- Size: S, M, L, 2L, 3L

## Booties



I/O-M380



I/O-M381



I/O-M382



I/O-M360

## ESD Shoes & Slippers



I/O M410



I/O M412



Conductive Slippers



Static Control Soles

### Conductive Clean Shoes



I/O-M324



I/O-M325



I/O-M326

### Static Dissipative Clean Shoes



I/O-M311



I/O-M312



I/O-M314

### PU Static Dissipative Clean Shoes



I/O-M370



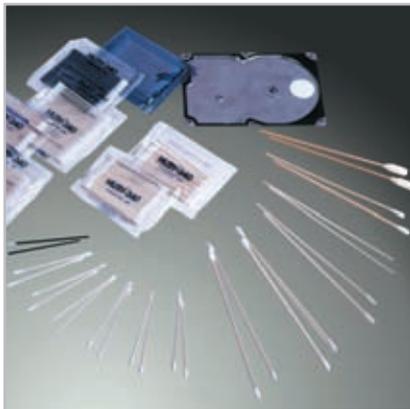
I/O-M374



I/O-M378

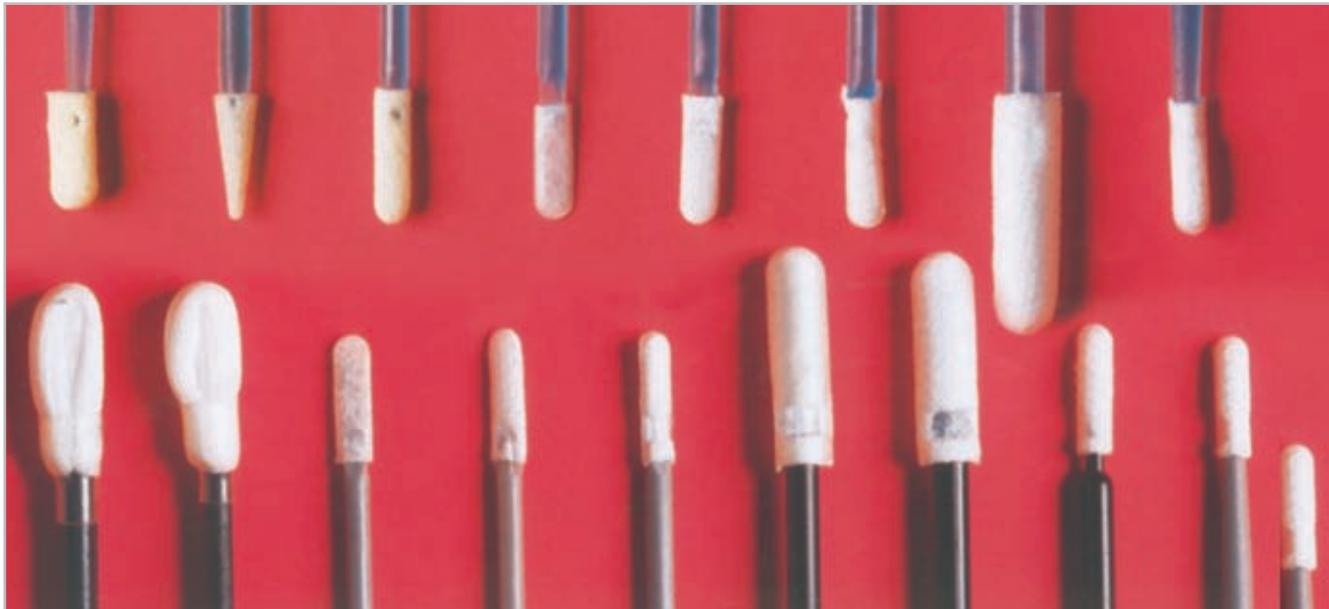
# HUBY-340

HUBY-340 swabs are well known for its high absorbency and low-lint feature. The cotton head does not swell in solvents and has low non-volatile residue thus making it suitable for cleanroom usage. The swabs are ecologically safe, being free from environmental contaminants – throughout from its manufacture use to dispose. They come in anti-static packing with no silicone.



HUBY-340	Pack per Carton	Size	Weight
BB-001	100 leaf-packs/box 20 boxes/carton	32.0 x 10.0 x 10.0cm 52.0 x 33.0 x 42.0cm	11.5kg
BB-002 (Slim Type)	100 leaf-packs/box 20 boxes/carton	26.5 x 8.0 x 10.0cm 42.0 x 27.5 x 42.0cm	10.6kg
BB-003 (Sharp Point Slim)	100 leaf-packs/box 20 boxes/carton	30.0 x 9.5 x 10.0cm 48.8 x 30.9 x 41.4cm	11.8kg
BB-012 (Fine Baby Swab 2.0)	100 leaf-packs/box 20 boxes/carton	23.5 x 8.0 x 10.0cm 41.0 x 24.3 x 41.3cm	9.6kg
BB-013 (Hard Sharp Point Slim)	100 leaf-packs/box 20 boxes/carton	23.5 x 8.0 x 10.0cm 41.0 x 24.3 x 41.3cm	9.6kg
FS-010 (Flat Swab)	50 leaf-packs/box 10 boxes/carton	15.0 x 8.0 x 10.0cm 41.0 x 16.0 x 21.5cm	5.0kg

## Foam Swabs



## Tweezers



- Acid-resistant tweezers
- Anti-static, conductive plastic
- Stainless steel precision tweezers
- Epoxy coated precision tweezers
- Ceramic tip tweezers

## Sticky Mats

Sticky mat, an economical protection against contamination in controlled environment, collects 99.8% of the dusts by taking 6 steps on it. Thanks to the stickiness of the mat, the dusts collected will not migrate. There are 2 types of sticky mats available: peelable and washable.

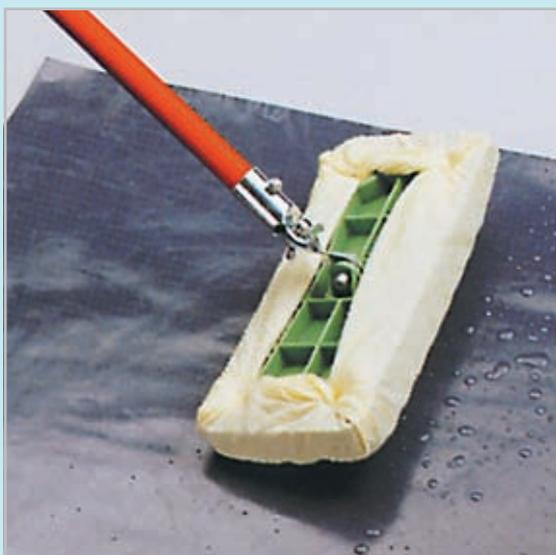
Peelable sticky mat, usually comes in 30 peelable layers per mat, the trapped contaminants are removed simply by peeling away the polluted layer. Each layer is numbered so as to inform the users the number of layers used or remaining on each mat.

On the other hand, the trapped contaminants in the washable sticky mat are removed by mopping it with a special cleaning detergent. This detergent not only removes the contaminants, it also helps to maintain the mat's stickiness.

Sizes available : 24" x 36" and 26" x 45"

Colours available : Blue and Grey

Custom made sizes are also available.



## ESD Mats

The conductive rubber mats are constructed and designed to protect against electrostatic discharge at industrial work stations. Together with other static control products, these mats provide a static-safe environment for handling sensitive electronics components. These mats are conductive for instant draining of static charge thus preventing static buildup.

The mats come in many various colours to help you differentiate the work to be done on each work station. Customization of mat sizes for your work station is also available upon request.



## Sticky Rollers

Sticky roller is an efficient, portable collector of dust and particles in controlled environment. Various sizes and types are available to meet each different application. Contaminants collected on the rollers can be removed simply by peeling and tearing away the top most layer.

## Ionizing Blower BF-8412



### Specifications

Power Supply	: 220V / 50Hz AC
Operating Current	: 2.5Amps Max. Speed (max airflow / heater)
Air Output	: 150CFM Low 230CFM High
Valid Range	: 300mm – 2000mm
Temperature	: -10°C to +50°C
Color	: White Grey
Size	: 523mm (L) x 198mm (W) x 208mm (H)
Ionic Balance	: +/-10V

Note : Temperature of airflow may goes up 3°C to 6°C when the heater is turned on.

## Ionizing Blower BF-801



### Specifications

Power Supply	: 220V / 50Hz AC
Operating Current	: 0.15Amps Max. Speed
Air Output	: 50CFM Low 100CFM High
Ionic Balance	: +/-10V
Valid Range	: 300mm to 900mm
Temperature	: -10°C to +50°C
Color	: White Grey
Size	: 204mm (W) x 286mm (H) x 146mm (D)

## Ionizing Blower BF-802



### Specifications

Power Supply	: 220V / 50Hz AC
Operating Current	: 0.32Amps Max. Speed
Air Output	: 100CFM Low 200CFM High
Valid Range	: 600 to 900mm (800mm away from the blower)
Color	: White Grey
Size	: 604mm (L) x 194mm (W) x 152mm (H)
Ionic Balance	: +/- 10V

## Ionizing Blower BF-803



### Specifications

Power Supply	: 220V / 50Hz AC
Operating Current	: 0.5Amps Max. Speed
Air Output	: 150CFM Low 300CFM High
Valid Range	: 600 to 1800mm (800mm away from the blower)
Color	: White Grey
Size	: 908mm (L) x 194mm (W) x 152mm (H)
Ionic Balance	: +/-10V

## Cleanroom Packaging



### Class 100 Nylon/PE Bag

These class 100 cleanroom compatible bags are most suitable for those that require a high level of cleanliness. This material has excellent puncture resistance that allows vacuum packaging.

Material	: Nylon laminated with Polyethylene
Specification	: Ultra low particulate < 100 counts/cm.sq Absence of Silicon oil, Amide agent & Phthalate (DOP) Low Outgassing and NVR
Colour	: Transparent
Size	: Custom made sizes and thickness available



### Class 100 Static Dissipative Aluminium Moisture Barrier Bag

These class 100 cleanroom compatible static dissipative bags are most suitable for packing moisture sensitive components and devices that require high level of cleanliness. Additional composite layer is added to improve the puncture strength that make that bags suitable for vacuum packaging.

Material	: 6 layers of Film Construction (Static dissipative impregnated outer layer, Polyester barrier layer, Metallized aluminium layer, Proprietary composite layer, Polyethylene static dissipative inner layer)
Specification	: Surface Resistivity : $10^{10}$ to $10^{11}$ ohms/sq (ASTM D257) MVTR : < 0.0006 grams/100sq.inch (24 hours at 100°F, RH 90%) Cleanliness : < 100 counts/cm.sq (0.5 micron)
Colour	: Silver/Opaque
Size	: Custom made sizes and thickness available

### Others:

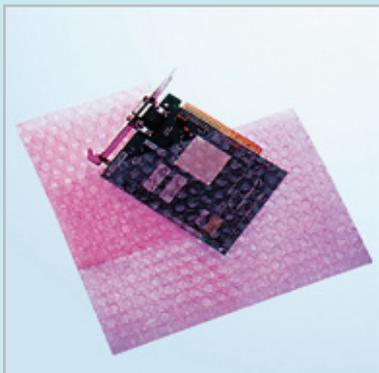
- Cleanroom Vinyl Bag
- Class 100 Low Density Polyethylene (LDPE) Bag
- Controlled Environment Amide/Silicon Free High Density Polyethylene (HDPE) Bag
- Controlled Environment Amide/Silicon Free LDPE Bag

## ESD Packaging



### Static Shielding Bag

Material	: 3 & 4 layers of Film Construction (Anti-static polyester layer, Aluminium layer anti-static polyethylene layer)
Specification	: Surface Resistivity : $10^{11}$ ohms/sq (ASTM D257) Surface Decay : 5000 volts to 0 volts, < 0.1 sec (FTMS 101B, Method 4046, MIL81705B Decay Test)
Colour	: Transparent
Size	: Custom made sizes available
Optional	: Printing available (Cleanroom grade available)



### Anti-Static Air Bubble Bag

Material	: Polyethylene compounds
Specification	: Surface Resistivity : $10^{11}$ ohms/sq (ASTM D257) Surface Decay : 5000 volts to 0 volts, < 2 sec (FTMS 101B, Method 4046, MIL81705B Decay Test)
Colour	: Pink & Clear
Type	: Single bubble layers
Diameter of Bubble	: 10mm & 25mm
Thickness	: 3~4mm for 10mm bubble 7~8mm for 25mm bubble
Size	: Custom made sizes available
Optional	: Roll form available



### Anti-Static PE Foam Bag

Material : Polyethylene Anti-Static Foam  
 Specification : Surface Resistivity :  $10^{11}$  ohms/sq (ASTM D257)  
 Surface Decay : 5000 volts to 0 volts, < 2 sec  
 (FTMS 101B, Method 4046, MIL81705B Decay Test)

Colour : Pink  
 Size : Custom made sizes available  
 Optional : Roll form available



### Tyvek Moisture Barrier Bag

Material : Multiple layers of Film Construction  
 Specification : Surface Resistivity :  $10^{10}$  to  $10^{11}$  ohms/sq (ASTM D257)  
 MVTR : < 0.0006 grams/100sq.inch (24 hours at 100°F, RH 90%)  
 Colour : Silver & White  
 Size : Custom made sizes available

#### Others:

- Anti-Static Pink PE Bag
- Conductive PE Bag
- Transparent Conductive Grid Bag
- ESD Cushion Pouch Bag



### DESI PAK

DESI PAK is the trade name for packaged desiccant products containing a very high grade of activated clay from the United Desiccants' mine in Arizona, USA. DESI PAK is a low cost, efficient desiccant that will protect the contents of a properly sealed container until it is opened. The contents of a sealed container will be the same condition as when packaged for shipment or storage. In being distributed all over the world, DESI PAK has been recognized as the desiccants that are most effective at absorbing moisture vapor in packaged products.



### Silica Gels

They are used to attract and hold water, alcohol, hydrocarbons and other chemical vapors. Often packed with certain percentage of blue colour silica gel as a form of saturation indication (they turn pink when saturated).

Different packaging are available: plastic, paper, Tyvek paper, non-woven material, cloth bag and plastic bottles.

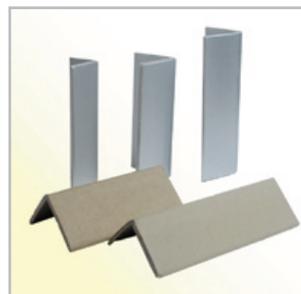


### Stretch Films

Stretch films are commonly used to wrap bulky items for transport, lining shipping cartons and envelopes.

Thickness : 17 micron, 20 micron  
 Type : Hand roll & Machine roll  
 Weight : 3 kg (Hand roll) & 15 kg (Machine roll)  
 Length : 300m

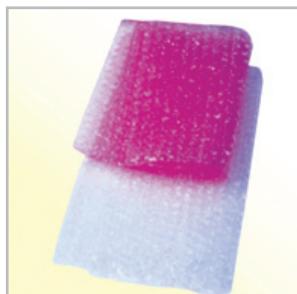
#### Others:



Edge Board Protectors



Packaging Foam



Normal Air Bubble Bags



Stretch Wrapping Machine

## Cleanroom / ESD Chairs



**DSS-308-CSTMC**

FTIR (Presence of Silicone Oil, Amide Slip Agent and DOP)

Analyte	Result	Failing Limit
	( $\mu\text{g}/\text{cm}^2$ )	( $\mu\text{g}/\text{cm}^2$ )
Silicone Oil	<0.00053	0.002
Amide Slip Agent	<0.00053	0.01
Phthalate (DOP)	<0.00053	0.03

The surface resistance finding was as follows:

A. Surface Resistance Measurements (RTT)

- Compiles with EOS/ESD-S4.1
- Point to point surface resistance measurements are made using the meter together with both of the 5 pound weight electrodes.
- This test will determine the resistance between two points, independent of a groundable point.

Unit : ohms

Reading	Chair Seat	Chair Back
Voltage Applied	10V	10V
1	$4.6 \times 10^{5-6}$	$3.9 \times 10^{5-6}$
2	$3.2 \times 10^{5-6}$	$2.9 \times 10^{5-6}$
3	$3.3 \times 10^{5-6}$	$2.4 \times 10^{5-6}$

The surface resistance findings was as follows:

B. Surface to Ground Measurements (RTG)

- Compiles with EOS/ESD-S4.1
- The surface to ground measurements will indicate the surface resistance between selected locations on a work surface and a groundable point or points.
- Ground points are usually in the form of snaps installed on the material so that the material can be grounded via ground cords.
- The charge dissipation rate of all ESD protective materials is related directly to electrical resistance to ground.

Unit : ohms

Reading	Chair Seat	Chair Back
Voltage Applied	100V	100V
1	$1.3 \times 10^{5-6}$	$1.5 \times 10^{5-6}$
2	$1.2 \times 10^{5-6}$	$1.2 \times 10^{5-6}$
3	$1.6 \times 10^{5-6}$	$1.3 \times 10^{5-6}$

The ionic and NVR findings were as follows:

No.	Test	Chair Material
1	Fluoride	<0.1 $\mu\text{g}/\text{cm}^2$
2	Chloride	<0.1 $\mu\text{g}/\text{cm}^2$
3	Nitrite	<0.1 $\mu\text{g}/\text{cm}^2$
4	Bromide	<0.1 $\mu\text{g}/\text{cm}^2$
5	Nitrate	<0.1 $\mu\text{g}/\text{cm}^2$
6	Phosphate	<0.1 $\mu\text{g}/\text{cm}^2$

No.	Test	Chair Material
7	Sulphate	0.1 $\mu\text{g}/\text{cm}^2$
8	Sodium	0.9 $\mu\text{g}/\text{cm}^2$
9	Potassium	0.1 $\mu\text{g}/\text{cm}^2$
10	Ammonium	0.3 $\mu\text{g}/\text{cm}^2$
11	Magnesium	<0.1 $\mu\text{g}/\text{cm}^2$
12	Calcium	<0.1 $\mu\text{g}/\text{cm}^2$



**DSL-309-ESDMC**



**DSL-313-ESDBC-LIM**

**DESD-G5-7041**



Conductive Ball Bearing Hydraulic Gas\*

**DCR-G-1754**



Conductive Wheel

**DMCR-G-5949**



**0.3 $\mu$  Filtration**



Hepa Filter

NILFISK ADVANCE is world's reputable vacuum cleaner brand in both commercial and industrial vacuum cleaners. Their success is attributed to their product's quality, reliability and after sales service support.



### Cleanroom Vacuum Cleaner (GM80P)

GM80P, a lightweight vacuum cleaner in the heavyweight professional arena, is a machine that is easy to use and cleans effectively. It is reliable and designed for durability and capacity. The sturdy aluminium container is almost indestructible and therefore especially suitable for rough and heavy duty cleaning.

For cleanroom application, there are 2 types of special filters for the GM80P: NILFISK HEPA (High Efficiency Particulate Air) filters retaining 99.95% of the ultra fine particles (0.1 micron) or even better ULPA (Ultra Low Penetration Air) filter retaining as much as 99.9995% of the ultra fine particles (0.1 micron).

### More Models:



GS/GM 82



GS/GM 83



GM 625/626



GB 726/826



GB 833



GD 930



GD 110



GD 1000 Series



GU 350A/450A



GU 700A

### Cleanroom Mop & Mop Wipes



Cleanroom mops are commonly used to maintain the cleanliness inside a cleanroom. The cleanroom mop offers by INOUT is for dry mopping. A cleanroom mop wipe is attached to the base of the mop before mopping commences. The mop wipe is easily replaceable and disposed.

Mop and mop wipes are sold separately.

## Cleanroom & Clean Booth



### Cleanroom

A Cleanroom is a specially constructed enclosed area environmentally controlled with respect to air-borne particles, temperature, humidity, air pressure, air flow pattern, air motion and lighting.

The airflow pattern in a cleanroom is normally unidirectional flow, or laminar flow. With the aid of positive air pressure and high efficiency filters (removes 99.99% of particles 0.3 microns and larger), the clean laminar airflow will be able to purge contaminants out from the area.

For detailed information on how a cleanroom will help your manufacturing process, please contact our friendly staff.



### Clean Booth

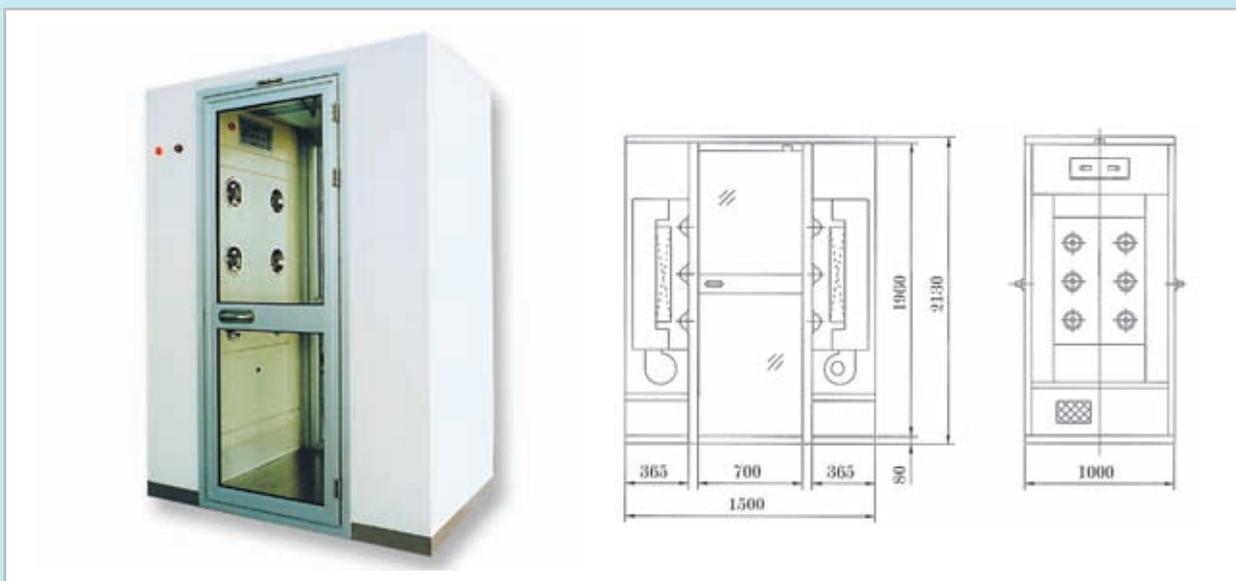
A Clean Booth functions similarly to a cleanroom. The differences between a clean booth and cleanroom are:

- Clean booth is more cost effective in terms of controlling certain portion of a process
- Mobility

For detailed information on how a clean booth will help your manufacturing process, please contact our friendly staff.

## Air Shower

Garments and footwear of personnel are usually the source of contamination in a controlled environment. To remove these contaminants prior to entering the controlled environment, personnel normally have to go through an Air Shower. The Air Shower scrubs the contaminants of the personnel by using high velocity airflow of approximately 22m/s directed on them. The standard designs are Air Shower for 1 man and 2 men. Custom sizes and design are available.



## Pass Box



Pass Box is used for easy material transfer from non-clean environment to a clean environment or vice versa. The interlocking mechanism of the Pass Box door prevents both doors from opening at the same time thus disallowing contaminants from the non-clean environment getting into the clean environment.

Pass Box with Air Shower is also available. The Air Shower in the Pass Box will remove particles from any materials place within. This process will further prevent contaminants from getting into a controlled environment.



### Clean Bench

A Clean Bench is basically a clean workstation. It purges contaminants generated by the work activity within the enclosed work area by introducing positive pressure and uniform flow of highly filtered air.

There are two types of clean benches: horizontal laminar airflow and vertical laminar airflow. Custom designs and sizes are available.



### Clean Garment Enclosure

A Clean Garment Enclosure is a mini clean environment for storing garments to be worn in cleanrooms. Purpose is to keep the garments particles free when not in used. The enclosure purges and prevents contaminants from entering by introducing positive pressure and uniform flow of highly filtered air.

Custom designs and sizes are available.

### Others:



Stainless Steel Shelving



Stainless Steel Work Table



Stainless Steel Cart



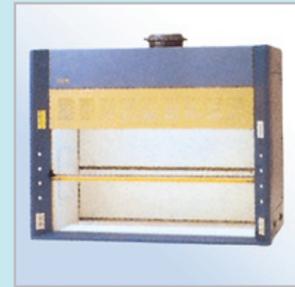
Stainless Steel Cabinet



Stainless Steel Desiccator



Stainless Steel Waste Bin



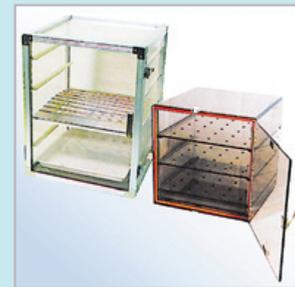
Fume Hood



HEPA/ULPA Filters



Fan Filter Unit



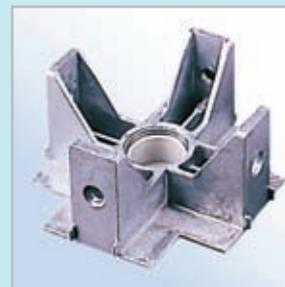
Static Dissipative Perspex



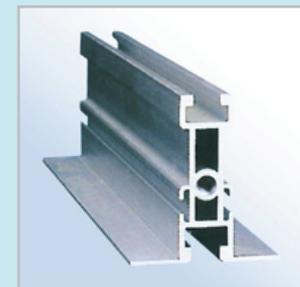
Aluminium Profiles



Profile Joints



Profile Joints



Profile Joints



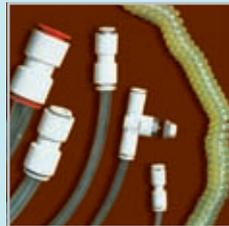
### Adjustable Elastic Wrist-Strap and Cordless Anti-Static Wrist-Strap

An adjustable elastic wrist-band provides the user with a 360° skin contact through its inner layer construction of metal silver fibre conductors. The wrist-strap comes with a 4mm studs and a 6ft or 10ft coil cord made of Tinsel wire. It also has a one-mega ohm current limiting resistor moulded at the snap end.

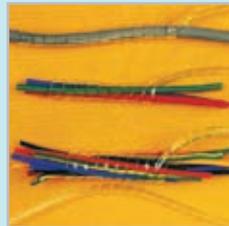
A cordless wrist-strap works via the physical principle of "Corona" discharge effects and point discharge, by transmission of electric potential difference to arrive the effect of electrostatic elimination.



ESD Sleeves



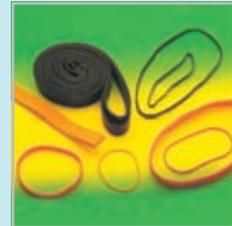
ESD Air Tubing



ESD Spiral Coil



ESD Grounding Wire



ESD Rubber Bands



ESD/Non-ESD Corrugated Box



Vacuum Form Tray



ESD PCB Racks



ESD Part Bins



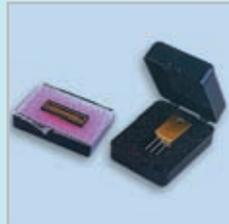
ESD Safe Cabinets



ESD Mat Cleaning Solution



ESD Solvent Dispenser



ESD Hinge Boxes



ESD Tote Boxes



ESD Foams

### Vacuum Pens



## EPA Retractable Belt Barrier

### ARTICLE No.:

038.004.000.10.00010 (Retractable Belt Barrier Post)

038.004.000.10.00012 (A4 Sign Holder)



### FEATURES

The retractable belt barrier is designed for delimiting an EPA easily and safely. The belts are printed on both sides in yellow belts so the indication of EPA can be seen obviously.

### Comparing to the ESD Floor Marking Tape, it would be:

- Setting up a quick and effective barrier of EPAs
- Durable to save the replacement cost and reduce pollution to environment
- Removable and resetting the EPAs anywhere
- Warning the visitors not to across the EPAs freely

### SPECIFICATIONS:

#### BELT BARRIER POSTS

#201 polished stainless steel

Stainless steel with conductive rubber base plate

Post height: 910mm

Post diameter: 76mm

Base plate diameter: 350mm

Resistance:  $\leq 10E9-\Omega$

Weight: 9.6kg



#### WALLMOUNT SYSTEM WITH RETRACTABLE BELT CARTRIDGE

- Black conductive plastic, resistance  $\leq 10E6-\Omega$
- 4m length
- Yellow nylon belt with conductive yarns, 48mm wide, resistance  $\leq 10E6-\Omega$
- With double-sided black imprint "ESD PROTECTED AREA"



#### SIGN HOLDER A4

- For belt posts
- Stainless steel frame with mounting flange, size: 330x246mm
- Dissipative, transparent acrylic sign holder, resistance  $\leq 10E9-\Omega$
- Format: DIN A4
- With sign:





## PRECISION DISPENSING SYSTEMS

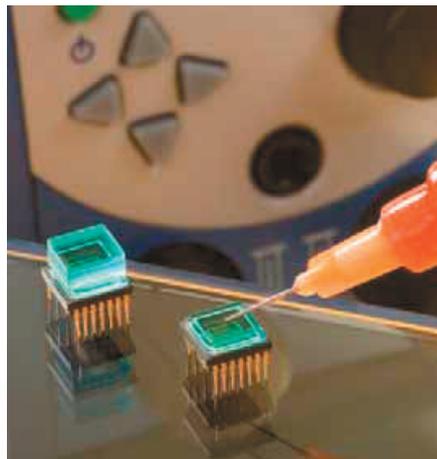
### Fluid Dispensing Systems

EFD's precision dispensing systems make it simple to apply accurate, repeatable amounts of virtually any assembly fluid – including adhesives, epoxies, lubricants, threadlockers, paints and grease.

By using digital timers and precision air regulators or positive displacement technology to determine the amount of material applied, EFD dispensers eliminate operator guesswork and take the variability out of the dispensing process.

The result is higher productivity, better quality and reliability, a cleaner and safer workplace, and lower production costs.

Products range from high-precision dispensers for critical applications that require a high degree of process control to economical units for general-purpose use.



Applications	DISPENSING TIPS			
	Tapered	Stainless Steel	PTFE-Lined	Flexible
Very Low Viscosity Fluids	X	●	●	●
Particle-Filled Pastes	●	●	▲	X
Microdot Deposits	X	●	▲	●
Fluid is Reactive to Metal	●	X	●	●
Depositing in Recesses	▲	●	●	▲
Spreading/Smearing	●	▲	●	▲
Fast-Curing Glues	●	▲	●	●
Beading, Striping	●	●	●	▲
Easily Scratched Substrates	●	▲	●	●
<b>Fluids</b>				
Adhesives	●	●	●	●
Anaerobics	●	▲	●	▲
Conformal Coatings	●	▲	▲	X
Cyanoacrylates	●	▲	●	●
Gel Cyanoacrylates	●	▲	●	▲
Epoxies	●	●	●	X
Greases	●	●	●	X
Light-Cure Adhesives	X	▲*	▲*	X
Oils	▲	●	●	▲
Paints	▲	●	●	X
Sealants	●	▲	▲	X
Silver Epoxy	X	▲+	X	X
Solder Paste/Braze Pastes	●	●	▲	X
Solder Masks	●	●	▲	X
Solvents	X	●	●	●
UV-Cure Adhesives	●	▲*	▲*	▲

\* OK if used with tip shield, part #7017715 or 7017717.

+ Chamfered tips are recommended for best results.

Key	
●	Recommended
▲	Satisfactory
X	Do not use



## Hunter Soldering Stations



### Hunter 203H ESD Soldering Station (Lead Free)

#### Specification:

Power Consumption	: 90W / 400KHz
Temperature Range	: 200°C to 600°C
Temperature Rising Time	: 28 Sec.
Temperature Recovery	: 8 Sec.
Tip to Ground Resistance	: < 2mΩDC
Tip to Ground Potential	: < 2mV
Display Mode	: Digital



### Hunter 969 ESD Soldering Station

#### Specification:

Power Consumption	: 60W
Temperature Range	: 200°C to 480°C
Tip to Ground Resistance	: < 2mΩDC
Tip to Ground Potential	: < 2mV
Display Mode	: Analog

## Replacement Tips for Hunter 203H ESD Soldering Station (Lead Free)

### LF200 Series

LF200-T-0.8C  
LF200-T-1.6D  
LF200-T-4.2D  
LF200-T-1  
LF200-T-2C/2CF  
LF200-T-K

LF200-T-0.8D  
LF200-T-2.4D  
LF200-T-B  
LF200-T-L1  
LF200-T-3C/3CF  
LF200-T-SK

LF200-T-1.2D  
LF200-T-3.2D  
LF200-T-2B  
LF200-T-1C/1CF  
LF200-T-4C/4CF

\* Custom made is available \*

## Replacement Tips for Hunter 969 ESD Soldering Station (Lead Free)

### LF90M Series

LF90M-T-0.5C  
LF90M-T-2.4D  
LF90M-T-LB  
LF90M-T-4C/4CF  
LF90M-T-1.5CF

LF90M-T-0.8D  
LF90M-T-3.2D  
LF90M-T-1C/1CF  
LF90M-T-1  
LF90M-T-H

LF90M-T-1.2D  
LF90M-T-1.2LD  
LF90M-T-2C/2CF  
LF90M-T-K  
LF90M-T-1.8H

LF90M-T-1.6D  
LF90M-T-B  
LF90M-T-3C/3CF  
LF90M-T-1.5K  
LF90M-T-0.8C

### LF90L Series

LF90L-T-B  
LF90L-T-2.4D  
LF90L-T-3C/3CF

LF90L-T-2B  
LF90L-T-3.2D  
LF90L-T-4C/4CF

LF90L-T-1  
LF90L-T-2C/2CF  
LF90L-T-K

LF90L-T-2.5CF

\* Custom made is available (e.g. Weller & etc...) \*

# LOCTITE

Since 1997 Loctite Corporation, headquartered in Dusseldorf, Germany, has been part of the Henkel Group. It operates in markets as diverse as electronics, automotive, aerospace, biomedical and general industry. Henkel is a leader in consumer brands and technologies. The branded business sectors are Laundry & Home Care, Cosmetic / Toiletries and Consumer and Craftmen Adhesives. Henkel Technologies is the world market leader in Industrial Adhesive and Surface Technologies. The three systems business-Henkel Industrial Adhesives and Sealants, Loctite Engineering Adhesives and Henkel Surface Technologies supported by their worldwide presence and strong technology base are the pillars of Henkel Technologies' success. In Laundry & Home Care and in Cosmetic / Toiletries, Henkel holds a leading position in Europe.



## Multicore Solder

Loctite, the leading supplier of board-level assembly products in the electronics industry, is proud to offer the Multicore line of solders, the most reliable, most advanced solder products available.

Loctite together with the Multicore brand, is poised to become the world leader in solder products and related technologies.

When it Comes to advances in semiconductor packaging technologies and mold compounds, Henkel's widely acclaimed Hysol line of products is without compare.

# Hysol®

Through years of dedicated research and expertise gained from practical, in-field applications, the Hysol portfolio has amassed a full suite of materials solutions for modern semiconductor and electronics packaging processes. From the most innovative die attach materials formulations to liquid encapsulants to package level underfills and low-stress, high strength mold compounds for semiconductor and optoelectronics applications, the products that fall under the Hysol brand are synonymous with reliability, performance, Cost effectiveness and ease-of-use.

The Hysol line of products also complies with the latest environmental legislation. delivering "Green" and lead-free compatible materials as the industry moves toward more environmentally-friendly manufacturing.

## Cemedine



Cemedine offers a complete line of adhesives namely Emulsion type adhesives, Hotmelt adhesives, Epoxy resin adhesives, Cyanoacrylate adhesives, Rubber based solvent type adhesives, Rubber based latex type, Miscellaneous adhesives.

## Dexerials

Sony Chemicals' Adhesives, backed by Sony Chemicals' Advanced Adhesive Technology, have superior line-up of adhesives for the electronic industry. Sony Chemicals' Adhesives have superior electrical response and adhesivity to meet broad range of needs

## Adhesives & Sealants



**SC901**  
Silicon Rubber



**SC608Z**  
Polyester Resin



**SC121**  
Chloroprene Rubber



**SC12N**  
Chloroprene Rubber



**KnightClean** Product is a Green chemistry also called sustainable chemistry, is a philosophy of chemical research and engineering that encourages the design of products and processes that minimize the use and generation of hazardous substances and we are the one that providing **TOTAL PACKAGING SOLUTION** that can solve all your non-compliance Issue.

### Range Products

#### **Advanced Packaging**

Epostrip EP701.

#### **Printed Circuit Boards Industries**

Fluxkleen SA101, Fluxkleen SA131.

Pastekleen SB121, Palletkleen 261, Reflow Oven Cleaner 151.

Epoxy Remover ER531, Ink Remover IR521.

#### **Metal Stamping Industries/Precision Engineering Industries**

Isoclean M401, Aquakleen AQ301, Aquakleen Aq302.

Isopropyl Alcohol (Electronic Grade), Acetone (Electronic Grade)

F-1000 Colloidal Cleaner



# LabWare



## Laboratory Chemicals

### Brand of Laboratory Chemicals:

- |          |               |
|----------|---------------|
| BDH      | Labscan       |
| Fisher   | Merck         |
| Fluka    | RDH           |
| Hach     | Emory         |
| Hanna    | Sigma-Aldrich |
| JT Baker | Kanto         |



### Brand of Laboratory Equipment:

- |         |        |
|---------|--------|
| Duran   | Hanna  |
| Pyrex   | Ansell |
| Isolab  | P.I.G  |
| Kimble  | 3M     |
| Kartell | Fisher |



# Equipment



# YOUR INNOVATIVE INDUSTRIAL CLEANING SOLUTION PROVIDER



**Custom-design  
Fully-Automatic  
Ultrasonic Cleaning System**



**Custom-design  
Manual Type  
Ultrasonic Cleaning System**



**Custom-design  
Semi-Auto  
Ultrasonic Cleaning System**



**Fully-Automatic  
Stencil Cleaning System  
Model: DSC-FA & TSC-FA**



**Semi-Automatic  
Stencil Cleaning System  
Model: DSC-SA & TSC-SA**



**Manual Type  
Stencil Cleaning System  
Model: DSC-M & TSC-M**



**Ionized Water System**



**Vacuum Hydrocarbon  
Recycle System**



**Ultrasonic Mold Cleaner  
Electrolysis  
Model: SUE-20**



**Vapor Degreaser**



**Immersion Type Ultrasonic System  
Model: SI-Series**



**Bench-Top Ultrasonic Cleaner Series  
Model: DC-600H (ED)**



**Custom-Design Single Tank  
Ultrasonic Cleaning System**



**Oil Mist Collector**



**Thermol Oil Pumps**



**TPK Immersible Pumps**



**Ultrasonic Energy Meter  
CF Series-Handheld**



**ITG VSOL FLUIDS Series**