PVC Casting artificial leather
Company Introduction

Company outline

I&S, which is trustworthy company, creates customer value through innovations in technology and pursues healthy life and happiness.

Company Name: I&S Co., Ltd.
The date of establishment: May 19, 2003
CEO: Taehwan, CHA
Major Product: PVC artificial Leather for furniture upholstery
PVC Mat & Foam sheet
Location: 172, Hojuk hwasanro, Oksan-myeon, Heungdeok-gu, Cheongju-si, Chung buk, 28101, KOREA
Employees: 150 (November, 2016)

Quality Management system

I&S Co., Ltd. concentrates on our technological and quality competitiveness based on ISO9001 quality certification and concentrates on our corporate capability to develop the global best products for leading the world market with high value added of existing products.

Environmental Management System

Since adopting ISO14001 Environment management system, I&S is accelerating ourselves on building eco-friendly corporate culture and eco-friendly product development to introduce the world-best ecofriendly products, and we are keeping production considering environment in all processes from material to product and use to disposal.
Facility Introduction

Major facilities

Raw material discovery
 Capa: 6,000ton/year

Casting foaming machine
 Capa: 6,000,000m/year

Gravure printing machine
 Capa: 8,000,000m/year

Emboss equipment
 Capa: 6,000,000m/year

Eco friendly facility
 Capa: 5,000,000m/year

Inspection and shipping
 Capa: 6,000,000m/year
Facility Introduction

### Major facility status

- **RTO_1 facility**: 500 m³/min
- **Bag Filter_1 facility**: 45 m³/min

### Air pollution prevention facilities

- **RC+RTO_1 facility**: 700 / 100 m³/min
- **ACF_ each 1 facility**: 120 / 400 m³/min
- **Bag Filter_3 facilities**: 23.6 m³/min
- **RFP_1 facility**: 500 m³ /min
Facility Introduction

### Other facilities

- **Heat flow boiler_1**
  - 200 thousand Kcal/h

- **Steam boiler_3**
  - 800 Kg/h

- **Air compressor_2**
  - 75/100 HP

- **Cooling tower_2**
  - 200 RT

- **Miller_2**
  - 15 HP

- **High speed mixer_3**
  - 15/7.5 HP

- **Defoamer_2**
  - 1 ton

- **Welding machine_1**
  - 70 KW
Product Introduction

Manufactured products  PVC leather

- For sofa upholstery
- For baby sofa
- Certified flame retardant leather
- Certified green mark leather

- For brand bag
- For Accessories
- For shoes & clothes

- For auto recovering
- For marine

- For furniture interior
- For marine interior
- For wall covering
Manufactured products

PVC Mat / PVC Foam

- Play mat for kids
- For noise prevention
- For kitchen
- For electronic factory
- Mat for export
- For sports
- For yoga
- For outdoor activity
- High foaming foam
- ESD conductive pad
- Foam sheet for IMG
### Intellectual property capability

<table>
<thead>
<tr>
<th>Registration date</th>
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### Quality and technical capability

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<th>DNV</th>
<th>Flame retardant</th>
<th>Green mark</th>
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Product Introduction

Product structure

- **Ultra-luxury Finish**
- **Compact Layer**
- **Ultra-soft Foam Layer**
- **Eco Advanced Adhesive**
- **Textile Backing**
It provides superior quality and delicate embroidery than natural leather through the combination of casting method and vacuum embossing.

It is differentiated from other materials by adding surface touch sensibility and soft cushion to maximized emotional quality.

It accords with trend for thickness of fine cell structure and weight reduction through accumulated foaming system.

Comparing to the other material, it has far superior excellent elasticity and restorative properties, so that it has advantage such as sewing ability, good matching, connection, and wrinkle occurrence.
The reason why it is more and more safe and best eco-friendly artificial leather is that the company specialized in manufacturing infant / children's product.

Based on our know-how in product to consider safe and eco-friendly, it can provide a safe and reliable environment for the car interior space for all ages.

- Heavy metal FREE
- Best aqueous surface treatment
- Satisfies product quality for domestic & global children standards
- Excellent odor improvement effect
- VOCs reduction products
Casting method

This method is that plastisol is coated on release paper and then processed by gelling and foaming.

PLASTISOL:
Raw material, which has characteristics of the flow, mixed with PVC, plasticizer, additive.
Casting foaming process

It is composed of total 3rd Coater and manufactured semi-finished product through lamination process that repeated coating, drying (foaming) and cooling.
- Own emboss manufacturing technology **Matrix Design**
  We have accumulated emboss manufacturing technology, so that we can produce emboss roll to demand customers and market’s needs.
Emboss pattern controlling technology

Emboss depth adjustment technology
Technology what can adjust the valley side to the desired depth while maintaining all shapes of the top of the embossed pattern intact.

3D pattern magnification technology
Technology what can enlarge the volume while maintaining all shapes of the pattern to be enlarged.

3D downsizing technology
Technology what reduces volume while maintaining all shape of pattern.
Comparison with calendering method

<table>
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<tr>
<td>Hardness</td>
<td>Physical property</td>
</tr>
<tr>
<td>Straight PVC</td>
<td>Resin</td>
</tr>
<tr>
<td>Rolling</td>
<td>Work method</td>
</tr>
<tr>
<td>Fast</td>
<td>Operation pace</td>
</tr>
<tr>
<td>Inexpensive</td>
<td>Processing cost</td>
</tr>
<tr>
<td>Normal</td>
<td>Commercialization</td>
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<tr>
<td></td>
<td>Softness</td>
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<tr>
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<td>Paste PVC</td>
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<tr>
<td></td>
<td>Gelling</td>
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<tr>
<td></td>
<td>Slow</td>
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<tr>
<td></td>
<td>Expensive</td>
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<tr>
<td><img src="image1" alt="Cross section" /></td>
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<td>Physical strength, cost</td>
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Product Introduction

SOFFKIN-HYACINTH - 1.2mm × 1,372mm

Widely usable product, conductive product can be applied for anti-static workplaces dealing with semi-conductor, electric for furniture.

- Composition: PVC 81%; Polyester fabric 19%

SOFFKIN-ADONIS - 1.5mm × 1,372mm

Suitable alternative for natural leather, higher grade for furniture.

- Composition: PVC 80%; Polyester fabric 20%
- It, which is soft touch and good durability similar to genuine leather, can embody a various emboss and colors for sofa, chair, bed, and all of furniture.
SOFFKIN IANES leather - 1.1mm × 1,372mm

Premium bag leather through various techniques such as expression of natural leather, surface touch of full-grain leather treatment.

- Applied leather such as various pearl printing and transfer printing process.
- Function: soft surface touch, excellent in durability, anti-pollution
- Producing bag leather that internal and external luxury brands acknowledged (MCM, Daks, HAZZYS, LOUIS QUATOROZE, METROCITY, and ETC.)
**SOFFKIN-KALMIA - 1.2mm x 1,372mm**

- It is multiple functional materials for interior luxury yacht and vessel
- Composition: PVC 82%; Polyester fabric 18%
- Thickness: 1.2 ± 0.1mm
- It is obtained MED certificate from Norway's *Det Norske Veritas* (DNV), eco-friendly product.
Product Introduction

SOFFKIN – A part
1.2~1.4mm × 1,372mm

- Application: seat back, and cushion part
- Strength: robust durability, and embodied luxury emboss, and punching pattern
- Able to produce in thickness, physical property and colors as customer required.
- There might be a slight weight reduction after punching process depending on pattern.

SOFFKIN – B, C part
1.0~1.2mm × 1,372mm

- Application: Cushion, side and back area.
- Strength: Superior sewing process ability and wrinkle prevention due to soft physical property.
- Able to produce in thickness, physical property and colors as customer required.
Established & operating color management system

- **Man**
  - Tool Plus 2.0 system operation

- **Material**
  - High quality pigment

- **Method**
  - HUE TEST

- **Machine**
  - 3Roll Milling

- **Environment**
  - D65 lighting head
  - harmony room

- **Environment**
  - Lighting booth with 5 lights
Established color quality management system
Introduce operation spectrocolorimeter of **datacolor**, which is global leader as Management & Communication

**Measurement**

The highest level of correspondence between equipment
Excellent color reproducibility
Derive data for considering surface texture
Color matching system

1. Target color verification
2. Spectrocolorimeter
3. Lab production
4. Conclusion mixing ratio
5. Base tonering
6. Color matching
7. Casting foaming
8. Gloss and color tuning
9. ΔE, MI measurement
**Shipment and exportation**

We have 3 DOCKs and supply export volume through stable export forwarding companies.

- **Average number of container operations per month:** 28 operations
  (1Container/1day)
Logistic warehouse

- **I&S the 1st factory**
  - Retain 3 buildings
  - Total area approx. 4,000 m²

- **China Qingdao warehouse**
  - Area approx. 1,000 m²
  - Approx. 300,000 m storage
  - Pallet approx. 500 EA storage

- **I&S the 2nd factory**
  - Total area approx. 4,000 m²
  - Completed extension in 2015
Thank you