

Eco and Durable Plasma Surface Treatment Technology for Silicone Rubber Products

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SMD: Surface Technology

Problem to be Addressed

- ❗ Market driven to multi-functional product
- ❗ Customers looking for products with longer sustainability

How we can help you



- ⦿ Tailor-made functional coating solution offering



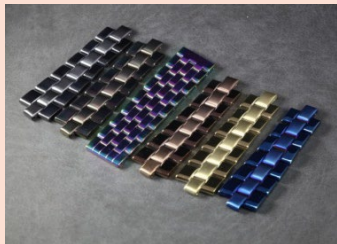
- ⦿ R & D on new material for functional coating



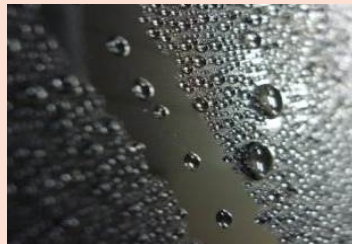
- ⦿ Consultancy service on manufacturing systems for surface coating

What We Have Done

Tailor-made coating



- ▶ Vacuum IP Plating



- ▶ Plasma Treatment

New material R&D



- ▶ Electrochromic(EC) Glass

Surface coating systems



- ▶ Anti-fouling coating and coating systems

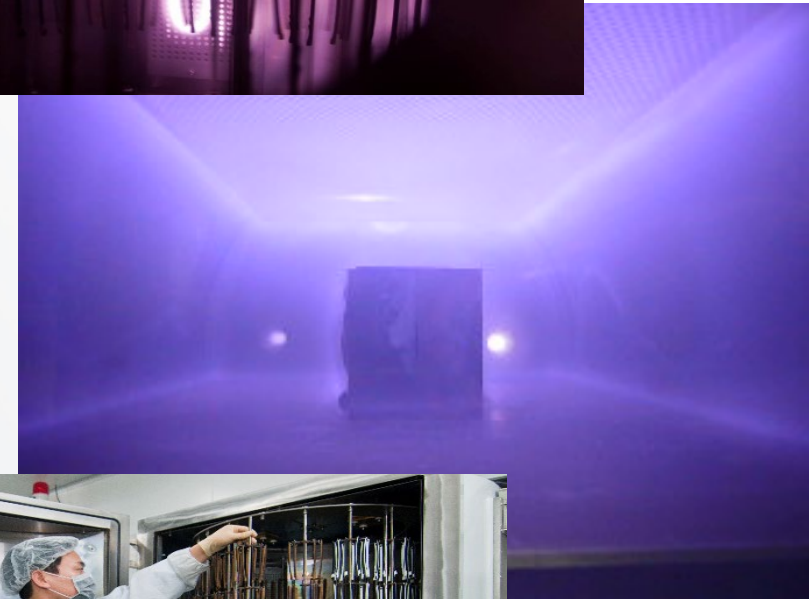
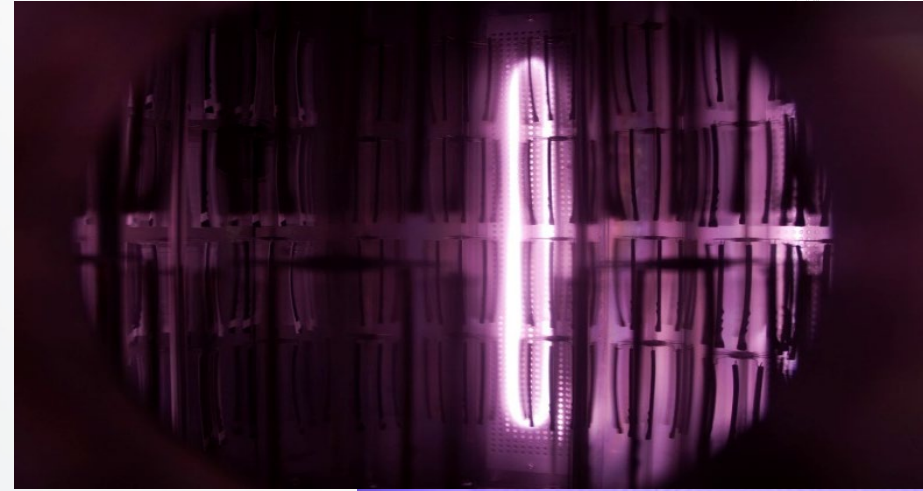
Problem for Silicone Rubber Product

- Silicone has good thermal and bio-compatibilities
- Prone to electrostatic adhesion of dust
- **Conversional** methods uses **paints** to protect
 - **Volatile Organic Compounds (VOCs)**
 - **Not long lasting**
- Limited usage because of the poor cosmetic appearance



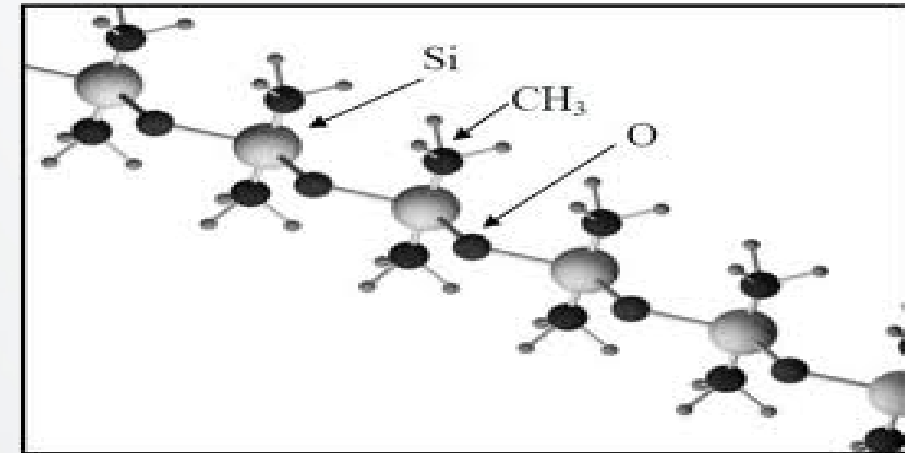
Our Solution

- Environmental friendly
 - Waterless and no VOCs
 - No harmful chemicals
- Single process
 - surface cleaning
 - neutralization of surface charge
- Long lasting
 - Durable products
- Superior touch feeling and cleanability
- Scalable design
 - High Throughput
 - Low running costs



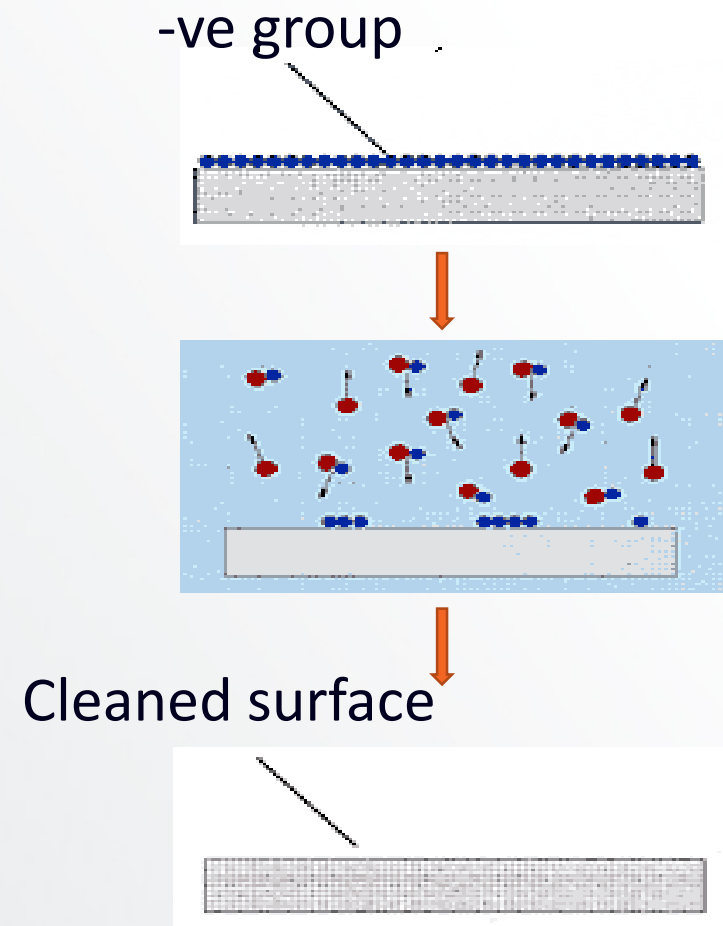
Technical Details

- Silicone surface is negatively charge due to the **negative oxygen groups**
- **Dust** particles are **positive charge**
- Dust particles and silicone surface are **attracted by electrostatic force**, therefore difficult to clean



Technical details

- Surface modification of silicone rubber surfaces
- Negatively charged silicone surface is **cleaned and removed by the plasma action**
- Energy of the reactive plasma **remove surface oxygen group**



Benefits

- Environmental friendly (waterless and no VOCs)
- Long lasting anti-dust and anti-statics properties
- Superior touch feeling, cleanability and durability
- Scalable design for different products sizes and manufacture scale
- Low operational cost
- Demo video : <https://youtu.be/oqHb0GduDvo>



Achievements

- Original Design Manufacturing Equipment
 - PRC Utility Model Patent granted (patent no.: CN202279857U & CN202297756U)
- 45th International Exhibition of Inventions Geneva (Swiss) – Gold Award
- Hong Kong Awards for Industries – Certificate of Merit

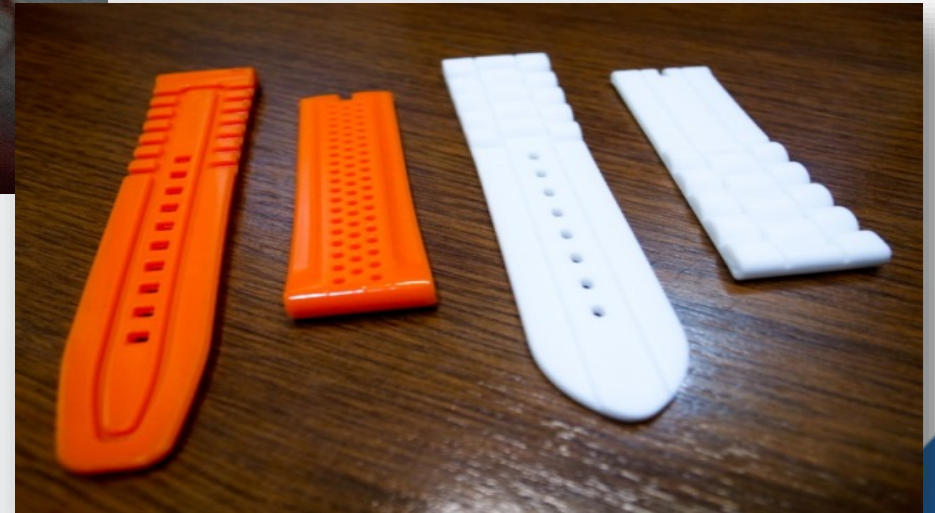
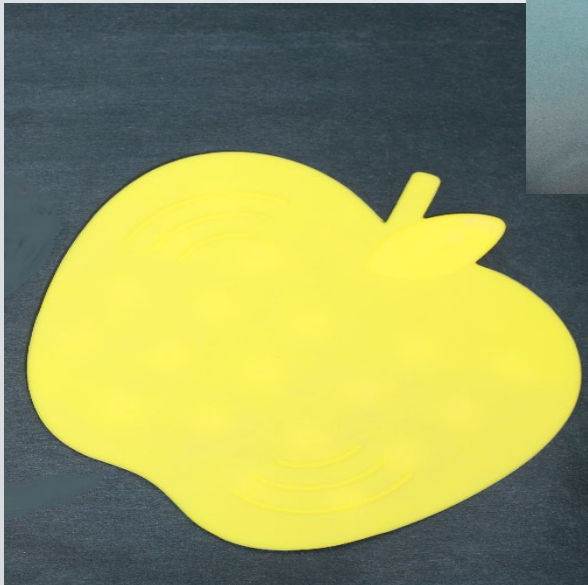


Experience for Manufacturing

- Fully tested in small scale manufacturing for a number of client
- 2 production equipment operating for 2 years
- Applications:
Medical Devices, Wearable products/devices, healthcare products, cosmetic products, baby care products. and cookware



Potential Applications



HKPC Services

- Sample Trial
- Tailor-made recipe development
- Tailor-made manufacturing system
- Current manufacturing status assessment, system modification/upgrade
- Government funding application/support

Thank You