Powell

Technology

CONTENTS

Part 1 **Product Analysis**

Concept

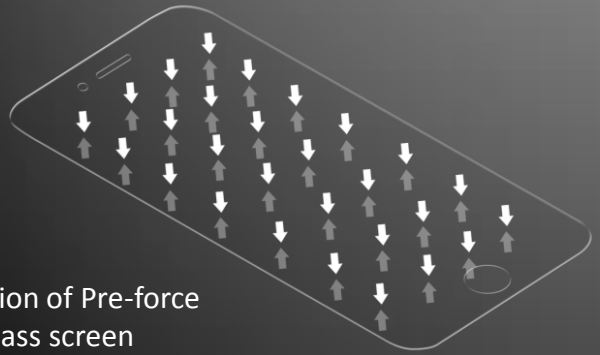
Structure Decomposition

Raw Material Analysis

Terms Explanation

Concept

- In 2012， tempered glass screen protector was invented by KSU Lab for mobile devices.
- End of 2012,the first piece of tempered glass screen protector came to the world , with its thickness 1.3mm.
- Tempered glass is also called pre-stressed glass.



Direction of Pre-force into glass screen

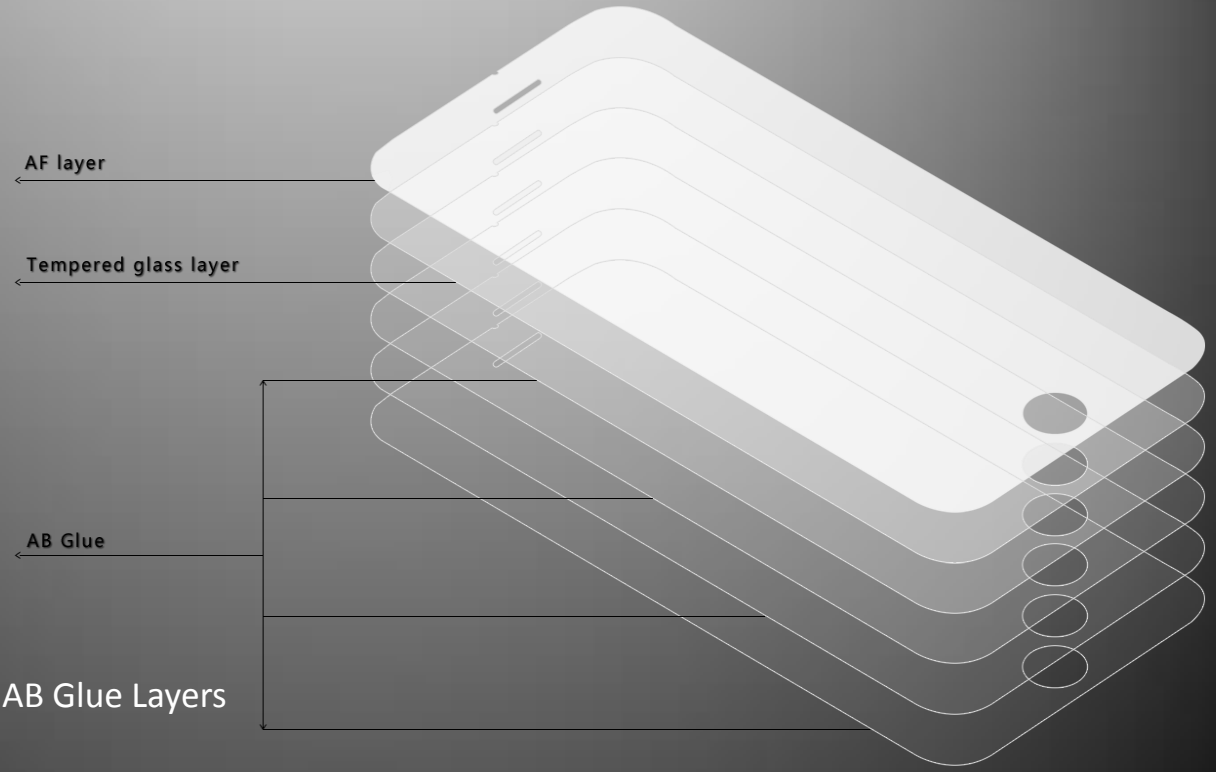
Kentucky State University

- Powell` Tempered glass screen protector, the best protection ever.

Structure Decomposition （iPhone 6）

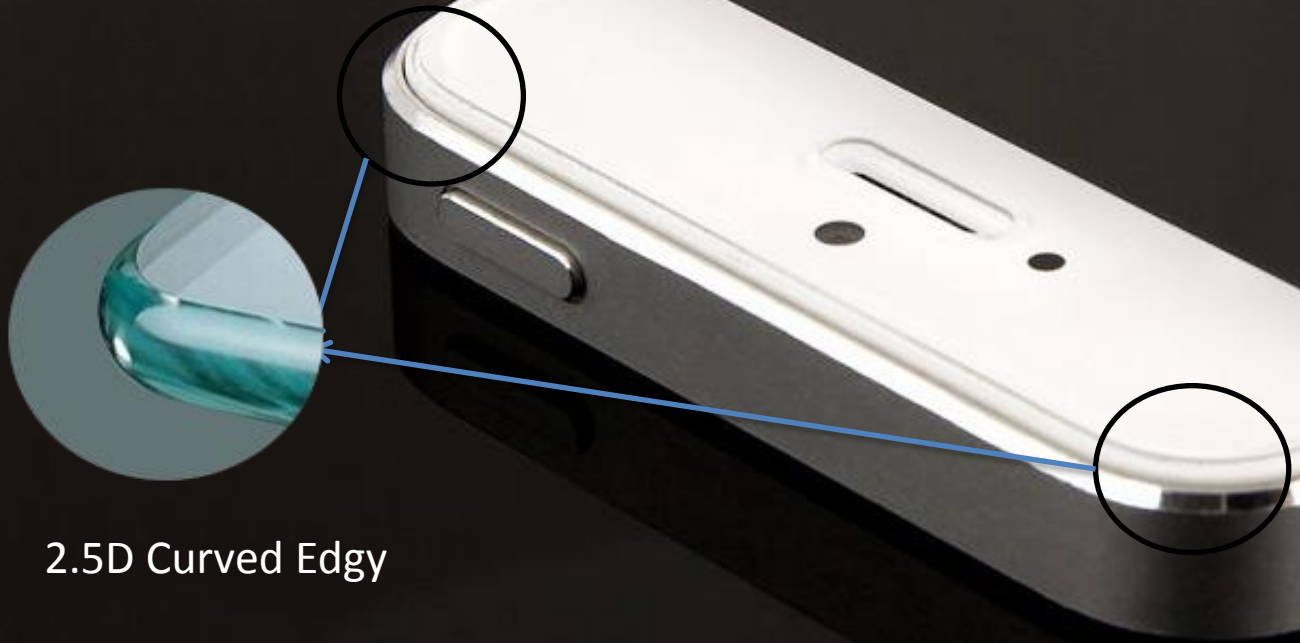
It can be generally divided into 6 Layers.

- Simply 3 Layers： layer of tempered glass , layer of AB glue , layer of PET film.
- Glass Substrate:0.15mm/0.22mm/0.33mm/0.4mm



Features-2.5D Curved Edgy

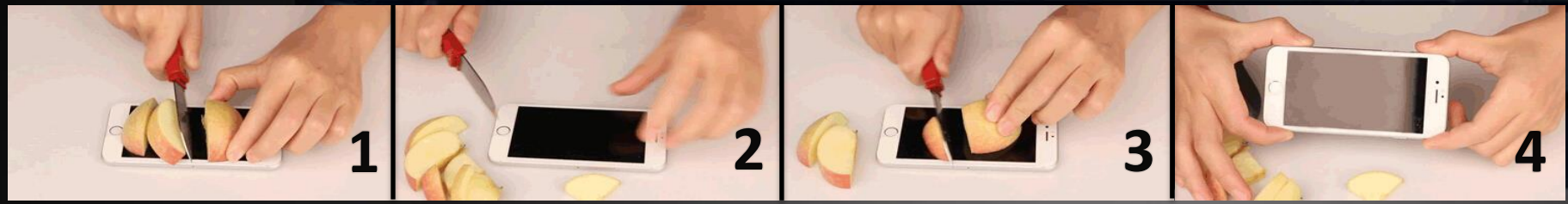
The 2.5D curved edgy is engraving and polishing by the CNC carved machine, which makes the edgy of glass more smooth.



2.5D Curved Edgy

Features-Tempering

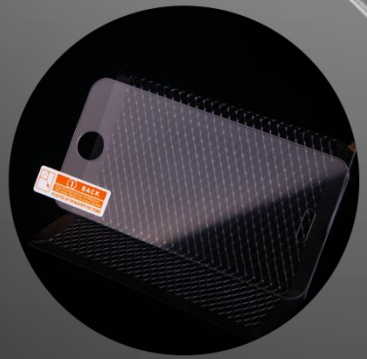
Pushing the Glass into the heating furnace, heating it to 600℃ until in a state of melting, which the inner pre-stressed force of glass will be removed. Then we push the glass out , blowing with high pressure cold air ,cooling it in a fast and average d way, then the tempered glass coming into being.



Features-Vacuum Plating

Injecting the argon in a vacuum state, then it collide and dissolve into Anti-fingerprint oil, which will be absorbed by the conductive AF layer.

Without anti-fingerprint oil



With anti-fingerprint oil

Raw Material-Tempered Glass

Schott

Country： Germany
Features： tough/pure
Stress Value： 850
Stress Layer： ＞45μm
Grade： A+

NSG

Country： Germany
Features： less tougher/less purer
Stress Value： 300
Stress Layer： 10-12μm
Grade： B+

Corning

Country： USA
Features： tough/pure
Stress Value： 600
Stress Layer： 40-45μm
Grade： A

Luoyang

Country： China
Features： less tougher/impure
Stress Value： 250
Stress Layer： 10μm
Grade： B

ASG

Country： Japan
Features： tough/less purer
Stress Value： 350
Stress Layer： 10-12μm
Grade： A-

Nanfang

Country： China
Features： Weak/impure
Stress Value： 220
Stress Layer： 10μm
Grade： C

Raw Material-AB Glue

NIPPA CORPORATION

Brand：Nippa
Country：Japan
Features：Stable/top quality
thickness：85-120
Grade：A+

KAWANO 川野电子

Brand：Nippon
Country：Japan
Features：Stable/top quality
thickness：85-120
Grade：A

TMS

Brand：TMS
Country：South Korea
Features：Stable/Poor quality
thickness：150-220
Grade：B

Shin-Etsu

Brand：Shin -Etsu
Country：Japan
Features：instable/poor quality
thickness：120-180
Grade：C

Part 2 **Product Technological Process**

Simplification

Procedure

Explication

Simplified Steps

1.Cutting (Base Material)

2.CNC (CNC machining)

3.Polishing (plane abrasion)

4.Tempering (Quenching)

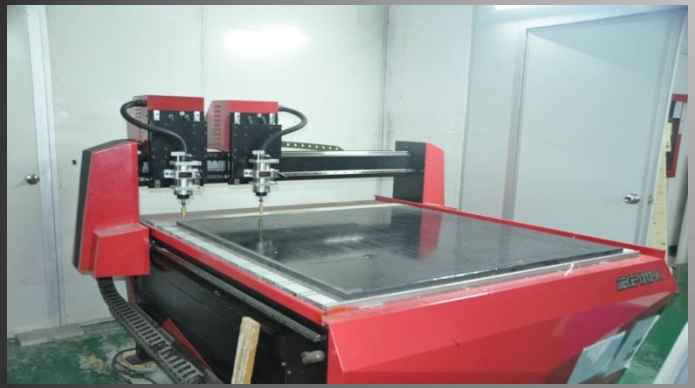
5.Electroplating(Anti-fingerprint)

6.Laminating (AB Glue)

Procedure

3 Times Ultrasonic Cleaning
4 Times 100% QC
Make us stronger than ever!

Product Technological Process-Cutting



Material Cutting Machine

Material Cutting Machine

Cutting the base material into standard phone size.

Standard base material thickness on the market:
1.1mX0.8m
1.1mX1.1m
1.3mX1.1m

What's Powell?
1.3mX1.3m !

Product Technological Process -CNC(CNC Machining)

CNC Machining

CNC is the automation of machine tools that are operated by precisely programmed commands encoded on a storage medium, as opposed to controlled manually via hand wheels or levers, or mechanically automated via cams alone. Most NC today is **computer numerical control** (**CNC**), in which computers play an integral part of the control.

With RPM 6000-15000,
CNC Stereoscopic Blade

Product Technological Process-Surface Grinding

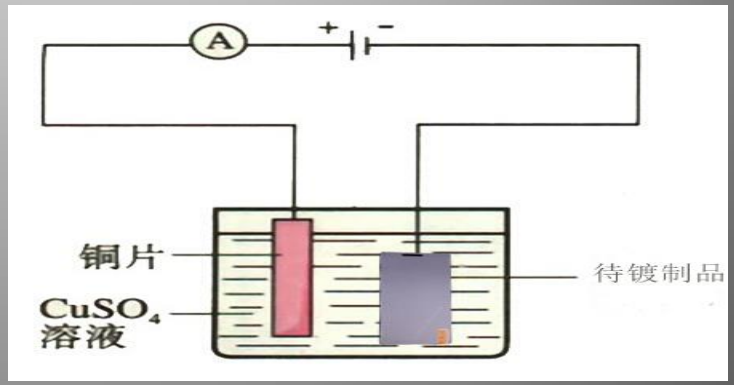
Polishing Machine

Making glass surface more smooth and strengthening the membrane hardness.

Use some special/Chemical/Custom liquid to smooth the surface of the glass inside of the machine.

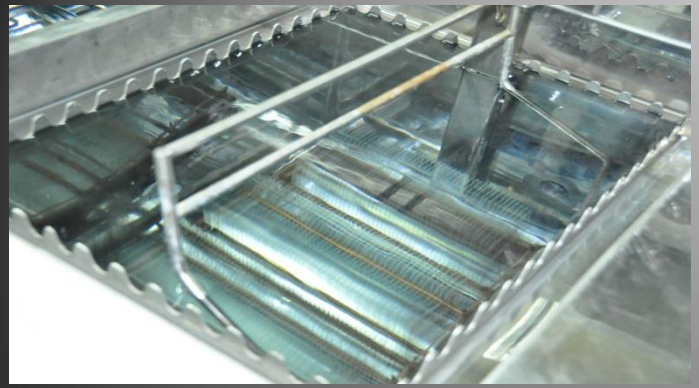
Product Technological Process-Vacuum Plating

Plating Machine



Vacuum plating is also belongs to eco-plating filed but the environment has changed during the process. Make sure that AF element will be perfect suit on the surface.

Product Technological Process-Ultrasonic Cleaning



Ultrasonic Cleaning

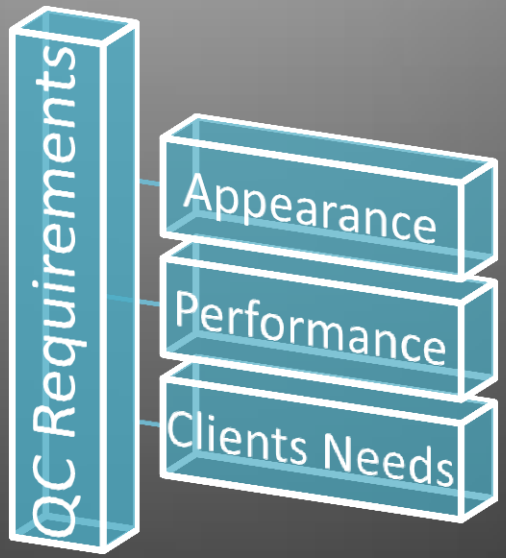
Using the ultrasonic wave technology to remove the impurity and dust with 7 different times` Ultrasonic-cleaning.

Product Technological Process-QC

Visual Detecting

Machine Detecting

Three points of Powell QC system-
Appearance（100%）,
Performance（7%-15%）,Client needs（100%）.



Appearance-Pure and smooth surface.

Performance-Testing by the machine.

Finished Goods-Qty inspected before delivery.

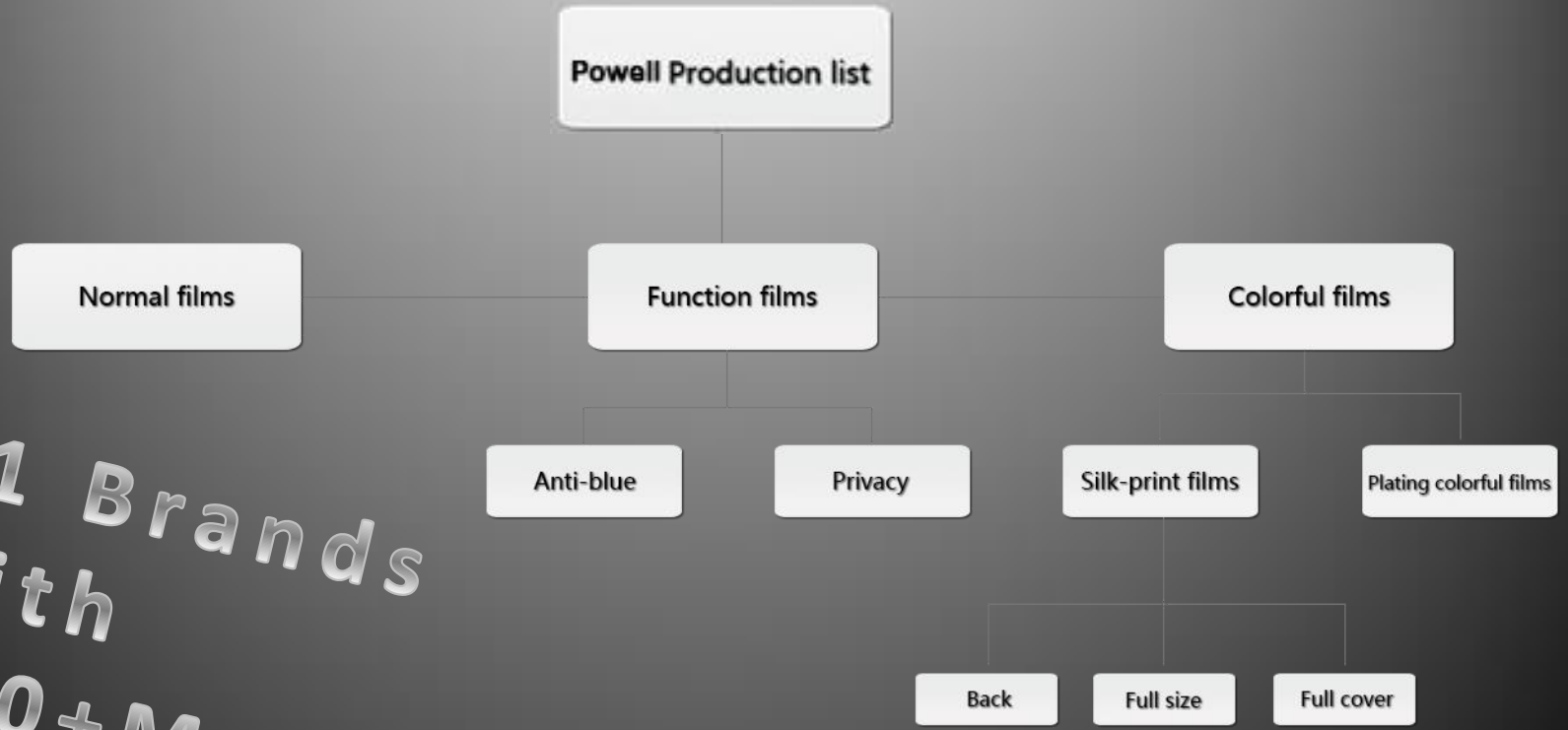
Part 3 **Product Photo Gallery**

Classified by function

Classified by Brands

For iPhone 6

Classified by functions



21 Brands with 130+Models

Classified by Brands

And more…

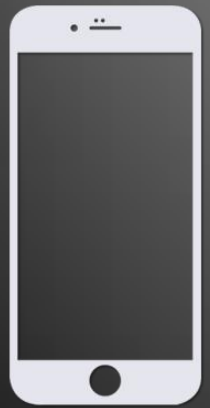
For iPhone 6


Normal

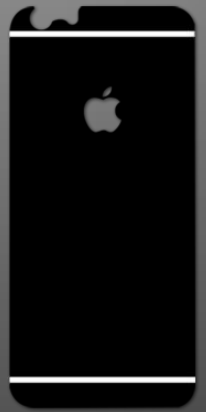

Mirror

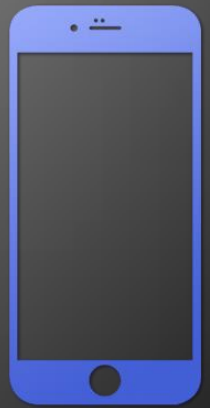

Anti-blue


Privacy


Full size laminating


Full cover


Back


Plating colorful

Part 4 **Product Supervisory**

Better than Better

performance Comparison

Electroplating Comparison

Better than Better

Focusing on our quality and services , we aim to be the top brand in screen protector field.

We made our products on this filed which has the best cost performance cause its precision process control.

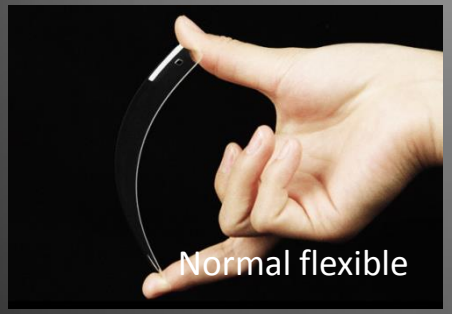
Tempering performance Comparison

1

2

POWELL

1



2

Others

Powell leads you to transformational experience, we will not provide you such a product without additional profit and meaning, but will give you a stuff with our best cost performance.

Electroplating performance Comparison

Others

VS

POWELL

On the Fluid Touching Angle Testing we found our production`s performance is over 115 degrees and at the same time on the market is 100-105 degrees normally.

Part 5 **FAQ and Solution**

Bubbles

Laminating badly

Impurity

Bubbles

Reason: Laminating too fast so the screen protector didn't match the screen well.

Solution: Peel off the films again and make sure that the bubbles can get in touch with the atmosphere from outside, then apply it again.

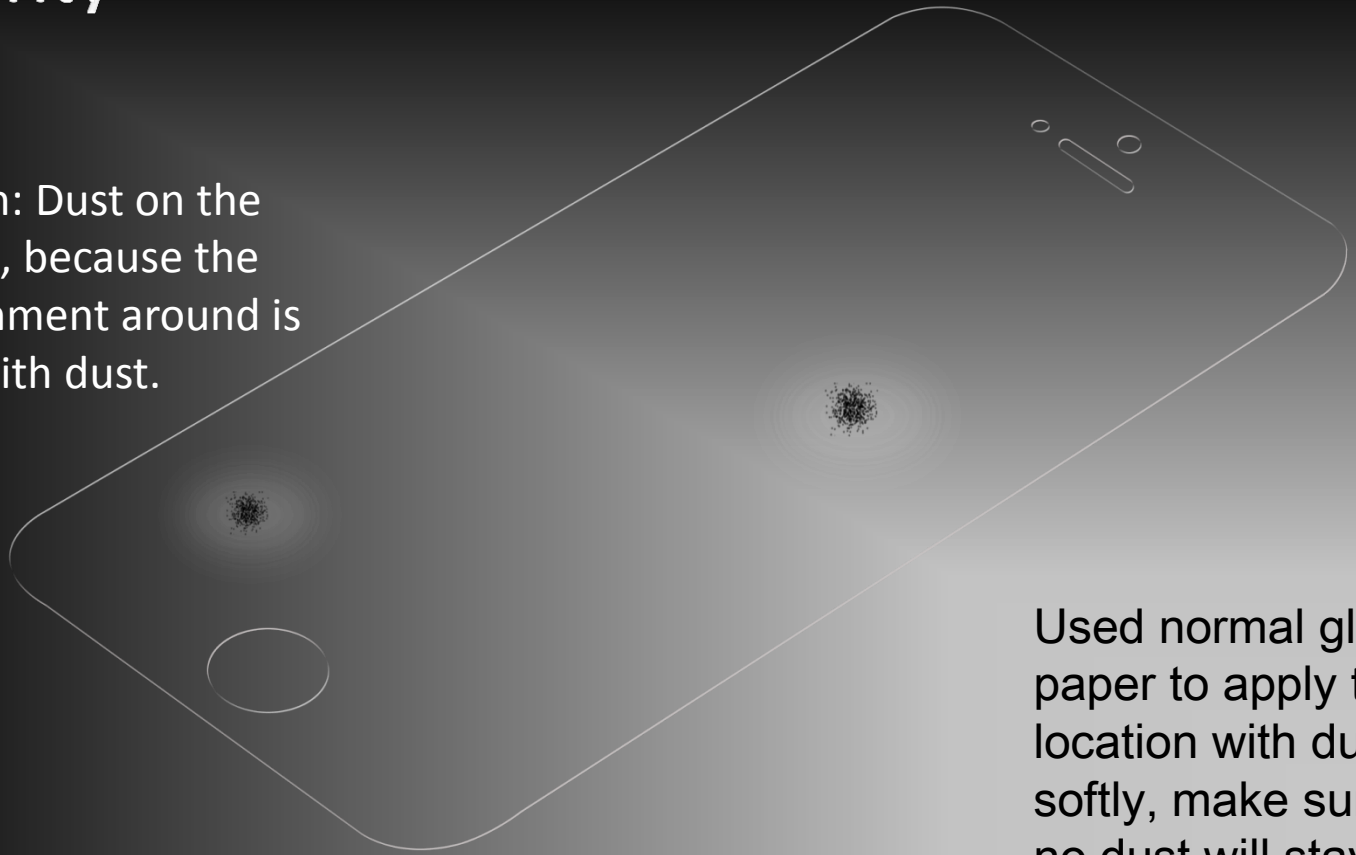
Laminating badly

Reason: For curved edge mobile for example iPhone 6 and Note 4, it is quite hard to positioning is correctly. So t suit won`t be good.

Solutions: Peel off it again and position it to the mobile`s edge more precise, then apply it again.

Impurity

Reason: Dust on the surface, because the environment around is filled with dust.



Used normal glue paper to apply the location with dust softly, make sure that no dust will stay, then apply it again.

CONTACT US

Company Web URL	http://www.i-powell.com
Company Officially Mail	info@i-powell.com
Get Our Quotation	sales@i-powell.com