starex® is the styrene product brand of SAMSUNG SDI, representing the company’s value that the top experts in the field and it can provide the best experience to its customers.

starex® covers the styrene product groups such as ABS, ASA, EPS, SAN, while offering high-functionality choices through various lineups.
starex® ABS, composed of AN, BD and SM, has excellent processability, heat stability and impact strength. It is applicable to various products such as electrical and electronic devices, home appliances and toys.

**KEY FEATURES**
- Excellent balance of properties
- High gloss
- Excellent heat stability
- Good processability suitable for various applications

**APPLICATIONS**
- TV
- Home appliances
- Toy
- Automotive
- Stationery

**PRODUCT LINE-UP**

---

**starex® ABS**

starex® ABS is a practical material and that has great workability, high impact, and high modulus characteristics, as well as excellent colorability and gloss. starex® ABS maintains superb resistance to impact across a wide range of temperatures, as well as tensile strength, rigidity, and heat resistance.

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**starex® ABS Alloy**

starex® ABS Alloy is an advanced high performance resin such as transparent ABS, non-painting scratch-resistant MABS, eco-friendly PCM based materials and ABS/GF. SAMSUNG SDI has differentiated product portfolio of ABS resin.

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**starex® ASA**

starex® ASA is a high weatherable resin having superior chemical stability, while maintaining excellent glossiness, modability, and mechanical properties of ABS resin. starex® ASA is suitable for exterior materials because it does not discolor under UV exposure over a long time and its physical properties do not change much.
**starex® Extrusion ABS**

starex® Extrusion ABS is most suitable for refrigerator liners and construction components. The plastic has good sheet extrusion stability, chemical resistance and vacuum moldability. starex® extrusion ABS for refrigerators especially is the world-class product with the biggest global market share.

**KEY FEATURES**

- Superb thin wall vacuum forming capability
- Aesthetically advanced high gloss feature
- Outstanding impact strength & tensile strength
- Excellent chemical resistance & crack resistance

**APPLICATIONS**

- Refrigerator
- Construction & Pipe

---

**starex® Flame Retardant ABS**

starex® Flame Retardant ABS is specially formulated to have the self-extinguishability making it much safer for the use in the electrical & electronic applications complying with the UL 94 regulations, the most widely accepted fire safety standards. starex® Flame Retardant ABS is taking its lead in the global market thanks to its excellent balance of mechanical properties and processability.

**KEY FEATURES**

- High heat stability and good processability
- Excellent colorability
- Well-balanced physical properties

**APPLICATIONS**

- TV
- Monitor
- OA machine
- Wiring device

---

**PRODUCT LINE-UP**

<table>
<thead>
<tr>
<th>REFRIGERATOR INNER LINER</th>
<th>CONSTRUCTION MATERIAL</th>
<th>PIPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP General</td>
<td>SV-0157</td>
<td>High Impact SP-0170</td>
</tr>
<tr>
<td>Thin wall</td>
<td>SV-0165 U</td>
<td>High Pressure SP-0180</td>
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<td>Less Odor</td>
<td>SV-0167 U*</td>
<td>SP-0183</td>
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**starex® Flame Retardant ABS**

<table>
<thead>
<tr>
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<th>UV Resistant</th>
<th>Heat Resistant</th>
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<tr>
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<td>SV-0167 U</td>
<td>NH-0927</td>
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<td>SH-0160</td>
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**NON-HALOGEN**

- 1.5T V-0
- 2.0T V-0
- 2.5T V-0, 3.0T 5VB
- 2.5T V-0 (High Flow)
- 2.0T V-0
- VH-0810

**BR**

- LBAB
- LH-0860 P
- LH-0860EX
- LH-0865 G
- LH-08651S
- LH-08656
- LH-08658

**REO**

- REO-0865 G
- REO-08658
- REO-08656
- REO-08651S
- REO-08660EX
- REO-08650 P
- REO-08665 G
- REO-08656
- REO-08658

*Under development*
Although general purpose ABS has mechanical properties good enough for the practical use in terms of processability, impact strength, etc, its use is sometimes limited at high temperature due to the deformation of its molded products by heat. 

starex® High Heat Resistant ABS offers an attractive alternative to general purpose ABS and other engineering plastics making it suitable for the applications designed for the use at high temperature.

**KEY FEATURES**

- Low TVOC
- Chemical resistance
- High heat resistance
- High flowability

**APPLICATIONS**

- Automotive interior: Cockpit module parts, Power window, Switch panel, Pull handle, Console

---

**Metal Plating/Painting ABS**

In general, ABS is a suitable material for metal plating. In consideration of better productivity, however, the material should be more easily etched and have better adhesion strength. starex® Metal Plating ABS generates uniform anchor holes during the etching process and has excellent adhesion strength making it possible to achieve higher productivity and lower metal plating rejections.

**KEY BENEFITS**

**METAL PLATING**

- High adhesion strength
- Excellent appearance
- Chemical resistance
- Dimensional stability

**PAINTING**

- Chemical resistance
- Painting uniformity
- Excellent painting appearance

**APPLICATIONS**

**METAL PLATING**

- Automotive exterior: Radiator grille, Rear garnish, Emblem, Outside mirror, Door handle
- TV: Stand base

**PAINTING**

- Bike

---

**PRODUCT LINE-UP**

**METAL PLATING**

- **General**
  - SR-0300 (VST 102)
  - SR-0310
  - SR-0315 V
  - SR-0310FM
  - Heat Resistant (VST 106~110)
  - SR-0320 K
  - Low TVOC
  - SR-0320LT*
  - SR-1320LT*
  - Super Heat Resistant (Over VST 111)
  - SR-0320LT (Low TVOC)
  - SR-0330M
  - SR-0340M
- **Under development**

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**PAINTING**

- **Surface coating**
  - PT-0170 M (Chemical Resistance)
  - PT-0180 (General)
**starex® Transparent ABS**

Starex® Transparent ABS is deliberately formulated to have an excellent balance of transparency, mechanical properties, and processability, making it suitable for the applications such as home appliances, OA machines, and toys that need both transparency and good mechanical properties.

### Key Features
- Super clear transparency
- Excellent color consistency & stability
- Well-balanced properties

### Applications
- Washing machine: Top cover
- Vacuum cleaner: Dust box
- TV frame
- Miscellaneous: Toy, Dispenser, Food containers

### Product Line-up

<table>
<thead>
<tr>
<th>General</th>
<th>High Impact</th>
<th>Specialty</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX-0510T</td>
<td>TX-0520T</td>
<td>TX-0510F (NSF Certification)</td>
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</tbody>
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**starex® Luminous**

Luminous is a premium-class “non-painting resin” that enables the manufacturing of plastic parts without painting. Bright, high gloss and metallic-look Luminous gives off the appearance of a painted surface and has improved features in terms of flow mark and weld line, compared with existing metallic resins.

### Key Features
- Fine exterior: Metallic-look without painting
- Eco-friendly process: Cost reduction through process simplification, Recyclability (No painting), Eco-friendly manufacturing process (No solvent use)
- A wide range of various visual effects available

### Applications
- Refrigerator: Home bar, Dispenser, Door cap
- Vacuum cleaner: Dust cover, Cover control, Hand grip
- Washing machine: Top cover, LID, Control panel, Detergent drawer panel

### Product Line-up

<table>
<thead>
<tr>
<th>Luminous S</th>
<th>Luminous P</th>
<th>Luminous M</th>
<th>Luminous XM</th>
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<tbody>
<tr>
<td>LX-0760, LX-0971, LX-0970 L</td>
<td>LX-0951, LX-0957, LX-0957EX</td>
<td>LX-0981, LX-0981F (Scratch Resistant), LX-0987EX</td>
<td>LM-0990</td>
</tr>
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**Eco-Friendly Materials**

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**starex®**

**Transparent ABS**

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### Key Features
- Super clear transparency
- Excellent color consistency & stability
- Well-balanced properties

### Applications
- Washing machine: Top cover
- Vacuum cleaner: Dust box
- TV frame
- Miscellaneous: Toy, Dispenser, Food containers

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</table>
starex® ABS/GF, glass fiber reinforced ABS, features excellent flexural modulus, heat resistance, and dimensional stability. starex® ABS/GF is applicable to frames and precision parts that require high flexural modulus and dimensional stability.

**KEY FEATURES**
- High impact strength & heat resistance
- Low changes in the mechanical property over a wide temperature range
- Dimensional stability

**APPLICATIONS**
- TV
- Monitor
- OA machine
- Air conditioner fan

**PRODUCT LINE-UP**

<table>
<thead>
<tr>
<th>FLAME RETARDANT</th>
<th>GENERAL</th>
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<tbody>
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*Under development*
starex®
PCM based ABS/PET

Eco-friendly PCM, which utilizes waste plastics, helps save the resources and reduce the emissions of CO₂ while meeting the requirements of eco-friendly certifications such as EPEAT and TCO, as well as the RoHS regulation. SAMSUNG SDI has developed the world-first environment-friendly PCM based materials suitable for monitors, OA machines, mobile phone exteriors and automotive components.

KEY FEATURES
• Chemical resistance & well-balanced properties
• Easier to comply with eco-certifications (EPEAT Gold & TCO Edge)
• Reduction of CO₂ emission

APPLICATIONS
• Monitor
• OA machine

PRODUCT LINE-UP

<table>
<thead>
<tr>
<th>GENERAL</th>
<th>FLAME RETARDANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Resistant</td>
<td>Eco-Friendly</td>
</tr>
<tr>
<td>PCM 15%</td>
<td>GC-0703</td>
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<td>PCM 28%</td>
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<td>PCM 35%</td>
<td>GC-0710</td>
</tr>
<tr>
<td>PCM 70%</td>
<td>GC-0750</td>
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</tbody>
</table>

starex®
Weather Resistant ASA

starex® ASA has both superior weatherability and impact strength. It also has outstanding color fastness and gloss retention, as well as dimensional stability. Thanks to such properties, it can be used for various outdoor applications such as automotive, construction materials, ships, and leisure products.

KEY FEATURES
• Excellent weatherability
• Superior impact strength
• Color fastness & Gloss retention

APPLICATIONS
• Automotive: Outside mirror, Rear lamp housing, Radiator grille
• Building & Construction: Window profile, Roofing, Rain gutter, Fencing
• Home appliances
• Sports & Leisure

PRODUCT LINE-UP

<table>
<thead>
<tr>
<th>INJECTION</th>
<th>EXTRUSION</th>
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<tbody>
<tr>
<td>General</td>
<td>High Flow</td>
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<td>WX-9120</td>
<td>WX-9700</td>
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<td>WR-9120</td>
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<td>WX-9300UV</td>
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<tr>
<td>WX-9820</td>
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<tr>
<td>Home Appliances</td>
<td>WX-9520</td>
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Under development

Eco-Friendly Materials

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• Reduction of CO₂ emission

APPLICATIONS
• Monitor
• OA machine

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• OA machine

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<td>PCM 70%</td>
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### PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Condition</th>
<th>Unit</th>
<th>General ABS</th>
<th>General ABS</th>
<th>High Flow ABS</th>
<th>High Gloss ABS</th>
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<td>Tensile strength at break</td>
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### PHYSICAL PROPERTIES

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<td>kgf/cm²</td>
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### THERMAL PROPERTIES

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### FLAME CHARACTERISTICS

| Property                      | UL-94            | | |
|-------------------------------|------------------|| |

## Flame Retardant ABS

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### FLAME CHARACTERISTICS

| Property                      | UL-94            | | |
|-------------------------------|------------------|| |
### Heat Resistant ABS

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<th>VE-DMDY</th>
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### Flame Retardant ABS

#### PHYSICAL PROPERTIES

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#### THERMAL PROPERTIES

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#### FLAME CHARACTERISTICS

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# Metal Plating/Painting

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## PHYSICAL PROPERTIES

### MECHANICAL PROPERTIES

- **Tensile Strength at Yield**
  - ASTM D638
    - kgf/cm² 5mm/min: 480, 450, 440, 400
    - kgf/cm² 50mm/min: 450, 510, 440, 460
  - ISO 527-1A
    - Mpa 50mm/min: 49, 51, 39, 46
- **Tensile Strain at Break**
  - ASTM D638
    - % 50mm/min: 25, 25, 14, 55
- **Flexural Strength**
  - ASTM D790
    - kgf/cm² 2.8mm/min: 690, 660, 610, 640
  - ISO 178
    - Mpa 2mm/min: 72, 70, 71, 70
- **Flexural Modulus**
  - ASTM D790
    - kgf/cm² 2.8mm/min: 23,000, 21,500, 20,000, 22,000
  - ISO 178
    - Mpa 2mm/min: 2,350, 2,350, 2,300
- **Izod Impact Strength**
  - ASTM D256
    - (notched)1/4 kgf·cm/cm: 28, 27, 29, 22
    - (notched)1/8 kgf·cm/cm: 30, 29, 22, 25
- **Charpy Impact Strength**
  - ISO 179
    - (notched) KJ/m²: 21, 13, 14, 17
- **Rockwell Hardness**
  - ASTM D785
    - R-Scale: 109, 111, 111, 110
  - ISO 2039-2
    - R-Scale: 109, 111, 111, 110

## THERMAL PROPERTIES

### Heat Deflection Temperature
- **Heat Deflection Temperature**
  - ASTM D648
    - °C: 99, 98, 98, 97
  - ISO 75-2
    - °C: 97, 90, 90, 90
### VICAT Softening Temperature
- **VICAT Softening Temperature**
  - ISO R306 B/50
    - °C: 100, 100, 100, 97

## FLAME CHARACTERISTICS
- **Flammability**
  - Luminous: HB, HB, HB, HB, HB, HB, HB, HB, HB, HB
  - Non-painting: HB, HB, HB, HB, HB, HB, HB, HB, HB, HB

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# Luminous (Non-painting)

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## PHYSICAL PROPERTIES

### MECHANICAL PROPERTIES

- **Tensile Strength at Yield**
  - ASTM D638
    - kgf/cm² 5mm/min: 460, 440
    - kgf/cm² 50mm/min: 450, 510, 440, 460
  - ISO 527-1A
    - Mpa 50mm/min: 45, 41, 50, 49
- **Tensile Strain at Break**
  - ASTM D638
    - % 50mm/min: 21, 13, 14, 17
- **Flexural Strength**
  - ASTM D790
    - kgf/cm² 2.8mm/min: 640, 710, 700, 690
  - ISO 178
    - Mpa 2mm/min: 72, 70, 71, 70
- **Flexural Modulus**
  - ASTM D790
    - kgf/cm² 2.8mm/min: 24,000, 24,000, 24,000, 24,000
  - ISO 178
    - Mpa 2mm/min: 2,400, 2,400, 2,400
- **Izod Impact Strength**
  - ASTM D256
    - (notched)1/4 kgf·cm/cm: 14, 20, 16, 13
    - (notched)1/8 kgf·cm/cm: 14, 21, 17, 16
- **Charpy Impact Strength**
  - ISO 179
    - (notched) KJ/m²: 12, 10, 15, 14
  - (notched)1A
    - KJ/m²: 17, 14, 16, 14
- **Rockwell Hardness**
  - ASTM D785
    - R-Scale: 109, 111, 111, 110
  - ISO 2039-2
    - R-Scale: 109, 111, 111, 110

## THERMAL PROPERTIES

### Heat Deflection Temperature
- **Heat Deflection Temperature**
  - ASTM D648
    - °C: 98, 96, 99, 99
  - ISO 75-2
    - °C: 97, 90, 90
### VICAT Softening Temperature
- **VICAT Softening Temperature**
  - ISO R306 B/50
    - °C: 97, 90, 90

## FLAME CHARACTERISTICS
- **Flammability**
  - Luminous: HB, HB, HB, HB, HB, HB, HB, HB, HB, HB
  - Non-painting: HB, HB, HB, HB, HB, HB, HB, HB, HB, HB

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**PRODUCT SELECTION GUIDE**

## starex® ABS, ABS Alloy, ASA

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**SAMSUNG SDI**

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## ABS/GF

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**Refrigerator**

1. Liner Case
   - ABS OU-0191 S
   - ABS SV-0157

2. LED Cover
   - Flame Retardant - PC FD-1112

3. Handle
   - ABS HG-0760GP
   - Luminous LX-0371

4. Case Dispenser
   - ABS HG-0760GP
   - Luminous LX-0371

5. Power Box
   - Flame Retardant - ABS VE-0860 P
   - Flame Retardant - HIPS VE-1801
   - PC/ABS NH-1015V

6. Vegetable Box
   - ABS HG-0760GP

**Washing Machine**

1. Detergent Box
   - Chemical Resistant ABS EG-7000, EG-0763
   - ABS HG-0760GP

2. Drawer Cover
   - Luminous ABS LX-0371
   - ABS HG-0760GP

3. Control Panel
   - Luminous ABS LX-0370 M
   - ABS HG-0760GP
   - Transparent ABS TX-0510T

4. Control Box (Drier)
   - Flame Retardant - ABS VE-0860 P
   - Flame Retardant - HIPS VE-1801
   - PC/ABS NH-1015V

5. Diaphragm
   - TPE (Thermoplastic Elastomers)
   - EX-1045

6. Front Door Frame
   - Metal Plating - ABS MP-0160 R
   - Luminous ABS LX-0371
   - ABS HG-0760GP, ASA WX-9520

7. Transparent Door Window
   - Transparent ABS TX-0520T

8. Top Cover Assembly
   - Luminous ABS LX-0371
   - Chemical Resistant ABS EG-7000, EG-0763
   - ABS SD-0150

9. Control Panel
   - Luminous ABS LX-0371
   - ABS HG-0760GP
   - Control Box (Drier)
   - Flame Retardant - ABS VE-0860 P
   - Flame Retardant - HIPS VE-1801
   - PC/ABS NH-1015V

**Applications**

SAMSUNG SDI starex® ABS, ABS Alloy, ASA
Vacuum Cleaner

1. Body
   - ABS HG-0760GP
   - Luminous LX-0970 M, LX-0971

2. Wheel Cap
   - ABS HG-0760GP

3. Dust Cabinet
   - Transparent ABS TX-0510T, TX-0520T
   - PC SC-1220R

4. Dust Bin
   - Transparent ABS TX-0510T

5. Basket
   - TPE

6. Pipe Connector
   - ABS SD-0170

7. Handy Unit
   - ABS HG-0760GP
   - Transparent ABS TX-0510T, TX-0520T

Air Conditioner

1. Panel Door
   - ABS HF-0690 M

2. Panel Display
   - MABS TF-0030

3. Cabi Body
   - ABS HF-0690 M

4. Frame
   - Luminous LX-0970 M

5. Blade
   - ABS HG-0760GP
   - Luminous LX-0970 M

6. Propeller Fan
   - ABS/GF GR-4020

7. Case PCB, Cover PCB
   - Flame Retardant-ABS VE-0860 P
   - Flame Retardant-HIPS VE-1801
   - PC/ABS NH-1015V

8. Cross Fan
   - SAN/GF GR-5020 T

9. Drain Fan
   - ABS/PET EG-7030
### TV/Monitor

1. **Front Cover**
   - MABS BF-0950
   - ABS HG-0767TV, SD-0150
   - Flame Retardant PC/ABS NH-10117D, NE-1030, NE-1030TV
   - PC/ABS/GF HM-1100F, LS-1159, LS-1159S
   - TR ABS TX-0510T

2. **Back Light Frame**
   - PC/ABS/GF (V2) LS-1150G
   - PC/GF (V2) LS-3104G
   - Flame Retardant PC LH-1070W
   - PC/GF (V2) NH-3102GH

3. **Middle Cover**
   - PC/ABS/GF HM-1100, HM-1100F, LS-1159

4. **Rear Cover**
   - mPPE NH-1904
   - Flame Retardant PS VE-1891, VE-1897, VE-1890 K
   - PC/ABS/GF HM-1100F, LS-1159, LS-1159S

5. **Guide Stand Neck**
   - PC/GF 20% HF-3202H
   - Flame Retardant PC/GF 20% HF-3202H

6. **Stand Base**
   - MABS BF-0950
   - ABS HG-0767TV, SD-0150
   - Flame Retardant PC/ABS NH-10117D
   - Metal Plating ABS MP-0670
   - Metal Plating Flame Retardant PC/ABS GP-1010, WP-1041
   - PC/ABS/GF HM-1200

### OA – Multifunctional Copier/Printer

1. **Internal Developer & Toner**
   - Flame Retardant ABS/GF 20% GR-0200
   - Flame Retardant ABS NH-0825 S
   - PC/GF 30% HM-3301GL
   - PC/GF 20% HF-3202H
   - Fuser
   - Flame Retardant PBT/GF30% VB-53000S
   - Flame Retardant PC/GF20% NH-3206GL
   - Main Frame (Chassis)
   - Flame Retardant ABS VE-0860 P
   - Flame Retardant PC NH-1023P

2. **ADF / Tray**
   - Transparent PC(HB) SC-1220R
   - Transparent ABS(HB) TX-0510
   - ABS(HB) HF-0869

3. **Exterior & Others**
   - Housing
     - ABS/PMMA BF-0677HF NH PC/ABS NE-1250, GC-1017
     - ABS(HB) CM-0140
   - Flame Retardant ABS VE-0856, NH-08205 S
   - Cassette
     - ABS(HB) CM-0140, GC-0700
   - Gear
     - PPS/GF 40% XP-2140
     - PC LF-1025
**Automotive**

**INTERIOR**

1. Power Window Switch Cover  
   Heat Resistant ABS  
   SR-0320 K, SR-0325LT

2. Air Vent  
   PC/PBT, PC/ABS

3. Center Fascia  
   PC, PC/ABS

4. Overhead Console  
   PC/ASA

5. Console  
   Heat Resistant ABS  
   SR-0320 K, SR-0325LT

**LIGHTING**

6. Head Lamp Bezel  
   PBT/PET

7. Tailgate Garnish  
   PC/ABS, MP ABS, MP-0670

8. Rear Spoiler  
   Blow Molding ABS BM-0320 J

9. Wheel Cover  
   Metal Plating PC/ABS, 
   PC/ABS, PA/PPE

10. Outside Door Handle  
    Metal Plating PC/ABS

11. Side Mirror  
    ASA WX-0310UV, PBT/PET/GF

12. Radiator Grill  
    MP ABS MP-0670, 
    ASA WX-0310UV

**STRUCTURE**

13. Panorama Sunroof Frame  
    PBT/ASA/GF

14. Fuel Filler Door  
    PA/PPE/CNT

15. Fender  
    PA/PPE/CNT

**EXTERIOR**

7. Tailgate Garnish  
   PC/ABS, MP ABS, MP-0670

8. Rear Spoiler  
   Blow Molding ABS BM-0320 J

9. Wheel Cover  
   Metal Plating PC/ABS, 
   PC/ABS, PA/PPE

10. Outside Door Handle  
    Metal Plating PC/ABS

11. Side Mirror  
    ASA WX-0310UV, PBT/PET/GF

12. Radiator Grill  
    MP ABS MP-0670, 
    ASA WX-0310UV
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